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***Interstellar Operations* contains rules for running an entire faction's military as a player tries to conquer numerous solar systems, including rules for how to conduct warfare through scales larger than previously represented within the core line of rulebooks. Finally, perhaps one of the most anticipated portions of the book, the Alternate Eras section introduces a huge swath of rules for playing across the thousand years of *BattleTech* history, including weapons and equipment mostly unique to a given era, such as complete rules for building and playing with LAMs.**



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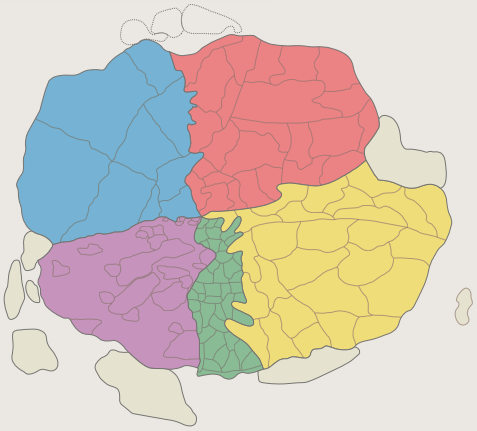
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Dedication

To all the *BattleTech* fans that have kept the faith for so many years…thank you.

To Ibis, for always supporting me while I followed my passions and did my "*BattleTech* thing."

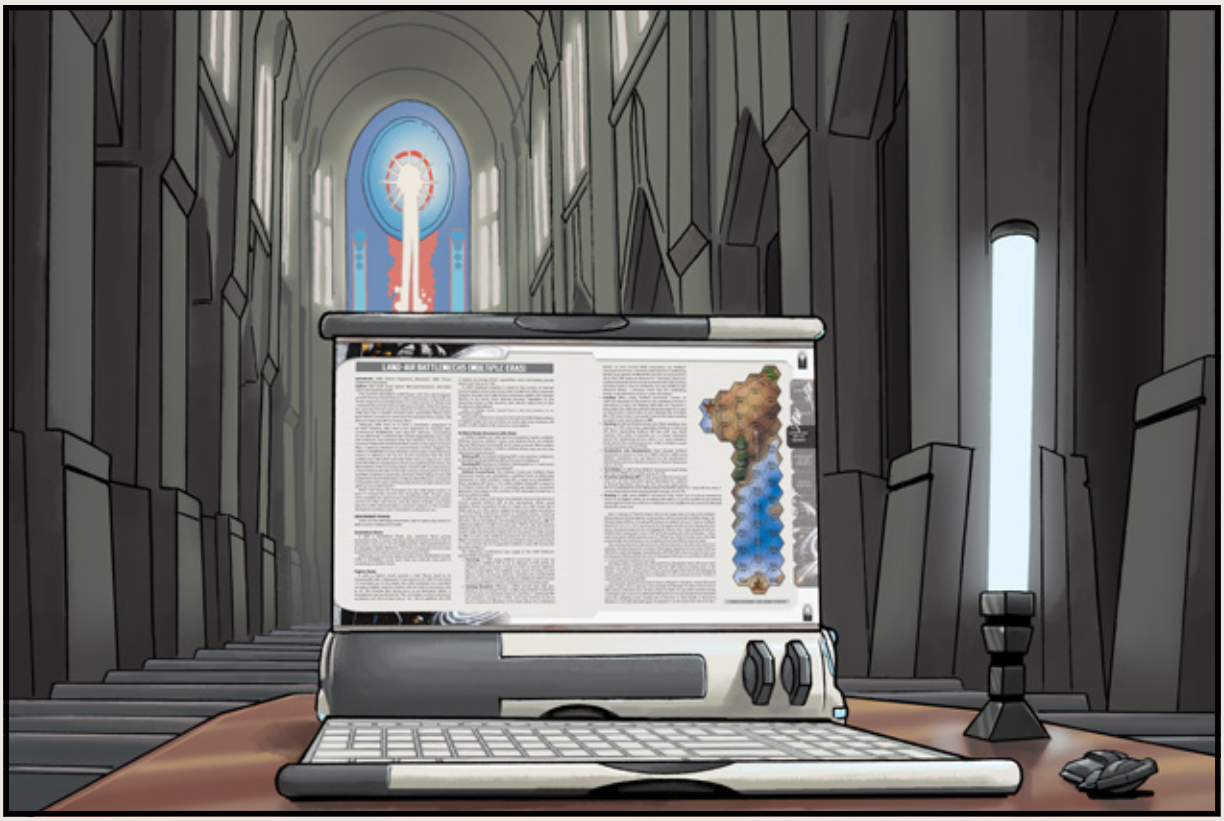
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INTRODUCTION
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RECORD SHEETS



The *Total Warfare* (*TW*) and *TechManual* (*TM*) rulebooks present the core game and construction rules for *BattleTech* (*BT*), otherwise referred to as the standard rules. These two volumes encompass eight core unit types—several of which contain numerous subunit types—and a host of weapons and rules, as well as covering many different game situations. However, despite the breadth of play covered, many game situations still fall outside those rules, not to mention a plethora of more advanced equipment, as well as a few advanced units.

ADVANCED RULES

Beyond the standard rules, a legion of advanced rules exists, allowing players to expand their games in any direction they desire.

In an effort to bring these rules to players in the most logical form possible, the advanced rules are contained in three "staging" core rulebooks, each one staging up and building off of the previous rules set. Additionally, each one focuses on a particular "in-universe time frame" that will allow players to easily grasp where a given rulebook will "plug into" their existing game play.

TACTICAL OPERATIONS

SitRep:
Forces on-world.
Conflict expected to last mere hours to achieve object.

Tactical Operations (*TO*) is the is the first in the "staging" Advanced Rulebooks. Its focus is during game play, and applies directly to a game as it unfolds on a world in the *BattleTech* universe; its rules represent hours in-universe, the time frame it takes for a single, moderate-sized battle to play out on a gaming table.

Building on *Total Warfare* and *TechManual*, *Tactical Operations* conveys numerous advanced rules for movement and combat across various units, while expanding core rules such as those for buildings, and implementing a host of advanced terrain and weather rules. Rules for the construction and use of advanced Support Vehicles are presented, as well as advanced and prototype construction options and weapons for use by almost every unit.

STRATEGIC OPERATIONS

SitRep:
Forces in solar system.
Beginning burn to planet.
Conflict expected to last weeks to achieve object.

Strategic Operations (*SO*) is the second "staging" Advanced Rulebook. It stages a player up to the next logical area of play, focusing on "in a solar system" and multi-game play; its rules represent weeks within the *BattleTech* universe, the time frame needed for several battles to conquer an entire solar system.

Strategic Operations contains advanced movement and combat operations emphasizing the importance of aerospace units, while extensive rules cover combat drops of numerous troop types into any situation. Linked scenarios and comprehensive maintenance, salvage, repair and customization rules provide an easy format for players to turn multiple games into an interconnected campaign to capture a target system, where the support crew of technicians and doctors and their skills can be just as important as any warrior. Complete game play and construction rules for advanced aerospace units are also included. Finally, a complete game system—*BattleForce*—allows players to use their existing miniatures and mapsheets to play quick, fast-paced *BattleTech* games, from small-scale skirmishes to large-scale planetary invasions.

INTERSTELLAR OPERATIONS

SitRep:
Forces marshaled.
Flotillas assigned to target solar systems.
Conflict expected to last months to achieve objects.

Interstellar Operations (*IO*) is the rulebook you are holding in your hands and final "staging" Advanced Rulebook. Players are staged up to the final level of play, where they can assume the roles of a House Lord or Clan Khan and dominate the galaxy; *IO* rules represent months in the *BattleTech* universe, the time frame for conquering numerous star systems.

Interstellar Operations contains rules for the running of an entire faction's military as a player tries to conquer (or defend) numerous solar systems. More importantly, the system contains rules that allow players to stage any large-scale conflict back through the various rule sets, as they desire—from *BattleForce* or *Alpha Strike* as detailed in *Strategic Operations*, *Alpha Strike* and the *Alpha Strike Companion*, all the way up to the simple, easy-to-use rules of conflict at the largest scale. Players have complete flexibility for any type of conflict in which they wish to engage.

CHOOSE WHAT YOU LIKE

As previously noted, *Interstellar Operations* encapsulates a myriad of advanced rules. In effect, all the rules and weapons/equipment in this volume are optional. This means you can use as many or as few of the rules in this book as you want. (In fact, this book contains so many new rules that we recommend you try them out a few at a time, rather than attempting to use them all at once.) Furthermore, most of the new rules and equipment here can be added individually to a standard game. You can add rules and pieces of equipment to your game one at a time—most of the rules do not rely on other rules in this book to work in existing *BattleTech* games. This allows you to tailor your *BattleTech* game to your taste by including only those rules that you find make the game more interesting or fun. Use whatever new rules and equipment you want and disregard the rest. Given the scope of the rules and the fact that they are optional, all players in a group should read through and agree to the use of any of these rules and weapons/equipment.

PLAYER ADJUDICATION

An advanced-rules book for any game is, almost by definition, more complex. In a game system with such a long and rich heritage as *BattleTech*—this rulebook alone draws from dozens of different sources across a large number of years—that complexity is even greater. Developers and writers have gone to great effort to make these rules as comprehensive as possible—not only from one section to the next in this book, but in how such advanced weapons and rules interact with the core game and construction rules as presented in *Total Warfare* and *TechManual*. However, the sheer scope of *Interstellar Operations* (as with *Tactical Operation and Strategic Operations*) and the plethora of options provided means that it is not possible to cover all potential situations. Once this product reaches the players' hands, they'll envision scenarios and create situations on a game board that never crossed the minds of the developers or the legion of authors and playtesters that thoroughly worked over this product.

With that in mind, when players encounter situations not covered in the rules as they integrate the contents of *Interstellar Operations* into their playing group, they are encouraged to adjudicate each situation appropriately; make up the rules that work for you. If in the process a playing group runs into an argument, feel free to let a die roll resolve any disputes so you can return to playing the game and having fun.

Finally, the forums on bg.battletech.com are an excellent resource. Players can tap into a strong and vibrant online community, tapping a wide selection of players for different ideas on how best to adjudicate a particular situation.



FICTION

As described in *Total Warfare* and *TechManual*, fiction plays a pivotal role in bringing the *BattleTech* universe to life. Whether "story fiction" that places readers inside the heads of the characters in that universe, or "sourcebook fiction" that places the reader in the universe as though living among those characters, both work hand-in-hand to immerse players in this vibrant milieu.

Total Warfare concentrated on story fiction, while *TechManual* concentrated on sourcebook fiction; *Interstellar Operations* follows the *Total Warfare* format.

FICTION VS. RULES

It is important to remember that regardless of the critical role fiction plays in immersing players in the *BattleTech* universe, such fiction should never be construed as rules. As with *Total Warfare*, *TechManual*, *Tactical Operations* and *Strategic Operations*, to eliminate confusion about which sections are fiction and which are rules, the fiction sections have a unique look, compared to the uniform presentation of the various rules sections. All fiction sections are italicized in the table of contents.

FICTION VS. ART

Interstellar Operations follows the graphic design format established by *Total Warfare*, *TechManual Tactical Operations*, *Strategic Operations* and *A Time of War*, wedding art to the book's visual presentation in order to enhance the players' experience. In this case, the graphic presentation represents a computer from ComStar's Sandhurst Royal Military College.

As with fiction, while art plays an important role in bringing the *BattleTech* universe to life, it should never be construed as rules.

CHARGE OF THE LIGHT

Jason Schmetzer

GARAMONDIA
BASALT
TERRAN HEGEMONY
12 APRIL 2445

Dust, shaken loose by the near-constant artillery barrage, drifted down to distort the hologram with scintillating brilliance. The gray-haired man leaning forward over the holotable grunted as it did so, thankful for the moment to close his eyes while the holo reformed. He resisted the urge to reach up and rub the bridge of his nose, but God knew the urge was a strong one. The headache was more than a week old, constant as the sun rises, and hard as the forward hull of one of the tanks displayed in his holo.

"Sir," an aide said tentatively. The older man ignored him. "General Marceneaux, sir," he said.

Marceneaux still ignored him. He opened his eyes as the holo rastered back into clarity, showing him the dispositions of his divisions and their combat brigades as if he were perched on a cloud ten kilometers above the battlefield. The Titan view, the staff called it, as if they were tall enough to stand astride the field and see it like the gods of old Greece had watched from Olympus.

Marceneaux sighed. *Maybe if I close my eyes it'll go away.*

"Sir," the aide said, a bit more forcefully. Another artillery strike pounded at the fortified roof of the bunker, but Marceneaux ignored it as he had ignored all the rest. There'd be more dust to clear from the holo lenses, of course, but there was nothing to be done. The sky was raining high-explosives. Even the rocks wept under that pounding.

"All right, Bevan," he said. "Let's see what the Director-General's courier has to say."

"This way, sir," the aide beckoned.

It was a short walk out of the operations center to a small planning room off the main causeway. Marceneaux frowned as he looked down the long hall. The blast door at the end was open to the outside, which made the idea of the bunker rather pointless. All it would take was one gas round in the Fed artillery rotation and they'd be bloated corpses. "Major," he said, inclining his head toward the open hatch before stepping into the room.

"Mad Dog," the man waiting within said, tipping a finger to forehead in salute.

Marceneaux stifled a curse. "Gabe." He pulled out a stool and sat down. "What're you doing here? I've got a battle to win."

Gabriel Calhoun grinned. "Always the same, General," he said. "I've been sent with a special detachment to help you kick the Feds off this world."

"I'm doing just fine, thanks," Marceneaux said. "The Federated Suns hasn't produced the general yet that can pry my divisions off this rock."

Calhoun's grin widened to a knowing smile. "That's the Mad Dog Marceneaux I remember." He held up his hands in mock surrender. "I brought two things, General," he said. "First, the news that the Feds have slipped six more heavy divisions on-world, mostly tanks and artillery. It's a shock-corps, General." Artillery thundered again, the sound still strident even through meters of compressed Basalt soil.

Marceneaux's keen mind instantly flashed back to recent intelligence reports, information the Hegemony had gathered about Davion troop movements. He cupped his chin for a moment, thinking about which units he'd move around if he were the Fed commander.

"Sixth Terran March Corps," Marceneaux said after a moment.

"No one else is close enough."

Calhoun inclined his head. "That's our estimate."

"Hm." Marceneaux waited. "What's the second thing you brought me?"

Calhoun smiled.

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"I have a target tank," Grady called, "One o'clock, twelve hundred meters."

Sergeant Brian Leon kicked the turret traverse and brought the big main gun around. The heavy turret slewed quickly on its bearings even as Brian bounced a laser rangefinder off the selected target and the barrel elevated slightly to the correct position as the azimuth came down.

"Target," Brian said a half-second later as the targeting pipper in his gun sight came to rest on the Davy tank.

"Shoot!" Grady ordered. The tank commander's voice was loud enough to hear even over the cacophony of battle raging through the tank's interior. The dampened helmets canceled most of the noise, but strong tones still got through, and Grady's rage was strong enough.

"Shoot," Brian whispered, and squeezed the firing trip.

The entire turret shook with recoil as the 150mm automatic cannon belched a three-round burst in quick succession, before the autoloader kicked the empty shells out of the cassette-magazine and reloaded in the space of four seconds. Brian ignored the painful throbbing in his forehead as he held his head to the gunsight. He was rewarded with the sight of his shells tracking straight and true, pounding through the last of the Fed main battle tank's forward armor glacis and blasting its turret into the sky.

"Splash!" Grady screamed. "Take that, you sons of bitches!"

"Almost to the nav, TC," the driver, Pesco, reported.

"Hold there," Grady said. "Let's see who else made it."

Not many, Brian thought to himself. He took a moment to run his guns through a self-diagnostic. The rear-mounted missile rack was still dead-lined, the victim of a Fed infantry ambush. The forward machine guns were still operable, although the forward-port gun was only half-traversing with shells jammed in the mechanism.

"Grady," Brian said after the check completed, "do I have time to unbutton and clear the forward-port gun?"



"Hold on that," Grady said. "I've got radar contacts in the smoke."

Brian clenched his jaw and held in a curse. He swung the big turret around and reloaded the gun, even though the ready-magazine was only half-loaded from the larder in the base of the tank's hull.

The rest of the brigade was scattered to hell and gone. They'd been placed out on the far left of the Hegemony positions, on the flank, away from where the S-2 thought the main Fed push would come. Of course, the -2 had been wrong, but at least he'd been a man about it and come out in a track to help hold the flank. He'd bought it in the initial rush, but at least he wouldn't have to face Mad Dog Marceneaux and say he'd guessed wrong.

And now there were fresh—and heavy—Davy troops, tanks and infantry both, moving forward. Brian's brigade had dwindled to a regiment and then a battalion. Grady was running what was left of their platoon, four tanks out of nine.

"Targets?" Brian asked. He tracked the turret back and forth, keeping the bearings warm.

"Course?" Pesco asked. The driver had the engine idled but ready, but Grady didn't give him any coordinates.

"Wait," Grady said. His voice was flat over the interphone, cold, but still carried a hint of tension. The same tension he'd had all week, when the first Davy thrust had come at their flank and Mad Dog's daring plan was shot to hell.

I just want to see Mirach again, Brian told himself.

"Target tank, ten o'clock," Grady snapped. "ID?"

"Tracking," Brian said. He slewed the turret around, waiting for the battle computer to acquire the target. A big return glanced off on the radar screen, and the MAD screamed for attention. Brian squinted, saw the squat shape of a main battle tank. *The turret… look at the turret… shit.* "It's a flat-top!"

"Shoot!"

The cannon roared, whipping through the three-round cassette in three seconds, each chamber of the giant revolver action spinning to align its shell with the barrel before the hammer came down. Burnt propellant gas filled the turret again, burning unnoticed in Brian's nostrils. He watched his gunsight, head aching, hands steady, repeating the motions he'd been repeating for six and half days. Squeeze, watch the sword-and-sunburst erase from the target.

Do it again.

More flat-turrets crowded around the corpse of the lead Fed tank, and the hull of Brian's tank began to ring with the impacts of lighter-caliber Fed cannons even as Grady's screams pushed Pesco into motion. The tank lurched backward, running toward the electronic nav that designated the final brigade RV point.

There wasn't anywhere to run to after that.

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Marceneaux threw open the door of the planning room and stormed the few short steps back to the operations center. One of the officers there, Colonel Petit, handed him a pad. Marcenaeux squinted at the little screen long enough to read the information displayed and then flung the small electronic device across the room.

"Show me," he commanded, waving at the holotable. He glared through the still-meshing images as Calhoun followed him into the room, arms folded and not speaking. He cradled a small communicator in his hand but did nothing more than fiddle with the volume control as he watched the holo form.

"Ninth Armored Cav is off the map," Petit said. "Last reports had their CPs overrun. No word yet about ransoms or capture. There's about two battalions of troops still moving, but it's only a matter of time until they get swept up. This new division's coming on strong and fresh, General."

Marceneaux looked at the holo, then over his shoulder at Calhoun. "Support?" he asked Petit, without looking away from Calhoun.

"Nothing, sir," Petit said, softly. "I've got a brigade forming from the other flank, but by the time they cross the field they'd have to go right into the defense. Those boys and girls are on their own." Marceneaux snarled a curse, but a soft one, directed at the holo. Petit was a good officer; he felt as helpless as Marceneaux did, losing good soldiers because of a mistake. Marceneaux's mistake. He should have placed more strength on the flank.

And then they would have just come on the other side, or right down the middle, you old fool, his mind told him. He looked at the holo, his mind racing. *There's nothing else.* "Calhoun."

"Mad Dog," Calhoun said, not moving.

"Can you get there in time?"

"We're at the LZ, sir… it's on that flank."

"Can you save my people, Gabe?" Marceneaux looked up, away from the holo and the slaughter it showed. "Can you get them out?"

Calhoun straightened, coming off the wall and drawing himself to attention. He was indoors, so he didn't salute, but Marceneaux saw his fingers twitch nonetheless. "You tell 'em to hold, General," he said. "I'll do my best."

Marceneaux nodded. "Go." He didn't watch Calhoun leave, , but instead spun and pointed at the officer on the communications board. "Son, you get me on that battalion frequency so I can tell those boys they're not alone." He smacked the edge of the holotable hard enough to reset the image. "And by your hope of salvation you do it quick."

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"Shoot!" Brian screamed, and kept screaming as the cannon cycled hellfire downrange, blowing the turret from the Davion scout vehicle that had been edging forward to paint them for artillery fire. The light armor couldn't resist the heavy fire and the tank ignited. Pesco didn't wait for the order. The tank snarled into reverse, back toward the RV and the half-troop of tanks clustered there.

"I don't care if you are an officer, you pig-shit asshole," Grady screamed into the microphone. "We stay up here and we're dead. There's no one else coming and we have to get back now!" Brian looked away from the sight long enough to look back at Grady, but the TC seemed just angry as hell, not manic. He didn't hear the reply, but from the way Grady's eyes bulged in their sockets, he figured the rear-echelon butter-bar who'd showed up to "consolidate" their position was arguing.

"Then you stay and die," Grady said, cold and nearly as silent as death. "Me and my boys, we're living to fight another day. The Mad Dog won't let these bastards keep this up, and I want to be there to kick in their teeth."

Brian shivered despite the ravenous heat of the tank's interior. Between the big diesel driving the tank and the cannon's breech sitting just over his head, it had to be well over fifty degrees Celcius.

"Pesco," Grady said on the interphone, "when we get to the laager, you just drive on through. Thems that's going to follow us will." Brian felt a tap on his shoulder and looked back. Grady was leaning forward, one hand cupped over his headset mike. "Brian, that bastard so much as paints us you stick it in good, you hear?"

"TC?"

"There'll be a gun-track with a REMF in it, trying to push us forward." Grady's eyes were rock-hard, red-tinged from propellant exhaust, but firm. "He tries to stop us, you do him good. I'm not dying to earn supply prick his I-got-shot-at medal."

Brian swallowed and turned back around. A squeal of static burst from the radio an instant before a gravelly familiar voice erupted.

"Listen up, troopers," General Marceneaux said. "I know you're hurt and you're running. I know they're coming, thick as grass and tight as crabs." The General's voice was strong, harsh, and caustic—just like always. Brian felt himself straighten a bit in his seat, as if the Mad Dog was walking by on review.

"I'm not going to say hold the line, boys," he said. "But you hold that zone. Keep moving, keep shooting, and keep those bastards where they are. Help is on the way."

"We're dead," Pesco whispered, loud enough for the interphone to pick up. "He just killed us."

"You boys know me," Marceneaux said. "If I was leaving you out to dry, I'd say so. Hell's own chariot is coming for those Fed bastards. You just hold, and keep alive." There was a moment of silence, as if the General had something else to say but couldn't. Brian swallowed again, imagining the expression of the officer's face.

"Mad Dog, out," he finally said, and then cut to static.

"We're dead," Pesco said again.

"Driver, shift oblique," Grady ordered.

"What the hell?" Pesco said. "Two seconds ago you were running for the hills."

"If the Mad Dog says help is coming, then help is coming," Grady said. "Now drive."

The tank bent around to the left, but Pesco didn't stop talking. "That's all well and good, TC, but you can read the tac screen as well as I can." Brian glanced at the screen, but the symbols showing the rest of the division—what was left of it—appeared unchanged. "There ain't nobody near us."

"You just drive," Grady said. "Brian, you just shoot. Everything else, we leave up to the Mad Dog. That's what he does, and across twenty years and more worlds than that, he's never left a man to die without telling him first."

Alarms began to ping as their course took them back into contact with the advancing Fed troops. Brian traversed the turret left, bringing the cannon to bear along the likely axis of threat. Heavy pings began to sound as Fed targeting systems painted the hull with fire-control radars. There was even a millimeter-wave warning for inbound artillery.

"Just drive," Brian whispered, and held on for the next six minutes.

"Target tank, four o'clock," Grady finally said. "Command track."

Brian looked, found the clustered antennas. "Target." He brought the barrel around a bit, leading the hard-charging tank. More flat-topped tanks wallowed in the low battlefield fog behind it, and the paired light-cannon barrels on the turret nosed left and right, sniffing for Hegemony targets.

"Shoot," Grady said. Brian squeezed his triggers as soon as he heard the "sh" in Grady's voice, and the cannon hammered a treble-salute at the Fed officer's tank. The cannon powered through its cassette and then clamored empty.

"We're Winchester on the main gun," Brian screamed.

"Pesco!" Grady shouted. "Reverse!"

"Crunchies!" came a call on the platoon freq. Brian let go of the main gun controls and switched the forward machine guns to his main display. If there was Fed infantry out there with man-portable missiles, the miniguns were his only hope.

"Where am I going?" Pesco asked.

"Back!" Grady said. "Until we find an ammo bunny or we're dead."

Brian searched the smoke, watching for the small shapes of Fed infantrymen. He saw several tanks, but didn't bother to engage. The light slugs from his machine gun wouldn't harm the heavy armor of the Fed tanks and he didn't want to draw attention to them on the off chance the Fed gunners had other things to shoot at. There were a lot of them, though.

"I think we're getting overrun, TC," Brian said.

"Yeah," Grady grunted.

"We're dead," Pesco said.

"Keep moving," Grady said. "We have to—*shit*!"

A Fed tank lurched out of the foggy lowlands, its turret already tracking toward them. Brian cranked the minigun around and ripped a long burst of fire into the tank's front glacis, trying to distract the gunner. Pesco was sobbing—the tank jerked with erratic movements, a legacy of the driver's shaking hands. Brian let off the triggers and sat back. Soon he'd be able to rest.

"Damn it," Grady whispered, the interphone faithfully transmitting his words. The Fed tank's long gun swiveled, and stopped… pointed straight at the Hegemony tank. Brian looked through the sight, wondering if he'd have time to see the shell coming. He'd often wondered if his own targets could.

A massive foot crushed the sixty-ton Fed tank to paste, twisting as it did so to grind the Fed beneath its heel. It was attached to a foot, which went to a leg and up to a torso. Brian dialed the gun sight up, trying to get a view. A fat-bodied torso appeared, then erupted with blue-white lightning. Brian blinked, suddenly aware that he was screaming. The massive machine lifted its foot and moved past them, still firing. It was quiet in the tank.

"Mad Dog wasn't kidding," Pesco finally said, a sense of wonder evident in his voice. "What was that?"

No one answered.



Beneath the gaze of a patrolling Bombardier *BattleMech, infantry scours battle-ravaged streets.*

The *BattleTech* universe is a living, vibrant entity that grows each year as more sourcebooks and fiction are published. In this dynamic universe, the setting and characters evolve over time within a highly detailed continuity framework, bringing both to life in a way that a static game universe cannot match.

But this same dynamic energy that makes *BattleTech* so compelling can also make it confusing for newer players, with so many sourcebooks published over the years. As even these core rulebooks have demonstrated, the *BattleTech* universe, its technology, and the game rules that go along with them constantly evolve. For this reason, players might need to know when a particular sourcebook is set within the *BattleTech* timeline in order to use its material to best effect.

To help quickly and easily convey the *BattleTech* timeline—and to allow players to easily "plug in" to a given sourcebook—the history of *BattleTech* is presently divided into six major eras, described below.

Sub-Eras: In an effort to keep the number of eras to a minimum, only six era names/icons are used in print/PDF books. In reality, however, the Star League, Succession Wars and Dark Age cover hundreds of years, as opposed to the mere dozens or less covered by the Clan Invasion, Civil War and Jihad eras. As such, for these longer Eras, Sub-Eras are included.

STAR LEAGUE ERA (2300-2780)

The Star League era is the earliest playable part of the *BattleTech* history using the rules found here, and includes the Age of War and Age of the Star League sub-eras. Before this point, conflict was much more sporadic and unpredictable, and the majority of the in-universe equipment and the game rules featured in our sourcebooks to date simply do not apply. The pre-Age of War period is often referred to as the time of early spaceflight.

SUB-ERA: AGE OF WAR (2300-2570)

The sub-era of the Age of War is the earliest playable period of BattleTech history, and covers the period when, after waves of interstellar colonization and a subsequent rebellion among the far-flung colonies, the Terran Alliance—the government of the then-unified human race—withdrew from these outer worlds, and eventually collapsed.

In the decades that followed, the Alliance would reorganize itself as the Terran Hegemony, and various interstellar alliances rose that would become the great states of the Inner Sphere. As these realms expanded and encountered one another, a period of unbridled conflicts erupted known as the Age of War.

SUB-ERA: AGE OF THE STAR LEAGUE (2571-2780)

The period known as the Star League Era technically began when Ian Cameron, ruler of the Terran Hegemony, concluded decades of tireless effort with the creation of the Star League, a political and military alliance between the Hegemony and all of the other great realms in the Inner Sphere. Immediately thereafter, the Star League's armed forces launched the Reunification War, forcing the Periphery realms to join.

For the next two centuries, most of humanity experienced an economic and technological golden age across the thousand light-years of human-occupied space. This age also saw the creation of the most powerful military in human history: the Star League Defense Force.

SUCCESSION WARS ERA (2781-3049)

In 2766, First Lord Richard Cameron and his entire family were killed during a coup launched by Stefan Amaris of the Rim Worlds Republic. Following the thirteen-year war to unseat him, the rulers of each of the five Great Houses disbanded the Star League. After General Aleksandr Kerensky departed with eighty percent of the Star League Defense Force, vanishing beyond known space, the Inner Sphere collapsed into centuries of warfare known as the Succession Wars. During the centuries-long period of war, the Inner Sphere suffered a massive loss of technology across most of its worlds, while the self-exiled followers of Kerensky went on to become the Clans.

SUB-ERA: EARLY SUCCESSION WARS (2781-2900)

With Kerensky out of the way, the rulers of the five Great Houses each declared themselves the true heirs to the Star League, igniting the Succession Wars. During these early conflicts, the battles were large and bloody, as the Inner Sphere realms had large armies, and were quick to resort to the use of WarShips and weapons of mass destruction to achieve their victories. The widespread use of such scorched-earth and total war strategies fast eroded the greatest advances of the Star League's golden years and destroyed whole worlds before the various factions brought the rampant destruction under control.

Encompasses the First and Second Succession Wars.

SUB-ERA: LATE SUCCESSION WARS (2901-3049)

The Third Succession War in the Inner Sphere saw most armies reduced to defensive forces and most fighting reduced to sporadic raids and limited campaigns. Though devastation was less widespread as various technologies and assets became sacrosanct, the limited warfare of this period perpetuated the stalemate that had persisted since the fall of the Star League, until the formation of the Federated Commonwealth alliance, and the recovery of the Helm Data Core—both of which took place in the late 3020s—threatened to upset this status quo.

The Fourth Succession War and the War of 3039 also took place in this Era.

CLAN SUB-ERAS (2800-3049)

As the Inner Sphere slid inexorably toward war, the leader of the Star League Defense Force, General Aleksandr Kerensky, led the majority of the surviving SLDF into exile on a cluster of worlds far from the Inner Sphere. There, under the initial leadership of Kerensky's son, Nicholas, the self-styled Star League in Exile formed the Clans, a rigid, caste-driven society that shed its Inner Sphere roots and embraced a warrior-dominant culture where "might makes right", and where conflict is ritualized to avoid waste. The practice of ritualized warfare kept the Clans' Star League-era technology from backsliding, and allowed them to hone their battlefield edge for the day they would eventually return to the Inner Sphere.

While they correspond to the same years as the Inner Sphere's Succession Wars, the Clan Sub-Eras only apply to the events in Clan space because of their distance apart. As a result, technologies developed in Clan space cannot be used in the Inner Sphere (and vice versa) during the Succession Wars era of play.

For Clan-based campaigns set in this period, the sub-eras are broken into the Founding Years (from 2800 to 2840), and the Golden Years (from 2841 to 3049).

Clan Sub-Era: The Founding Years (2800-2840)

The Founding Years covers the period when the Star League in Exile collapsed and reformed as the Clans. This period saw the transition from Inner Sphere-style total warfare to the dueling practice of *zellbrigen*, while technology transitioned from the peak of Star League capabilities to the beginnings of the modern Clan standard.

Clan Sub-Era: The Golden Years (2841-3049)

The Golden Years in Clan space saw the continued refinement of technologies, and ever-more ritualized warfare between the surviving elements of Nicholas Kerensky's new society. It also saw a gradual political evolution away from the isolationism of the early years, which would eventually lead to the invasion of the Inner Sphere.

CLAN INVASION ERA (3050-3061)

In 3050, mysterious invading forces struck the coreward regions of the Inner Sphere. The invaders, called the Clans, possessed technology and warriors vastly superior to those of the Great Houses, and swiftly overran a large swath of worlds. The collective realms and major powers of the Inner Sphere united to slow and, eventually, stop the initial Clan invasion, going so far as to create a Second Star League to that end.

The Clan Invasion, though brief, saw some of the biggest upheavals in the Inner Sphere. The efforts to counter superior Clan equipment accelerated the technological renaissance started in the final decades of the Succession Wars. Meanwhile, the major powers of the Inner Sphere underwent numerous political shifts, including the break-up of the

Federated Commonwealth, the ComStar Schism, the formation of the Second Star League, and the resurgence of the Capellan Confederation and its Trinity Alliance.

SUB-ERAS

For all the transitions and developments that took place throughout, the Clan Invasion was such a brief period that it has no sub-eras to speak of. It also represented an effective reunion of the Clan and Inner Sphere Eras after the time of the Succession Wars, so there is no separate Clan era for this time period as such.



CIVIL WAR ERA (3062-3067)

In a final effort to defeat the Clan threat, the Second Star League singled out and destroyed Clan Smoke Jaguar and waged war in the Clan Homeworlds themselves. While the campaign successfully ended the invasion, internal conflicts throughout the Inner Sphere erupted almost as soon as that external threat was neutralized. House Liao's Capellan Confederation conquered its former Commonality, the St. Ives Compact, and a rebellion of military units within the Draconis Combine sparked a war with House Kurita's powerful border enemy, Clan Ghost Bear. Amid all of this, the divided realms of the once-powerful Federated Commonwealth finally collapsed into five long years of bitter civil war that stretched from one end of the Inner Sphere to the other.

SUB-ERAS

As with the Clan Invasion, the Civil War era covers too brief a period to have any sub-eras to speak of. Among the Clans, it differs so little from the Invasion Era that this period is simply known among the Clans as the Late Invasion Era.



JIHAD ERA (3068-3085)

Mere months after the end of the Federated Commonwealth Civil War, the leaders of the Great Houses met once more under the auspices of the Second Star League to elect a new First Lord and induct new member powers to the alliance. Instead, due to the trials and costs of the Civil War years, several members declared the Second League a failure, and disbanded the organization.

Incensed, the pseudo-religious Word of Blake—a splinter group of ComStar, and controllers of half the Inner Sphere's interstellar communications—launched a wave of reprisals. Though it initially hoped to force the Houses to reconvene the League, the Word's campaign swiftly devolved into a war of punishment that came to be known as the Jihad. This interstellar war ultimately pit every faction against each other and even against themselves, while weapons of mass destruction saw use for the first time in centuries and frightening new technologies were unleashed.

SUB-ERAS

In the Inner Sphere, the Jihad era is a single, massive event that left no realm or faction untouched, and thus is not divided into sub-eras.

Among the Clans, this period is dominated almost equally by a fratricidal conflict known as the Wars of Reaving, and so these years are known to the Clans equally as the Jihad era and the Wars of Reaving era. Thus, once again, there are no sub-eras for this period. However, the aftermath of the Wars of Reaving leave the Clans forever sundered, and henceforth, the Clans in the Inner Sphere (the Invader Clans) will be tied to the Inner Sphere eras, while the Homeworld Clans return to a state of isolationism.



THE DARK AGE ERA (3086-3150)

Under the guidance of Devlin Stone, a newcomer to the interstellar stage and Sphere-wide hero of the Jihad, the Republic of the Sphere was born at the heart of the Inner Sphere, amid the ruins of the Word of Blake Protectorate. Backed by some—but not all—of the neighboring powers who allied themselves with Stone's coalition, the Republic's birth ushered in one of the most extensive periods of peace since the original Star League. The various realms of the Inner Sphere embraced disarmament (to one degree or another), and the massive BattleMech armies of the Succession Wars declined, even as technology improved across the board.

The peace lasted until 3132, when unknown agents brought eighty percent of the interstellar communications network crashing down, throwing the universe into chaos. Fueled by paranoia and long-restrained opportunism, the various states began rebuilding their armies while fighting erupted almost immediately on every front.

SUB-ERA: THE REPUBLIC AGE (3086-3130)

The early part of the Dark Age is better known to the denizens of the universe as the Age of the Republic (or the Republic Age), because of the powerful influence of the newborn Republic of the Sphere. In this period, few major wars erupted, while most post-Jihad militaries downsized. Even among the Clan powers, this was a time of relative peace, and one in which the technological divide between Clan and Inner Sphere gradually began to fade away.

SUB-ERA: LATE DARK AGE (3131-3150)

The later Dark Age years are the period that actually deserves the name "Dark Age." Though it effectively begins a year before the interstellar communications breakdown, this time followed Devlin Stone's retirement from the leadership of the Republic and his mysterious disappearance amid a resurgence of rising social tensions. With the collapse of faster-than-light communications, people across the Inner Sphere feared the worst and quickly armed themselves after decades of peace, anticipating a wave of wars that steadily escalated until the Republic itself was consumed in the onslaught.

CLAN SUB-ERA: THE POST-REAVING (3086-3150)

As of this writing, little is known about the state of the post-Wars of Reaving Clans still in the Homeworlds. Having once again embraced a policy of isolationism, defended by both their own agencies and those of the coreward invader Clan factions, details or communications between the Homeworlds and the Inner Sphere are so sparse as to be nearly non-existent. The last reported developments widely known included the conquest of a few minor Deep Periphery realms near the Homeworlds, creating an equally reclusive new faction known as the Escorpión Imperio.

GENERAL ERA RULES EXPANSIONS

Almost without exception, all of the material found in the core rulebook line assumes that the players are working with units and technologies available from the Late Succession War period through the Jihad. The rules in this chapter broaden this range of historical options to any point in BattleTech history from 2300 to 3150.

Designed to work in concert with the data found in *TechManual*, *Tactical Operations*, and *Strategic Operations*, these rules provide a comprehensive account of what unit types, items, and/or special rules may be employed and applied by the forces used in any era-based *BattleTech* scenario.

BattleTech Pre-History: Prior to 2300, the various factions, technologies, and unit types upon which the *BattleTech* setting is based had yet to emerge in a fashion coherently recognized by the game rules presented to date. At this point, the first waves of human settlements in interstellar space were still struggling to establish themselves and become self-sufficient enough to sustain their own economies or armies. For this reason, the era expansions presented in this chapter will not dwell on this "pre-historic" period.

Random Assignment Tables: Providing complete Random Assignment Tables for all eras of play would simply take up far too many pages, and still fail to fully define the technical capabilities of those eras. Thus, such tables are not provided in this book. Players are encouraged to make use of our official Master Unit List on-line database (see www.MasterUnitList.info) to search for and select appropriate units for era-driven scenarios. The MUL is free to use and constantly updated with each new sourcebook release to ensure that it possesses the most up-to-date specs and reference sources for all official *BattleTech* units.

Unit and Equipment Restrictions by Date: Under the following eras, players will be given date restrictions for selecting units for a scenario set in a given period. Players who wish to be even more "canon-accurate" in their games may take this farther, using the Universal Technology Advancement Table (see pp. 35-63) to identify any weapons and equipment that may be unavailable to the specific year or years in which their scenario or campaign is set. The Master Unit List may also be used to identify the years in which a given unit is available for play.

STAR LEAGUE ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Star League Era.

The Age of War Sub-Era (2300-2570)

The Age of War, which predated the Star League and saw the rise of the Great Houses in size and power, was also the dawn of the BattleMech age. At the start of this era, 'Mechs did not exist, and conventional armies waged war using tanks, infantry, and aerospace fighters. The Terran Hegemony's debut of the *Mackie* changed all that, bringing about a revolution in tactics, but it would take decades before these machines became a common sight on the battlefield.

The savagery of the Age of War also saw numerous atrocities committed, up to and including the use of weapons of mass destruction and the massacre of civilians. This eventually led to the creation of the Ares Conventions, which defined the rules for "civilized warfare" that most realms would adopt (and continue to cite for centuries to come, even when the Conventions lost their legal weight).

Factions Available: The Age of War Sub-Era section of the Star League Era Factions List (see p. 18) defines which militarily significant realms are available for play during this era. (Although many smaller powers and independent worlds also existed at this point, most were so minor and/or lacking in military strength that they did not affect the grand setting in any meaningful way.)

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states.

Unit Types: All factions involved in the Age of War sub-era possessed access to conventional infantry, support vehicles, aerospace fighters, small craft, and JumpShips. IndustrialMechs and BattleMechs emerged in this period, as did modern forms of combat vehicles, conventional fighters, DropShips and WarShips.

Battle armor (beyond exoskeletons) and ProtoMechs did not exist in this period, nor did the modular technologies that enabled the creation of OmniMechs, OmniFighters, and OmniVehicles.

Technology Base: The Clans did not exist in the Age of War, and so nothing may be produced for this era using a Clan technology base.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to units with an introduction date of 2570 or earlier. When constructing units for scenarios set in this era, the same limits apply to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: Finally, of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that

STAR LEAGUE ERA FACTIONS LIST

Age of War Sub-Era (2300-2570)	
Capellan Confederation	2367-2570
Capellan Hegemony/Commonality	2270-2366
*Tikonov Union/ Tikonov Grand Union**	2177-2366
Sarna Supremacy	2175-2366
St. Ives Mercantile Association	2245-2366
Sian Commonwealth	ca. 2260-2366
Duchy of Liao	2315-2366
Draconis Combine	2319-2570
Alliance of Galedon	2302-2319
Azami Caliphate	ca. 2450-2516
Principality of Rasalhague	2260-2510
Federated Suns	2317-2570
Marlette Association	2278-2324
Muskegon Coalition	2163-2317
United Hindu Collective	ca. 2240-2540
Free Worlds League	2271-2570
Marik Republic	2238-2271
Federation of Oriente	2241-2271
Regulan Principality	2243-2271
Stewart Confederation	2259-2271
Lyran Commonwealth	2341-2570
Protectorate of Donegal	2313-2341
Federation of Skye	2299-2341
Tamar Pact	2235-2341
Terran Hegemony	2315-2570
Terran Alliance	2086-2315
Rim Worlds Republic	2250-2570
Taurian Concordat	2335-2570
Magistracy of Canopus	2530-2570
Outworlds Alliance	2413-2570
Age of the Star League Sub-Era (2571-2781)	
The Star League	2570-2780
Capellan Confederation	2367-2781
Draconis Combine	2319-2781
Federated Suns	2317-2781
Free Worlds League	2271-2781
Lyran Commonwealth	2340-2781
Terran Hegemony	2315-2767
Amaris Empire	2767-2779
Rim Worlds Republic	2250-2769
Taurian Concordat	2335-2781
Magistracy of Canopus	2530-2781
Outworlds Alliance	2413-2781

*The Tikonov Grand Union includes the Chisholm Protectorate (2265-2335) and Chesterton Trade Federation (2193-2357)

the Age of War saw the introduction (and use) of the following era-unique items:

- Primitive units (see *Primitive Units and RetroTech*, pp. 120-131)
- Early prototype weapons (see *Primitive Prototype Equipment*, pp. 117-120)
- Pre-Star League prototype equipment (see *Advanced Prototype Systems*, pp. 70-73)
- Weapons of mass destruction (see *Weapons of Mass Destruction*, pp. 166-168)

Age of the Star League Sub-Era (2571-2780)

Finally weary of wars without end, the Great Houses united under the Star League, ushering in a Golden Age of technology, relative peace—and hidden feuds. House Cameron, stewards of the Terran Hegemony and "first among equals," held a distinct edge in military technology over the other League members, with better weapons, armor, and engineering making everything from their tanks and fighters to their BattleMechs and WarShips easily superior to those of their erstwhile allies. Even this edge, however, could not overcome the ambitions and rivalries that would tear down mankind's greatest experiment in its prime.

Factions Available: The Age of the Star League Sub-Era section of the Star League Era Factions List (at left) defines which militarily significant realms are available for play during this era. Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.)

Unique to this period is the fact that all of the various realms, worlds, and minor powers of human-occupied space technically operated as members of the Star League, leaving no minor factions in play beyond the League boundaries. Even so, none of the major realms in the Inner Sphere or Periphery ever truly lost their original identities as independent states. Thus, while all of the various factions *were* united under the Star League, none are considered to have fully merged into it, so all continued to exist as separate, militarily significant powers.

Unit Types: All factions involved in the Age of the Star League sub-era possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, WarShips, space stations, and Mobile Structures.

The Star League age also brought the development of the Castles Brian, super-reinforced fortresses that used capital damage scaling, were often built into mountains or underground, and which occasionally featured enough firepower to threaten even an orbiting WarShip. Rules for Castles Brian can be found in the Advanced Buildings chapter of *Tactical Operations* (see pp. 114-143, *TO*).

Battle armor (beyond exoskeletons) and ProtoMechs did not exist in this period, though the Star League itself did experiment with PA(L)-class battlesuits, progenitors to modern battle armor, towards the end of this period.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—also do not exist during this period.

Technology Base: The Clans did not exist in the Age of the Star League, and so nothing may be produced for this era using a Clan technology base.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to units with an introduction date of 2780 or earlier. When constructing units for scenarios set in this era, the same limits apply to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: Finally, of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that the Age of the Star League saw the introduction (and use) of the following era-unique items:

- The Centurion weapon system (see p. 85)
- Advanced neurohelmets for elite SLDF MechWarriors and fighter pilots (see *Advanced Pilot Interfaces*, pp. 68-70)
- Early Star League prototype weapons (see *Advanced Prototype Systems*, pp. 70-73)
- Land-Air BattleMechs (see pp. 105-115)
- Smart robotic control systems (see pp. 134-159)
- Tripod 'Mechs (see Tripod 'Mechs, pp. 163-165)

SUCCESSION WARS ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Succession Wars Era.

The Early Succession Wars Sub-Era (2781-2900)

The fall of the Star League brought about three centuries of constant conflict known collectively as the Succession Wars. Even before the actual start of the First War in 2786, the rival Houses, each claiming the right to rule the shattered League, began to tear the Camerons' legacy asunder, eventually launching a holocaust that consumed the Terran Hegemony and burned away the technological progress of the previous age with nuclear fire and relentless warfare.

The early half of the Succession Wars Era specifically saw the worst devastation unleashed. As the various realms made rampant use of nuclear and biochemical warfare, infrastructure was demolished on an interstellar scale, devastating high-tech manufacturing and rendering worlds uninhabitable by the dozens. Only exhaustion—and the recognition that this strategy would lead to mutual destruction—would bring back the notions of "civilized warfare" that characterized the latter centuries of this era.

Factions Available: The Early Succession Wars Sub-Era section of the Succession Wars Era Factions List (see p. 22) defines which militarily significant realms are available for play during this era. Although many smaller powers and independent worlds did also emerge in the aftermath of the Star League's collapse, these scattered worlds and minor powers were so marginal that they lacked any significant impact on the grand scale. Thus, they do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as an indented list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which—if they appear indented—broke off from larger states.

Unit Types: All factions involved in the Early Succession Wars Sub-Era possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, WarShips, space stations, and Mobile Structures.

Given the herculean efforts and expense required in their engineering, the construction of new Castles Brian never expanded much beyond the Terran Hegemony and thus ended with the Star League's demise. With so many of these monuments of the SLDF badly damaged or poisoned by the war against Stefan the Usurper, the surviving realms either assimilated the least-devastated Castles for their own use, or abandoned them entirely in favor of fortresses that were easier to produce. Thus, no new Castles Brians may be constructed in the Succession Wars period.

Battle armor (beyond exoskeletons) and ProtoMechs did not exist in this period. The Star League's demise included the loss of PA(L)-class battlesuits, which had yet to reach widespread production—though ComStar would retain this technology in limited use.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—do not exist in the Inner Sphere during this period.

Technology Base: The self-exiled Star League Defense Force would begin its evolution into the Clans during this period, but would remain entirely separated from the Inner Sphere until the late 3040s. For this reason, the Clan technology base can only be used among Clan factions. The Inner Sphere technology base is available to both the Inner Sphere and Clan powers.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere units with an introduction date of 2900 or earlier if the scenario takes place in the Inner Sphere or Periphery. When constructing units for scenarios set in this era, the same date limit of 2900 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For Clan forces and scenarios, see *Clan Sub-Eras* (p. 23).

Downgrades: In addition to the date limits on new equipment and units, technological decline from massive interstellar-scale destruction will begin to take hold across the Inner Sphere as the Early Succession Wars rage on, rendering some items extinct. Consult the *Universal Technology Advancement Table* (see pp. 35-63) to find which items have gone out of production by the time of the scenario. (As a rule of thumb, many of the items that vanished during the Succession Wars had a Tech Rating of E, representing Star League-era sophistication.)

Non-conventional infantry units (such as 'Mechs, vehicles, and fighters) that feature such technologies as part of their original design must check for downgrades prior to the start of a *BattleTech* scenario. To do this, the controlling player rolls 2D6, and applies to this roll result all appropriate modifiers from the Succession Wars Era Downgrades Table (see p. 21) based on the scenario's date, the force's affiliation, and its overall skill rating. If the modified roll result is 7 or higher, the unit may *avoid* being downgraded—although players may

still decide to do so at their option. On a modified result of 6 or less, a unit using extinct equipment *must* be downgraded with equivalent non-extinct technologies.

If no equivalent downgraded technologies exist for the item or items the unit must sacrifice, alternate replacement items of any kind may be substituted, as long as the combined weight and critical space requirements of these replacements are equal to or less than those of the original items. If the extinct technology is a unit class—such as WarShips after 2850, or power armor suits after 2766—the unit must be deleted from the player's force and replaced with a lesser unit class. (DropShips or JumpShips, for example, would replace WarShips, while conventional infantry would replace power armor infantry.)

Downgrade rules do not apply to ComStar or any Clan factions.

Special Equipment: The Early Succession Wars brought few new innovations, but some of the special items from the Star League era did remain in play, or returned to widespread use. Of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that the early Succession Wars saw the widespread use of the following era-unique items:

- Land-Air BattleMechs (see pp. 105-115)
- Weapons of mass destruction (see *Weapons of Mass Destruction*, pp. 166-168)

The Late Succession Wars Sub-Era (2901-3049)

By the dawn of the thirtieth century, the Third Succession War was already well over thirty years along, and showed no signs of ending. Factories across the Inner Sphere had been blasted to rubble and hundreds of worlds had vanished from the maps. The technological wonders of the Star League were a fading memory, and the fierce fighting that characterized the early conflicts had degenerated into ongoing raids, many for scraps of lost technology or merely enough parts and supplies to keep dwindling armies in a battle-ready state.

In the last century of the Succession Wars, it was not uncommon to find worlds held by a lance of battered 'Mechs, backed up by conventional vehicles armed with the most basic of weaponry. Preservation of meager resources brought a return to Ares Conventions-style rules of war more out of necessity than honor, prolonging the stalemate. The slow backslide into technological and economic ruin would continue until the recovery of the Helm Memory Core in 3028, and the creation of the Steiner-Davion alliance that heralded the Fourth Succession War.

Factions Available: The Late Succession Wars Sub-Era section of the Succession Wars Era Factions List (see p. 22) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as an indented list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which—if they appear indented—broke off from larger states.

Note that the names appearing on the list were those most commonly used, even if they were not technically accurate. For example, the Federated Commonwealth was legally known as the Federated Commonwealth Alliance, and did not exist as a truly unified realm under the terms of its treaty until 3055. Nevertheless, these realms functioned under their listed name for the bulk of the years listed in the faction tables.

Unit Types: All factions involved in the Late Succession Wars sub-era possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, and space stations.

New Castles Brian may not be constructed during the Late Succession Wars period.

Battle armor (beyond exoskeletons) and ProtoMechs did not exist in this period, and the mighty WarShips and mobile structures that had been a fixture of the Star League days vanished along with the facilities needed to build them. PA(L)-class battlesuits still existed among ComStar's largely-hidden military, but the technology remained beyond the abilities of the other Inner Sphere and Periphery powers.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—do not exist in the Inner Sphere during this period.

Technology Base: As with the Early Succession Wars period, the Clans remain entirely separated from the Inner Sphere until the late 3040s, and so the Clan technology base can only be used among Clan factions. The Inner Sphere technology base is available to both the Inner Sphere and Clan powers.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere units with an introduction date of 3049 or earlier if the scenario takes place in the Inner Sphere or Periphery. When constructing units for scenarios set in this era, the same date limit of 3049 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For Clan forces and scenarios, see *Clan Sub-Eras* (p. 23).

Downgrades: In addition to the date limits on new equipment and units, technological decline from massive interstellar-scale destruction will continue to affect the Inner Sphere throughout the late Succession Wars, due to the extinction of several items. Consult the *Universal Technology Advancement Table* (see pp. 35-63) to find which items have gone out of production by the time of the scenario. (As a rule of thumb, many of the items that vanished during the Succession Wars had a Tech Rating of E, representing Star League-era sophistication.)

Non-infantry units (such as 'Mechs, vehicles, and fighters) and exoskeletons that feature such technologies as part of their original design must check for downgrades prior to the start of a *BattleTech* scenario. To do this, the controlling player rolls 2D6, and applies to this roll result all appropriate modifiers from the Succession Wars Era Downgrades Table (see p. 21) based on the scenario's date, the force's affiliation, and its overall skill rating. If the modified roll result is 7 or higher, the unit may *avoid* being downgraded—although players may still decide to do so at their option. On a modified result of 6 or less, a unit using extinct equipment *must* be downgraded with equivalent non-extinct technologies.

If no equivalent downgraded technologies exist for the item or items the unit must sacrifice, alternate replacement items of any kind may be substituted, as long as the combined weight and critical space requirements of these replacements are equal to or less than those of the original items. If the extinct technology is a unit class—such as WarShips after 2850, or power armor suits after 2766—the unit must be deleted from the player's force and replaced with a lesser unit class. (DropShips or JumpShips, for example, would replace WarShips, while conventional infantry would replace power armor infantry.)

Downgrade rules do not apply to ComStar or any Clan factions.

Upgrades: Effective only in scenarios set from the year 3030 through 3049, any Inner Sphere unit that makes a downgrade roll of 10 or higher not only avoids a downgrade, but actually receives an upgrade instead.

An upgraded unit can replace up to two components—including all armor, all structure, and all heat sinks as one component each—with an equivalent extinct item from the Inner Sphere technology base or an Inner Sphere recovered prototype item (see pp. 102-105). If the replacement item is lighter, the shortfall may be filled with any technology still available in the current era, or with additional armor, heat sinks, and the like. The upgraded unit must conform to all construction rules for the unit's type.

Upgrades do not apply to ComStar or any Clan factions.

Pre-Existing Damage: In addition to downgrades, the late Succession Wars also saw growing decay in the overall level of maintenance and quality within military forces. Limited supplies and technical expertise, combined with sub-standard manufacturing practices, had created generations' worth of jury-rigged parts and mismatched field refits that began to show more and more prominence, even among elite commands. As a result, many forces went into battle with pre-existing damage. To reflect this, players must make a second 2D6 roll for every non-infantry unit in their force prior to the start of the scenario, applying the Scenario Date and Force Skill Rating modifiers from the Succession Wars Era Downgrades Table used to check for technology downgrades.

If this modified roll is 8 or higher, the unit receives no pre-existing damage and begins play normally.

If the modified roll is 4, 5, 6, or 7, the unit suffers light pre-existing damage, equal to 1 point for every 5 tons of unit weight. This damage is distributed in 5-point clusters. For 'Mechs, use the Front column of the Hit Locations Table when assigning damage; for fighters and small craft, use the Above/Below column; for vehicles, roll a random direction of attack using the Facing after a Fall Table first, then resolve damage as if the unit were "attacked" from that angle. Do not roll for critical hits on any unit type, even if this damage affects internal structure, and ignore any motive damage effects. Reroll any damage that would immobilize or destroy the unit.

If the modified roll result is 0, 1, 2, or 3, the unit suffers moderate pre-existing damage, equal to 3 points for every 5 tons of unit weight. Distribute this damage in 5-point groupings and resolve locations as noted above for light damage. In addition, any internal damage may inflict a critical hit as normal, but reroll any critical hits that would disable or destroy the unit before play begins. In addition, apply 1 extra critical hit to a random location, rerolling only those critical hits that would destroy or immobilize the unit.

If the modified roll result is less than 0, the unit suffers severe pre-existing damage, equal to 1 point for every ton of unit weight. Distribute this damage in 5-point groupings and resolve locations as noted above for light damage. In addition, any internal damage may inflict critical hits as normal, but reroll any critical hits that would disable or destroy the unit before play begins. In addition, apply 3 extra critical hits to 3 random locations, rerolling only those critical hits that would destroy or immobilize the unit.

Special Equipment: Towards the waning years of the late Succession Wars period, the Inner Sphere experienced a technological renaissance, thanks mainly to the recovery of the Helm Data Core in the late 3020s. This, combined with certain experiments conducted in the final days of the Third War and its aftermath, not only reintroduced many lost treasures of Star League engineering, but also a few new innovations. Meanwhile, however, some other cutting edge technologies—including Land-Air BattleMechs and superheavy IndustrialMechs—clung to life on the fringes, too expensive or too limited in tactical value to sustain themselves for long. Fortunately, the same could also be said of nuclear, chemical, and biological weapons, which had now become too dangerous to wield as the various realms suddenly found themselves with less and less they could afford to lose.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that the late Succession Wars saw the development and use of the following era-unique items:

- Recovered Star League technologies (see *Inner Sphere Recovered Prototypes*, pp. 102-105)
- Superheavy IndustrialMechs—but not BattleMechs (see *Superheavy 'Mechs*, pp. 159-163)

SUCCESSION WARS ERA DOWNGRADES TABLE

Base TN to avoid downgrade: 7	
Condition	**Modifier**
Scenario Date	
2820-2850	–2
2851-2950	–4
2951-3034	–6
3035-3045	–4
After 3045	–2
Force Affiliation	
Major I.S. Power	+0
Minor I.S. Power	–1
Major Periphery Power	–1
Minor Periphery Power	–2
Mercenary/Pirate	–2
Force Skill Rating	
Elite	+2
Veteran	+1
Green	–1

SUCCESSION WARS ERA FACTIONS LIST

Early Succession Wars Sub-Era (2781-2900)	
Capellan Confederation	2367-2900
Draconis Combine	2319-2900
Federated Suns	2317-2900
Free Worlds League	2271-2900
Lyran Commonwealth	2340-2900
ComStar	2788-2900
Taurian Concordat	2335-2900
Magistracy of Canopus	2530-2900
Outworlds Alliance	2413-2900
Oberon Confederation	2775-2795
Circinus Federation	2785-2900
Hanseatic League*	2891-2900
Castilian Principalities*	2392-2900
Umayyad Caliphate*	2830-2900

Late Succession Wars Sub-Era (2901-3049)	
Capellan Confederation	2367-3049
Draconis Combine	2319-3049
Federated Commonwealth	3028-3049
Federated Suns	2317-3049
Lyran Commonwealth	2340-3049
Free Worlds League	2271-3049
ComStar	2788-3049
Taurian Concordat	2335-3049
Magistracy of Canopus	2530-3049
Outworlds Alliance	2413-3049
Oberon Confederation (New)	3012-3049
Circinus Federation	2785-3049
Tortuga Dominions	ca. 2785-3049
Hanseatic League*	2891-3049
Castilian Principalities*	2392-3049
Umayyad Caliphate*	2830-3049
Marian Hegemony	2920-3049
Greater Valkyrate	3028-3049
Morgraine's Valkyrate	3021-3028
Butte Hold	3018-3028
Illyrian Palatinate	ca. 2350-3049
Lothian League	2815-3049
Rim Collection	3048-3049
Tikonov Free Republic †	3029-3031
St. Ives Compact †	3029-3049
Duchy of Andurien‡	3030-3040
Free Rasalhague Republic§	3034-3049

Clan Founding Years Sub-Era (2800-2840)	
The Clans	2807-2840
Clan Blood Spirit	2807-2840
Clan Burrock	2807-2840
Clan Cloud Cobra	2807-2840
Clan Coyote	2807-2840
Clan Fire Mandrill	2807-2840
Clan Ghost Bear	2807-2840
Clan Goliath Scorpion	2807-2840
Clan Hell's Horses	2807-2840
Clan Ice Hellion	2807-2840
Clan Jade Falcon	2807-2840
Clan Mongoose	2807-2840
Clan Nova Cat	2807-2840
Clan Sea Fox	2807-2840
Clan Smoke Jaguar	2807-2840
Clan Snow Raven	2807-2840
Clan Star Adder	2807-2840
Clan Steel Viper	2807-2840
Clan Widowmaker‖	2807-2834
Clan Wolf	2807-2840
Clan Wolverine‖	2807-2823
The Star League-in-Exile¶	2786-2801

Clan Golden Years Sub-Era (2841-3049)	
The Clans	2807-3049
Clan Blood Spirit	2807-3049
Clan Burrock	2807-3049
Clan Cloud Cobra	2807-3049
Clan Coyote	2807-3049
Clan Fire Mandrill	2807-3049
Clan Ghost Bear	2807-3049
Clan Goliath Scorpion	2807-3049
Clan Hell's Horses	2807-3049
Clan Ice Hellion	2807-3049
Clan Jade Falcon	2807-3049
Clan Mongoose#	2807-2868
Clan Nova Cat	2807-3049
*Clan Sea Fox/Diamond Shark***	2807-3049
Clan Smoke Jaguar	2807-3049
Clan Snow Raven	2807-3049
Clan Star Adder	2807-3049
Clan Steel Viper	2807-3049
Clan Wolf	2807-3049

*Deep Periphery states; these realms remained isolated from the Inner Sphere throughout the Succession Wars era.

†Separated from Capellan Confederation; allied with Federated Commonwealth

‡Separated from Free Worlds League; allied with Magistracy of Canopus

§Separated from Draconis Combine; independent state

‖Clan Wolverine was destroyed in 2823; Clan Widowmaker was absorbed by Clan Wolf in 2834

¶After 2801, the Star League-in-Exile collapsed into various warring factions; conquered by Clans in 2815

#Clan Mongoose was absorbed by Clan Smoke Jaguar in 2868

**Clan Sea Fox became Diamond Shark in 2985

Clan Sub-Eras (2800-3049)

Decades after fleeing the Inner Sphere, the survivors of the Star League Defense Force, led by Aleksandr Kerensky, settled a distant cluster of worlds and declared themselves a Star League in Exile. But while they thought themselves spared the chaos of the Succession Wars, ancient enmities soon surfaced anew in the harsh homeworlds, and it would take a second exodus, led by Kerensky's son Nicholas, to reforge the most loyal and capable among them into a new society known as the Clans. Built around a rigid caste structure, with warfare ritualized to minimize waste and maximize glory, the Clans evolved by leaps and bounds.

Factions Available: The Clan Founding Years and Clan Golden Years Sub-Era sections of the Succession Wars Era Factions List (see p. 22) define the militarily significant powers that are available for play in the Clan homeworlds during this era. Because of their smaller numbers, each Clan individually existed as a minor power, and no other significant military powers existed in the Clan homeworlds after the collapse of the Star League in Exile.

Unit Types: All factions involved in the Clan Founding years and Golden Years sub-eras possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, WarShips, space stations, and Mobile Structures. The Clans also retained the ability to construct the Castles Brian of their Star League forebears, as found in the Advanced Buildings chapter of *Tactical Operations* (see pp. 114-143, *TO*).

In addition to this, the Clans would introduce and perfect battle armor during this era, as well as the modular technology found in OmniMechs, OmniVehicles, and OmniFighters.

Curiously enough, the Clans would quickly abandon Land-Air BattleMechs and Tripod 'Mechs in this time period, finding these unit classes too limited and difficult to assimilate into their new order. Robotic and drone technologies would also be largely abandoned by the Clans in this era, to maintain their emphasis on breeding superior human warriors, rather than relying on technological crutches.

Technology Base: All Clan factions in these sub-eras can make use of items from either the Clan or Inner Sphere Technology Bases, but the Star League in Exile faction may only make use of the Inner Sphere technology base.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to units with an appropriate introduction date (2840 or earlier for the Clan Founding Years sub-era; 3049 for the Clan Golden Years sub-era). However, when selecting Inner Sphere units, only those built before 2781 may appear among Clan forces.

When constructing units for scenarios set in this era, the same limits apply to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: Finally, of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating Clan forces for this era should note that the Clans introduced (and used) the following era-unique items:

- Improved Star League-era weapons (see *Early Clan Improved Equipment*, pp. 95-96)
- Advanced weapons and equipment (see *Early Clan Prototype Systems*, pp. 97-98)



Before its brutal absorption into Clan Smoke Jaguar, Clan Mongoose often relied on cunning maneuvers and speedy 'Mechs like the Mercury II.

CLAN INVASION ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Clan Invasion Era.

The Clan Invasion Era (3050-3061)

The Clans' invasion of the Inner Sphere was a watershed event in human history. Not only did it bring the legacy of the Star League back into violent contact with the Inner Sphere that Kerensky and his descendants abandoned centuries before, but it accelerated the technological and political evolution of both groups of societies. Already recovering from the long decline of the Succession Wars, the Inner Sphere was spurred into a massive surge in production and upgrades that strained economies but gradually narrowed the gap between the archaic weapons of the late Succession Wars and the superior Clan machines. WarShips returned, modular technology evolved, and battle armor appeared in ever-increasing numbers.

Faced with the danger of technological parity, the Clans themselves pushed forward as well, modifying their own equipment and tactics in an effort to maintain their martial edge, lest the Inner Sphere overwhelm them with sheer numbers.

Factions Available: The Clan Invasion Era Factions List (see p. 25) defines which militarily significant realms are available for play during this era. A number of other smaller powers and independent worlds continued to survive at the outskirts of the Inner Sphere, Periphery, and Clan space during in this period, but these scattered micro-powers lacked any significant impact on the grand scale, and thus will not appear in the list.

As ever, faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as an indented list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which—if they appear indented—broke off from larger states.

Remember that, once again, the names appearing on the list were those most commonly used, even if they were not technically accurate. For example, while the Federated Commonwealth was not legally identified as anything but the Federated Commonwealth Alliance until 3055—only to be torn asunder by the Lyran Alliance's secession in 3057—the realm went by the name Federated Commonwealth all the way up to that point. Likewise, even though the Lyran secession did not legally end the Federated Commonwealth as such (several maps continued to use it to refer to the non-Lyran half of the realm), most individuals in this period resumed referring to the Davion half of the broken FedCom as the Federated Suns. Thus, the tables list the popular names under which these realms functioned for the bulk of the years listed.

Also of note is the birth of the Second Star League during this era. Even more than the original, the Second Star League was little more than a military alliance in which the member states pooled resources to defeat the Clans. As such, member states of the Second League did not lose their independent identities to the new organization, and continued to act as fully separate military affiliations throughout this time.

Unit Types: All factions involved in the Clan Invasion era possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, and space stations.

Although authentic Castles Brian were lost to the Inner Sphere, equivalent construction materials and techniques emerged, enabling their construction once more. The Clans, naturally, had never lost this same ability.

Jump-started by captured Clan samples, battle armor emerged in the Inner Sphere, along with the modular technologies that made OmniMechs, OmniVehicles, and OmniFighters possible. WarShips also came back into the realm of Inner Sphere capabilities, in an effort to match the naval assets the Clans returned with.

Land-Air BattleMechs, however, all but vanished in this time when the Clans destroyed the last of the LAM factories—while the Clans introduced the first generation of ProtoMechs to the mix near the end of this period, hoping to supplement their forces with an all-new unit type.

Technology Base: The clash between the Clans and the Inner Sphere finally brought both technology bases together, but nevertheless, the Inner Sphere realms could only reliably produce equipment made from the Inner Sphere technology base; the Clans relied on their own technology base. Captured equipment enabled both groups to intermix certain items as time progressed, but during this period, such Mixed Tech units were the jury-rigged exception to the rule.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to units with an introduction date of 3061 or earlier, with Clan forces permitted to field any unit constructed with a Clan technology base, and Inner Sphere units limited to those of an Inner Sphere tech base. (After the mid 3050s, enough captured equipment on both sides will be available to enable factions to field small numbers of their enemies' units, if desired, but these units will be difficult to maintain as neither technology base has access to compatible parts.)

When constructing units for scenarios set in this era, the same date limit of 3061 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

Downgrades: The technological decline of the Succession Wars was over by the time the Clans appeared in the Inner Sphere, but many forces—especially among the Periphery states, minor powers, and even amid the lower-priority commands of the Great Houses—still struggled to make do with substandard gear throughout the 3050s.

To reflect this, any Periphery or minor state forces, mercenary or pirate forces, or forces with an experience rating of Green (or a Loyalty rating of Questionable), may be subject to downgrades on any unit that features a technology rating of E or higher as part of its original design.

As with Succession Wars-era downgrades, any unit with E+ rated technologies must be downgraded with equivalent D or lower components, so long as all other construction rules for the unit type are followed.

To determine the level of such downgrades for a *BattleTech* scenario, players should roll 2D6 for every non-conventional infantry unit in the affected force. This roll uses the same target number as found in the Succession Wars Era Downgrades Table (see p. 21), but only applies the modifiers for the force's affiliation, and its overall skill rating (date is not a factor; this downgrade check is only made for scenarios played during the 3050s). If the modified roll result is 7 or higher, the unit may *avoid* being downgraded—although players may still decide to do so at their option. On a modified result of 6 or less, a unit using E+ equipment *must* be downgraded with equivalent D-or-lower technologies.

If no equivalent downgraded technologies exist for the item or items the unit must sacrifice, alternate replacement items of any kind may be substituted, as long as the combined weight and critical space requirements of these replacements are equal to or less than those of the original items.

Clan Invasion-era downgrade rules do not apply after 3059, nor do they apply to ComStar or Clan forces, or for major state forces with experience ratings of Regular or better (as long as those units also possess Reliable or Fanatical loyalty to their parent faction).

Upgrades: As a special option, players running any Elite-rated or Fanatically loyal Inner Sphere force from a major state may receive an upgrade by making the same downgrade check described above, and rolling a modified result of 10 or higher. For the purposes of this rule, a roll result of 6 or less will *not* prompt a unit downgrade.

The upgraded unit may replace up to 2 components—counting all of the unit's armor, all of its internal structure, and all of its heat sinks, as a single component each—with an equivalent piece of Star League technology. If the upgrade roll was 12 or more, the upgrade can use an equivalent piece of Clan technology instead. If the replacement item is lighter, the shortfall may be filled with any technology still available to the Inner Sphere in the current era, or with additional armor, heat sinks, and the like. The final upgraded unit must conform to all construction rules for the unit's type, modified as appropriate by the rules for Mixed Technologies (see p. 377, *TO*).

Clan units may not use this optional rule.

Special Equipment: The Clan Invasion era was largely characterized by an arms race that pushed the Inner Sphere beyond many benchmarks set by the original Star League. Most of these technologies are already covered by the rules in *Total Warfare* and *Tactical Operations*, however, and are largely considered a baseline for play in generic *BattleTech* games.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that the Clan Invasion saw the development and use of the following era-unique items:

- The Clan EI neural implant system (see *Augmented Warriors*, pp. 74-85)
- The Inner Sphere's experimental damage interrupt circuit for MechWarriors (see *Advanced Pilot Interfaces*, pp. 68-70)

CLAN INVASION ERA FACTIONS LIST

Clan Invasion Era	
Capellan Confederation	2367-3061
Draconis Combine	2319-3061
Federated Commonwealth	3028-3057
Federated Suns	3057-3061
Lyran Alliance*	3057-3061
Free Worlds League	2271-3061
ComStar	2788-3061
Word of Blake†	3052-3061
Taurian Concordat	2335-3061
Magistracy of Canopus	2530-3061
Outworlds Alliance	2413-3061
Circinus Federation	2785-3061
Hanseatic League‡	2891-3061
Castilian Principalities‡	2392-3061
Umayyad Caliphate‡	2830-3061
Marian Hegemony	2920-3061
Lothian League	2815-3055
Illyrian Palatinate	ca. 2350-3061
Rim Collection	3048-3061
St. Ives Compact	3029-3061
Free Rasalhague Republic	3034-3061
Second Star League§	3058-3061
The Clans	2807-3061
Clan Blood Spirit	2807-3061
Clan Burrock‖	2807-3059
Clan Cloud Cobra	2807-3061
Clan Coyote	2807-3061
Clan Diamond Shark	2807-3061
Clan Fire Mandrill	2807-3061
Clan Goliath Scorpion	2807-3061
Clan Hell's Horses	2807-3061
Clan Ice Hellion	2807-3061
Clan Jade Falcon	2807-3061
Clan Smoke Jaguar‖	2807-3060
Clan Snow Raven	2807-3061
Clan Star Adder	2807-3061
Clan Steel Viper	2807-3061
Clan Wolf	2807-3061
Clan Nova Cat¶	2807-3061
Clan Wolf (in-Exile)¶	3057-3061
Ghost Bear Dominion	3060-3061
Clan Ghost Bear	2807-3061

*Separated from Federated Commonwealth; Lyran Alliance is the renamed Lyran Commonwealth

†Separated from ComStar in 3052; allied with Free Worlds League, Capellan Confederation, and Taurian Concordat

‡Deep Periphery states; these realms remained isolated from the Inner Sphere throughout the Clan Invasion era

§The founding members of the Second Star League were the Capellan Confederation, Draconis Combine, Federated Suns, Free Worlds League, Lyran Alliance, ComStar, the Free Rasalhague Republic, and the St. Ives Compact. Clan Wolf (in-Exile) joined the Second Star League in 3058; Clan Nova Cat joined in 3060.

‖Clan Burrock was absorbed into Clan Star Adder in 3059; Clan Smoke Jaguar was destroyed in 3060

¶Clan Wolf (in-Exile) broke off in 3057; Clan Nova Cat was abjured in 3060; both joined the Second Star League

CIVIL WAR ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Civil War Era.

CIVIL WAR ERA FACTIONS LIST

Civil War Era	
Capellan Confederation	2367-3067
St. Ives Compact	3029-3063
Draconis Combine	2319-3067
Federated Suns	2317-3067
Free Worlds League	2271-3067
Lyran Alliance	3057-3067
ComStar	2788-3067
Word of Blake Protectorate	3066-3067
Word of Blake	3052-3067
Taurian Concordat	2335-3067
Calderon Protectorate	3066-3067
Magistracy of Canopus	2530-3067
Fronc Reaches	3066-3067
Outworlds Alliance	2413-3067
Circinus Federation	2785-3067
Hanseatic League*	2891-3067
Castilian Principalities*	2392-3067
Umayyad Caliphate*	2830-3067
Marian Hegemony	2920-3067
Illyrian Palatinate	ca. 2350-3063
Rim Collection	3048-3067
Free Rasalhague Republic †	3034-3067
Second Star League‡	3058-3067
The Clans	2807-3067
Clan Blood Spirit	2807-3067
Clan Cloud Cobra	2807-3067
Clan Coyote	2807-3067
Clan Diamond Shark	2807-3067
Clan Fire Mandrill	2807-3067
Clan Goliath Scorpion	2807-3067
Clan Hell's Horses	2807-3067
Clan Ice Hellion	2807-3067
Clan Jade Falcon	2807-3067
Clan Snow Raven	2807-3067
Clan Star Adder	2807-3067
Clan Steel Viper	2807-3067
Clan Wolf	2807-3067
Ghost Bear Dominion	3060-3067
Clan Nova Cat	2807-3067
Clan Wolf (in-Exile)	3057-3067

*Deep Periphery States; these realms remained isolated from the Inner Sphere throughout the Clan Invasion era

†Allied with ComStar

‡The Second Star League included the Capellan Confederation, Draconis Combine, Federated Suns, Free Worlds League, Lyran Alliance, ComStar, the Free Rasalhague Republic, Clan Nova Cat, Clan Wolf (in-Exile), and the St. Ives Compact. The Taurian Concordat and Word of Blake Protectorate joined as secondary members in 3064.

The Civil War Era (3062-3067)

The manufacturing surge of the Clan Invasion continued as the FedCom Civil War raged, while the technology gap between the Inner Sphere and the Clans narrowed further. Although the Second Star League existed throughout this period, it accomplished little to stem the tide of conflict that forever sundered the Davion-Steiner alliance, and set the stage for the Jihad that soon followed.

Factions Available: The Civil War Era Factions List (at left) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

In the Civil War era, the Second Star League continued to exist as an entity to which the allied member states were expected to provide support. However, as its original mandate remained a check against the Clans, and did not fully unify the Inner Sphere in the manner the original Star League did, the various realms remained wholly independent of this Second League, and its influence waned throughout this period.

Once more, we must also note that the names appearing on the list reflect those most commonly used by the universe at large, even if they were not technically accurate. For example, the Federated Commonwealth continued to exist until the end of the FedCom Civil War, with the Davion half of the realm legally known by that name. However, most people simply referred to this state as the Federated Suns after the Lyran secession of 3057. Thus, the tables reflect the names under which these realms were most commonly known for the bulk of the years listed.

Unit Types: All factions involved in the Civil War era possessed access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, and mobile structures. Furthermore, all factions except the Periphery states gained access to WarShip technologies. The Clans also employed ProtoMechs.

New Castles Brian may not be constructed during the Civil War period.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—were available to both Inner Sphere and Clan technology bases during this period.

Technology Base: The interaction between the Clans and the Inner Sphere continued in the Civil War era, but Inner Sphere realms remained largely unable to mass produce equipment made for the Clan technology base. Captured technologies continued to enable both groups to intermix certain items as time progressed, but Mixed Tech units remained the exception to the rule.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere units with an introduction date of 3067 or earlier. When constructing units for scenarios set in this era, the

same date limit of 3067 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: Fueled as much by the return of inter-realm conflicts as by the constant threat of renewed Clan hostilities, the Civil War era continued the arms race that surged during the Invasion years. Once more, most of these technologies have already been covered by the rules in *Total Warfare* and *Tactical Operations*, and so are largely considered a baseline for play in generic *BattleTech* games.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that the Civil War saw the use of the following era-unique items:

- The EI neural implant system remained in use among the Clans (see *Augmented Warriors*, pp. 74-85)
- The Word of Blake began advance deployment of cybernetically enhanced troops in limited operations (see *Augmented Warriors*, pp. 74-85)
- Limited use of nuclear and chemical weapons were seen in this era, including the Black May nerve gas attacks during the St. Ives War, and renegade actions in the FedCom Civil War (see *Weapons of Mass Destruction*, pp.166-168)

JIHAD ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Jihad Era.

The Jihad Era (3068-3085)

When the member states of the Second Star League voted to disband the organization, the event triggered a surge of violence from the Word of Blake, which had pinned many of its grand designs on that union. The Jihad, as it came to be known, quickly swept across the entire Inner Sphere, and even had repercussions as far as the Clan homeworlds (where a similar upheaval, known as the Wars of Reaving, soon

JIHAD ERA FACTIONS LIST

	Jihad Era
Capellan Confederation	2367-3085
Draconis Combine	2319-3085
Federated Suns	2317-3085
*Malagrotta Cooperative**	3073-3079
*Filtvelt Coalition**	3072-3085
Free Worlds League	2271-3079
Duchy of Andurien†	3079-3085
Duchy of Oriente†	3079-3085
Duchy of Tamarind-Abbey†	3071-3085
Marik-Stewart Commonwealth†	3082-3085
Rim Commonality†	3075-3085
Other League worlds†	3079-3085
Lyran Commonwealth/Alliance‡	3057-3085
ComStar	2788-3085
Republic of the Sphere	3081-3085
Word of Blake Protectorate	3066-3078
Word of Blake	3052-3081
Taurian Concordat	2335-3085
Calderon Protectorate	3066-3085
Magistracy of Canopus	2530-3085
Fronc Reaches	3066-3085
Circinus Federation	2785-3081
Hanseatic League§	2891-3085
Marian Hegemony	2920-3085
Rim Collection	3048-3085
Free Rasalhague Republic‖	3034-3085
Niops Association	ca. 2760-3085
Fiefdom of Randis	2988-3085
The Homeworld Clans ¶	2807-3085
Clan Blood Spirit ¶	2807-3085
Clan Cloud Cobra ¶	2807-3085
Clan Coyote ¶	2807-3085
Clan Fire Mandrill ¶	2807-3073
Clan Ice Hellion ¶	2807-3074
Clan Star Adder ¶	2807-3085
Clan Steel Viper ¶	2807-3075
Clan Stone Lion ¶	3075-3085
Escorpión Imperio ¶	3080-3085
Clan Goliath Scorpion ¶	2807-3085
Castilian Principalities ¶	2392-3080
Umayyad Caliphate ¶	2830-3080
The Council of Six Clans	3075-3085
Clan Diamond Shark	2807-3085
Clan Hell's Horses	2807-3085
Clan Jade Falcon	2807-3085
Clan Wolf	2807-3085
Ghost Bear Dominion	3060-3067
Raven Alliance	3083-3085
Clan Snow Raven	2807-3083
Outworlds Alliance	2413-3083
Abjured Clans	
Clan Nova Cat	2807-3085
Clan Wolf (in-Exile)	3057-3085

*Separated from Federated Suns (Malagrotta reclaimed in 3079); Filtvelt allied with Federated Suns

†Separated from Free Worlds League; Duchy of Tamarind-Abbey renamed from Duchy of Tamarind in 3078

‡The Lyran Alliance renamed itself to Lyran Commonwealth in 3084.

§Deep Periphery states; these realms remained largely isolated from the Inner Sphere throughout the Jihad era

‖Allied with ComStar until 3071; from 3070 and onward, allied with Ghost Bear Dominion.

¶Homeworld/Deep Periphery states; these realms are isolated from the Inner Sphere after the Jihad era; Of the Homeworld Clans, Blood Spirit and Steel Viper were annihilated, while the remnants of Ice Hellion were absorbed into Clan Goliath Scorpion; Clan Stone Lion formed from remnants of the Hell's Horses Clan left in the Homeworlds.

erupted). In many ways, the Jihad era punctuated the decades-long military-industrial resurgence that began just prior to the Clan Invasion.

Factions Available: The Jihad Era Factions List (see p. 28) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

In addition to the collapse of the Second Star League and the birth of the Republic of the Sphere amid the ashes of the Word of Blake Protectorate, the Jihad era also saw a sundering of the Clans, in which the homeworlds and Deep Periphery regions between the homeworlds and Inner Sphere broke all contact with the Inner Sphere realms and Clans.

Unit Types: All factions involved in the Jihad era possessed access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, and mobile structures. All major factions except for those of the Periphery also maintained access to WarShips in this period, while the Clans continued to employ ProtoMechs as well.

New Castles Brian may be constructed during the Jihad period, but only by the Word of Blake or the Clan factions operating in their homeworlds.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—remained available to Inner Sphere and Clan technology bases throughout this period.

Technology Base: The Inner Sphere and Clan technology bases remained fundamentally separate throughout the Jihad era, but by this point some Inner Sphere producers had managed to achieve enough Clan-level sophistication to produce functional copies of Clan tech at massive expense. The Inner Sphere realms remained unable to mass produce this equipment, but this progress enabled them to field Mixed Tech units with more regularity than ever before.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere units with an introduction date of 3085 or earlier. When constructing units for scenarios set in this era, the same date limit of 3085 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: The Jihad saw the apex of Inner Sphere and Clan development to date, with numerous dangerous and experimental technologies rushed to the battlefield by the various combatants. The Word of Blake, finding itself woefully outnumbered, resorted to wide-scale use of weapons of mass destruction, robotic technologies, and cybernetically-enhanced terror agents, while several Inner Sphere powers reluctantly responded with super-weapons of their own.

The Clan homeworlds suffered a similar shake-up as a result of the Wars of Reaving, and the brief rebellion of the scientist caste's Society, though many of these technological developments remained unknown to the Inner Sphere for years to come.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that the Jihad saw the development and use of the following era-unique items:

- Word of Blake Manei Domini and Thuggee Phansigars brought first large-scale use of cybernetically hyper-augmented troops to the field (see *Augmented Warriors*, pp. 74-85)
- Word of Blake tested cybernetics-based interface for BattleMechs and captured Clan ProtoMechs (see *Inner Sphere ProtoMech Interface* and *Machina Domini Interface* pp. 102 and 116)
- Land-Air BattleMechs made a brief resurgence thanks to Word of Blake developments (see *Land-Air BattleMechs*, pp. 105-115)
- Various Inner Sphere factions desperately turned to older engineering standards to supplement their battered infrastructure, leading to a surge in "RetroTech" (see *Primitive Units and RetroTech*, pp. 120-131)
- Word of Blake relied heavily on robotics and drones to back up their limited defenses (see *Robotic and Drone Control Systems*, pp. 134-159)
- Word of Blake debuted a costly super-jump system (see *Word of Blake Super-Jump Drive*, p. 183)
- Word of Blake perfected superheavy BattleMechs (see *Superheavy 'Mechs*, pp. 159-163)
- Chemical, biological, and nuclear weapons of various types were used by numerous factions (see *Weapons of Mass Destruction*, pp. 166-168)
- The Clans developed a number of new technologies in the Wars of Reaving (see *Advanced Clan Equipment*, pp. 64-37)
- The Clans added greater diversity in design options to their ProtoMech units (see *Expanded ProtoMechs*, pp. 98-102)

DARK AGE ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Dark Age Era.

The Republic Age Sub-Era (3086-3130)

After the devastation of the Jihad and the birth of the Republic of the Sphere, the Inner Sphere realms and Clans focused much of their energies on rebuilding infrastructure first. With expensive JumpShip manufacturing and maintenance high on their priorities, WarShips became a luxury few could afford. Meanwhile, the need to produce basic goods and industrial repair equipment put the expansion of armies on the back burner. Much of this was played off as a "peace dividend" in the wake of the horrors of the Word of Blake war, but in fact it simply signified a lull in military production.

The Inner Sphere powers and Clans remained largely ignorant of events in the Clan homeworlds and the Deep Periphery between them after the Jihad. Although what has occurred in this region is largely undefined as of this writing, basic details will be covered in the Clan Post-Reaving Sub-Era section (see pp. 30).

Factions Available: The Republic Age Sub-Era section of the Dark Age Era Factions List (see p. 31) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery (and throughout the former Free Worlds League borders) in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

Unit Types: All factions involved in the Republic Age sub-era possessed access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, and mobile structures. WarShips were available in limited deployment, but these represented survivors of the Jihad, rather than any form of new construction.

New Castles Brian may only be constructed by the Republic of the Sphere or the Inner Sphere Clans during the Republic Age period.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—remained available to all Inner Sphere and Clan powers during this period.

Technology Base: Due to closer Clan and Inner Sphere interactions and trade throughout the Republic Age period, coupled with advancing Inner Sphere manufacturing standards, Mixed Tech became more commonplace during this time. The Inner Sphere realms still favored the Inner Sphere technology base for core construction, but the major states (as noted with boldface in the Factions List) could produce controlled numbers of Clan-spec components and equipment.

The Clans residing in the Inner Sphere maintained their own high construction standards in this period, but likewise gained access to unique Inner Sphere tech through trade and other interactions. This enabled them to produce their own Mixed Tech units, albeit in far fewer numbers.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere and Inner Sphere-based Clan units with an introduction date of 3130 or earlier. When constructing units for scenarios set in this era, the same date limit of 3130 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For Clan forces and scenarios set outside of the Inner Sphere, see *Clan Post-Reaving Sub-Era* (pp. 30).

Special Equipment: Unlike the aftermath of the first Star League and the devastating early Succession Wars, the Jihad and Wars of Reaving did not prompt a backslide of technology, even with so many factories and worlds in ruins. Indeed, even though many of the Word of Blake's experimental technologies were lost (including the super-jump drive, LAMs, special interfaces, and such) a number of less-radical technological improvements emerged during the Dark Age, with a few appearing even in this earlier period of reduced conflict.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that the Republic Age saw the development and use of the following era-unique items:

- Numerous new armor technologies, TSEMP weapons, and radical heat sinks appeared in this period (see *Dark Age Equipment*, pp. 86-91)

The Late Dark Age Sub-Era (3131-3150)

Rising tensions across the Inner Sphere, and the 3130 retirement of Devlin Stone, founder and leader of the Republic of the Sphere, heralded the chaos that would soon erupt when roughly eighty percent of the interstellar communications network failed in 3132. The resulting economic and political upheavals soon led to widespread fighting as ancient enmities resurfaced and local leaders seized the opportunity to claim power for themselves.

Factions Available: The Late Dark Age Sub-Era section of the Dark Age Era Factions List (see p.31) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

Unit Types: All factions involved in the Late Dark Age sub-era possessed access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, and mobile structures. New WarShips remain out of production, but all of the major states and Clans still retain survivors of the Jihad era.

New Castles Brian may only be constructed by the Republic of the Sphere or the Inner Sphere Clans during the Late Dark Age period.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—are available to both the Inner Sphere and Clan technology bases throughout this period, though post-Jihad cost cuts led to a brief period in which fewer units were developed as Omnis than previously.

Technology Base: As with the Republic Age sub-era, closer interactions and trade throughout the Inner Sphere and its resident Clans have rendered Mixed Tech more common than ever. The Inner Sphere realms still favored the Inner Sphere technology base for core construction, but at this point, the major states have begun to reach Clan levels of sophistication, leading to the first home-grown "Tech Rating F" items of purely Inner Sphere manufacture.

The Clans residing in the Inner Sphere maintained their own high construction standards in this period, but likewise gained access to unique Inner Sphere tech through trade and other interactions. This enabled them to produce their own Mixed Tech units, albeit in far fewer numbers.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all Inner Sphere and Inner Sphere-resident Clan forces to units with an introduction date of 3150 or earlier. When constructing units for scenarios set in this era, the same date limit of 3150 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For Clan forces and scenarios set outside of the Inner Sphere and local Periphery, see *Clan Post-Reaving Sub-Era* (see below).

Special Equipment: Drawing on technological experiments first pioneered by the Word of Blake, the Republic of the Sphere put forth a surge of new equipment in the latter Dark Age period, debuting the superheavy tripod "Colossals" and special-purpose RISC equipment. The Clans, meanwhile, introduced their new QuadVee concept, a ground-based unit vaguely derived from Land-Air BattleMechs.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that the late Succession Wars saw the development and use of the following era-unique items:

- Additional new armors and weaponry (see *Dark Age Equipment*, pp. 86-91)
- The Republic's superheavy "Colossals" (see *Superheavy 'Mechs* and *Tripod 'Mechs*, pp. 159-163 and 163-165)
- A special 'Mech-mountable drone control system debuted on Solaris (see *Remote Drone Command Console*, p. 90)
- Clan Hell's Horses introduced the QuadVee (see *QuadVees*, pp. 133-134)
- The Republic demonstrated several experimental technologies (see *RISC Equipment*, pp. 91-95)

Clan Post-Reaving Sub-Era (3086-3150)

Very little is known about the Clan homeworlds, and the Deep Periphery separating them and the Inner Sphere, between the end of the Jihad and the end of the Dark Age era. A full exploration of these venues is beyond the focus of this book, and will be left to later publications.

What is known is that, in the wake of the Wars of Reaving, only four Clans remained in the Homeworlds, with all others expelled and barred from returning. The veil of secrecy surrounding this event extended into the Inner Sphere, keeping many unaware of the full extent of this expulsion, beyond the fact that the Periphery and Deep Periphery regions between the Inner Sphere and Homeworlds are patrolled regularly enough to discourage interaction. Trade is non-existent, and no news has emerged from the Homeworlds in roughly sixty years.

Factions Available: The Clan Post-Reaving Sub-Era section of the Dark Age Era Factions List (see p. 31) defines which militarily significant realms are available for play in the Clan Homeworlds and Deep Periphery during this era. The factions holding these territories will not allow smaller powers to exist that may be a threat to them, so there are no independent worlds or minor powers of any significant military presence in this region.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

Because of the aggressive efforts to discourage interaction between the two regions, the Homeworld Clans and Deep Periphery states between them and the Inner Sphere are considered wholly separate from the events in the Inner Sphere and among the Inner Sphere-resident Clans.

Unit Types: All factions involved in the Clan Post-Reaving sub-era have access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, WarShips, and mobile structures.

New Castles Brian may be constructed throughout the Clan Homeworlds in this period.

ProtoMechs, tainted by their widespread use during the Wars of Reaving, all but vanished among the Homeworld Clans by the end of the thirty-first century.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—exist among all Clan factions (including the Escorpión Imperio) during this period, but are not available to non-Clan powers.

Technology Base: The Homeworld Clans use the Clan technology base. The Escorpión Imperio uses Mixed Tech with an Inner Sphere technology base, but retains the ability to produce Clan weapons and equipment. All other non-Clan powers in this region may only use the Inner Sphere technology base.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all Clan faction unit options to those that have an introduction date of 3085 or earlier. When constructing units for scenarios set in this era, the same date limit of 3085 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For non-Clan factions in this region and sub-era, restrict the unit selections to those with an introduction date of 3049 or earlier, and restrict construction options to the same date limits as well. This reflects the degradation of technological ability caused by their imposed isolation from the Inner Sphere.

Special Equipment: The Clan factions in this region and sub-era have access to all technologies that appeared in the Wars of Reaving, though some components may be limited due to their extinction. The non-Clan factions, meanwhile, have been struggling to get by with much more obsolete technology and manufacturing abilities, thus sparking a surge of "RetroTech" to make up for the shortfall.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 64-183), players creating forces for this era should note that the Clan Post-Reaving Sub-Era saw the development and use of the following era-unique items:

- Wars of Reaving-era equipment (see *Advanced Clan Equipment*, pp. 64-67)
- Deep Periphery RetroTech appears in the Hanseatic League (see *Primitive Units and RetroTech*, pp. 120-131)
- The Escorpión Imperio, in an effort to upgrade its native manufacturing to Clan standards, has been flooded with lower-quality samples of Clan equipment (see *Early Clan Improved Equipment* and *Early Clan Prototype Systems*, pp. 95-96 and 97-98)

DARK AGE ERA FACTIONS LIST

The Republic Age (3086-3130)	
Capellan Confederation	2367-3130
Draconis Combine	2319-3130
Federated Suns	2317-3130
Lyran Commonwealth	2341-3130
Republic of the Sphere	3081-3130
ComStar	2788-3130
Regulan Fiefs	3086-3130
Duchy of Andurien	3079-3130
Duchy of Tamarind-Abbey	3071-3130
Marik-Stewart Commonwealth	3082-3130
Oriente Protectorate	3086-3130
Rim Commonality	3075-3130
Taurian Concordat	2335-3130
Magistracy of Canopus	2530-3130
Niops Association	ca. 2760-3130
Marian Hegemony	2920-3130
Lothian League*	3087-3130
Fiefdom of Randis	2988-3130
Rim Collection	3048-3130
Calderon Protectorate	3066-3130
Fronc Reaches	3066-3130
Filtvelt Coalition†	3072-3130
The Council of Six Clans	3075-3130
Clan Sea Fox/Diamond Shark‡	2807-3130
Clan Hell's Horses	2807-3130
Clan Jade Falcon	2807-3130
Clan Wolf	2807-3130
Rasalhague Dominion	3103-3130
Ghost Bear Dominion	3060-3103
Free Rasalhague Republic	3034-3103
Raven Alliance	3083-3130
Abjured Clans	
Clan Nova Cat	2807-3130
Clan Wolf (in-Exile)	3057-3130

*Broke from Marian Hegemony in 3087
†Allied with Federated Suns
‡Clan Diamond Shark renamed itself to Clan Sea Fox in 3100
§Homeworld/Deep Periphery states: these realms remained isolated from the Inner Sphere after the Jihad era, and their form—if any—at this point remains unknown

Late Dark Age Sub-Era (3131-3150)	
Capellan Confederation	2367-3150
Draconis Combine	2319-3150
Federated Suns	2317-3150
Free Worlds League (New)	2271-3150
Clan Protectorate	3138-3139
Duchy of Tamarind-Abbey	3071-3139
Marik-Stewart Commonwealth	3082-3138
Oriente Protectorate	3086-3139
Rim Commonality	3075-3139
Lyran Commonwealth	2341-3150
Republic of the Sphere	3081-3150
ComStar	2788-3150
Regulan Fiefs	3086-3150
Duchy of Andurien	3079-3150
Taurian Concordat	2335-3150
Magistracy of Canopus	2530-3150
Niops Association	ca. 2760-3150
Marian Hegemony	2920-3150
Fiefdom of Randis	2988-3150
Rim Collection	3048-3150
Calderon Protectorate	3066-3150
Fronc Reaches	3066-3150
Filtvelt Coalition†	3072-3150
Lothian League	3087-3150
The Council of Six Clans	3075-3150
Clan Hell's Horses	2807-3150
Clan Jade Falcon	2807-3150
Clan Sea Fox	2807-3150
Wolf Empire	3143-3150
Clan Wolf	2807-3150
Rasalhague Dominion	3103-3150
Raven Alliance	3083-3150
Abjured Clans	
Clan Nova Cat	2807-3143
Clan Wolf (in-Exile)	3057-3150
Clan Post-Reaving Era (3086-3150)	
The Homeworld Clans§	2807-3150
Clan Cloud Cobra§	2807-3150
Clan Coyote§	2807-3150
Clan Star Adder§	2807-3150
Clan Stone Lion§	3075-3150
Escorpión Imperio§	3080-3150
Hanseatic League§	2891-3150

THE UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Over the years that the *BattleTech* universe has existed, the various other rulebooks than core books have introduced equipment and unit types driven as much by story lines as they have been by game balance. In an effort to reflect a setting where constant warfare inspires ever more sophisticated weapons and defenses, each subsequent rulebook and supplemental introduced new items and equipment, to the point that the core rulebooks today carry hundreds of special rules to reflect in-universe technologies that simply did not exist when *BattleTech* was new.

In an effort to define these items for newer players, the core books introduced three broad levels of rules governing the units and equipment of the *BattleTech* setting: Tournament Legal, Advanced, and Experimental. Still, over the course of this series and the game line's many supplements, even these labels fall short of defining the nature of *BattleTech*'s technological evolution.

This is especially true in era-based game play. The rules levels were suitable to define the complexity of a new item or unit and help players determine the appropriate sources to govern their core rules. But in era-based play, these terms also define the *commonality* of such elements in the setting. Thus, just as the technologies have evolved in-universe, so too will their availability in any games in which the era of play is a factor.

All of this is reflected in the Universal Technology Advancement Table (see pp. 35-63). This table breaks down virtually every distinct unit type and piece of equipment presented in the core rules series and identifies its core Tech Base and Tech Rating. The table also details the in-universe years when it was prototyped, placed into general production, and became widespread enough to be considered commonplace.

Tech Base: The Tech Base, as ever, defines whether the item requires an Inner Sphere or Clan technology base for production. A Tech Base of "IS" indicates that the item can only be produced in the Inner Sphere. A Tech Base of "Clan" means that the item can only be produced by the Clans. A Tech Base of "All" means that the item is available to both technology bases.

Tech Rating: The Tech Rating defines the minimum technology level of the item, and is often used as a limiting factor in Support Vehicle construction or tech-restrictive campaigns. This rating uses the same A through F scale introduced in *TechManual*, under which a Tech Rating of A reflects an item that can be made even with extremely primitive techniques, while a Tech Rating of F reflects the cutting-edge manufacturing once found only among the Clans.

It is worth stressing that Tech Rating values are an abstraction of the minimum industrial base and material resources needed to manufacture a given item, and should not be used as the sole factor for identifying an item's era of play. Some items might receive a much lower rating than their introduction dates would suggest (such as Inferno munitions for modern artillery pieces, and flak shells for modern autocannons, which have a Tech Rating of B even though most of the weapons that use them didn't appear until the Age of War or later). This represents the



The arms race, far more pronounced in the unstable Clan Occupation Zones, is responsible for unusual assault battle armor like the Warg

simplicity of their overall manufacture and material needs for their construction, rather than an actual introduction date. Conversely, other items might have a high Tech Rating despite emerging in an era when the majority of contemporary tech was much lower (such as enhanced prosthetic limbs, which have the Tech Rating of E normally associated with the Star League era or post-Clan Invasion, despite the fact that they came about centuries earlier). This represents a level of extra-fine development and manufacturing techniques that were literally "ahead of their time."

Availability Ratings: The availability codes listed in the Universal Technology Advancement Table represent the general level of access the factions within the corresponding Tech Base have to the item in question. Previously listed as three-letter codes, broadly corresponding to the Star League, Succession Wars, and Clan Invasion eras, these codes are expanded here to include a fourth letter that corresponds to the Dark Age era. For the purpose of calculating availability ratings (see p. 286, *TM*) this starts with the Dark Age sub-era (3131). Like the Tech Rating, Availability Ratings use an A-through-F code system, where A represents an item so common it is almost ubiquitous, while F represents an item that is extremely hard to come by. An Availability code of X for a given era means the item doesn't exist, has gone extinct, or is so incredibly rare as to be effectively unique in the universe.

The primary caveat with item availability codes is that they correspond to the Tech Base listing for that same item. The Availability Ratings for an item that appears in the Clan Tech Base apply to the Clans only; Inner Sphere forces may only attempt to acquire a Clan Tech item from the year 3050 onward, at which point they must consider the Availability Rating for that item one level higher for the relevant era of play. If this rating would be raised from an original rating of F, the force's controlling player must roll 1D6, and consider the item to have an Availability of X on a roll of 1, 2, or 3.

For items with an Inner Sphere Tech Base made after the start of the Succession Wars, Clan forces can only acquire the item during the Clan Invasion and Dark Age eras, at which point the Availability Rating is considered the same as that of the Inner Sphere forces.

For items with a Tech Base of "All", Inner Sphere forces must raise the Availability by one letter code for the item if it has a code of E or F for the Succession Wars era *and* the game scenario is set after any listed Extinction Date for the item (which will appear under the Notes column). For scenarios set during the Star League era, or those set from the Clan Invasion through the Dark Age, the availability code for an item with a Tech Base of "All" is considered to be unchanged. As above, if a letter code is increased from a code of F, the player must roll 1D6, and consider the item to have an Availability of X on a roll of 1, 2, or 3.

Prototype (Faction): Prototype items are those which have only just gotten off the drawing board and made it into limited production on a restricted scale. At this level, the item may still be proprietary to their listed faction (though other factions in the same Tech Base may be developing or testing their own equivalents), or simply be so rarely employed that most forces can reasonably expect to never encounter it in the field. In terms of game rules, Prototype items that have no corresponding Production year, or which are fielded in scenarios set between their Prototype date and the date they enter Production, must be considered Experimental-level items.

Production (Faction): Production items have entered a phase where they have been approved for general manufacture, but are still considered proprietary to the producing faction(s) and their allies. At this point, the items are no longer in a "prototype" format, but instead use their "final" in-game rules. These items might be rare for a time, but will almost certainly reach Common status as they spread to other realms and manufacturers. In some cases, however, an item might not leave this phase because it is either too niche, too expensive, or too outclassed by other technologies on the market. In terms of game rules, Production items that have no corresponding Common year, or which are fielded in scenarios set between the date of Production and the date they become Common, must be considered Advanced-level items.

Common: Common items are those which have reached such a broad level of production or access across various factions that they have effectively ceased to be proprietary and now can reasonably appear among all factions of a given technology base. (In the case of Periphery powers, however, even Common items can be quite limited in nature, with most failing to become truly common in the Periphery realms for decades after the rest of the Inner Sphere has gained access.) In terms of game rules, Common items may be considered Tournament Legal.

Page Reference: The page number in *TechManual* (*TM*), *Tactical Operations* (*TO*), *Strategic Operations* (*SO*) or *Interstellar Operations* (*IO*) with the corresponding rules for each item.

Notes: If something noteworthy about the item or unit type is needed (such as different introduction dates for an item that has both a Clan and an Inner Sphere debut), or if the item ever went extinct and/or was recovered in its lifetime, it will be defined in the item's notes.

Estimated Introductions: Any year preceded with a tilde (~) reflects an estimated year of introduction, usually due to the fact that some factions gained access to the technology or technique approximately a year or two before others. Because of the vagaries of the period and a confluence of trade and parallel developments, whenever an exact date of introduction is estimated in this fashion, there is an opportunity for campaign gamemasters and players to slip in new items of technology unexpectedly sooner (or later) than anticipated, perhaps by as many as 3 years before or after the listed year. Indeed, if randomness is desired, simply add (1D6 – 3) to an item's estimated year of introduction to determine if it is available at the given year of play.

EVOLVING TECHNOLOGY IN CAMPAIGN PLAY

Players will find additional rules for Prototype-level items in later chapters. These rules provide the in-game effects of those weapons and equipment in the earliest versions of their present-day form. These prototype rules also include the Production and Common dates for each piece of equipment. This allows the Universal Technology Advancement Table to present several related items on a single line, and allows for players to roll out updates based on the scenario's in-universe date.

For example, the standard autocannon/10 (AC/10) is listed with a Prototype date of "2450 (TH)", a Production date of "2460 (TH)", and a Common date of 2465. Thus, in games set from 2450 to 2459, the players would use the Primitive Prototype rules whenever a unit in that time period employs a standard AC/10, ideally restricting such weapons to Terran Hegemony units the closer the date is to 2450. After 2459 but before 2465, Terran Hegemony forces may update *all* of their Primitive Prototype AC/10s to the standard rules AC/10, using the rules for replacing weapons as presented in *Strategic Operations* (see pp. 181-182, *SO*). Meanwhile, other affiliations would continue to use the Primitive Prototype rules for their AC/10s until 2465, at which point the weapon system becomes available for all factions to purchase or produce replacements and update their own units.

Extinctions and Recovery

If, after its original debut, item went extinct and was subsequently rediscovered, its returned form may have undergone a similar prototype phase. Consult the rules in this chapter, and the Alternate Era Equipment Tables, to see if and when such items returned, paying special attention to whether the item has a Prototype listing that corresponds to a modern system. Between this Prototype date and the final return date for the listed weapon system, any faction with access to such weapons would use the Prototype form.

For example, in the Universal Technology Advancement Table, the ER large laser has a Production date of "2620 (TH)", indicating that it was available to the Terran Hegemony from 2620 onward, but its Common date is "3045". The notes for the weapon on the same table say "Ext: 2950; Ret: 3037 (DC)". This indicates that the ER large laser became extinct in the Inner Sphere in 2950, but was returned to service by the Draconis Combine in 3037.

Consulting the rules for the Late Succession Wars (which cover the dates when the weapon returned), we find that the Inner Sphere Recovered Prototype rules may apply. Checking those rules and the Alternate Era Equipment Tables, we find that the Late Succession Wars prototype ER large laser appeared in the Inner Sphere in 3030. Since the Draconis Combine is credited with the weapon's recovery, we can presume that the recovered weapon's prototype begins showing up on DCMS units as early as 3030, and enters full Production 3037.

Between 3030 and 3045, other Inner Sphere factions may also field recovered prototypes of the ER large laser, but they will be unable to upgrade to the final weapon form until at least 3045, since the weapon has not become Common until then (per the Universal Technology Advancement Table).

Missing Data

In some cases, the Universal Technology Advancement Table presents items that have no Common date, no Production date, or even a Prototype date with no corresponding prototype rules. The following guidelines apply in such conditions.

Missing Common Date: An item without a date for Common availability, but which has a Production date, is only available in limited distribution. Even if a specific faction is listed as producing this item, the item may be produced by or available to any Major power (Successor State or Clan) within ten years of its Production date, as long as it has not gone extinct in the meantime. If randomness is desired, roll 2D6 and add the result to the Production year to find the year in which the item becomes available to any given factions other than the one listed in the Production date column. Items without a Common date but which have a Production date may be used in Advanced-level games only.



Extinct during the Succession Wars, the Koschei *saw a resurgence in the late 3060s.*

Missing Common and Production Dates: An item that appears with only a Prototype date never reached full-scale production, or is in extremely limited distribution. As long as such items are not listed as extinct, they may appear in factions other than those that first prototyped them. However, they may only do so 3D6+5 years after the first prototypes emerged, and even then in the most limited of deployments—as long as the technology does not lapse into extinction before then. Even though they are listed as Prototypes, many items that fall under this distinction will function in accordance with their normal game rules, as they will lack any form of alternate, Prototype-phase rules.

For example, the nuclear weapons in this chapter are all presented with a Prototype date and no corresponding Production or Common dates. These weapons will function in accordance with their rules as written in this chapter, without any further modifications.

Items that have a Prototype date and no corresponding Production or Common dates are considered suitable only for games that use Experimental-level rules.

Missing Prototype Rules: As indicated above, an item that lacks any Prototype-level rules, but which has a Prototype date, will use its "normal" rules, with no special modifications. In this case, the lack of Prototype-level rules simply leaves the item suitable only for Experimental-level games, and indicates that it is in minimal distribution.

Other Notes

Throughout the Universal Technology Advancement Table, other notes may appear with more specific information provided. Some will indicate differing dates for the item's Prototype phase, Production date, extinction, or recovery. Others may indicate that an item is "always available," regardless of its advancement level. We're explaining them here.

Key of Terms

The Key of Terns for the Universal Technology Advancement Table appears on page 63.

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Advanced 'Mech/ProtoMech/Vehicular Motive Systems							
Jump Jets ['Mech]	All/D	CCCC	2464 (TH)	2471 (TH)	2500	225, *TM*	—
Improved Jump Jets ['Mech]	All/E	XXED	~3060 (CWX)	3069 (CWX/CWF)	3071	225, *TM*	IS Intro: 3070 (LC)
ProtoMech Jump Jets	Clan/D	XXDC	~3055 (CSJ)	3060 (CSJ)	3060	225, *TM*	—
Extended Jump Jets (XJJ) System [ProtoMech]	Clan/F	XXFD	~3071 (CSR)	3075 (CSR)	3085	65, *IO*	—
ProtoMech Myomer Booster	Clan/F	XXFE	~3066 (CBS/CIH)	3068 (CBS/CIH)	3075	232, *TM*	—
Jump Pack / 'Mech Drop Pack	All/D	CDCC	~2430 (TH)	2457 (TH)	—	292, *TO*	—
MASC [IS]	IS/E	DFED	~2730 (TH)	2740 (TH)	3040	233, *TM*	Ext: 2795; Ret: 3035 (CC)
MASC [Clan]	Clan/F	XFED	~2820 (CIH)	2827 (CIH)	2835	233, *TM*	—
'Mech Mechanical Jump Boosters	IS/E	XXFE	~3060 (FS)	3083 (FS/LC)	3090	292, *TO*	—
Partial Wing [BattleMech]	All/F	XXED	3067 (CJF)	~3085 (CJF)	3090	292, *TO*	IS Prototype: 3074 (Merc)
Partial Wing [ProtoMech]	Clan/F	XXED	3070 (CBS)	3085 (CSR)	3090	292, *TO*	—
UMUs ['Mech]	All/E	XXED	~3061 (CGS)	3066 (LC)	3084	295, *TO*	Clan Intro: 3072 (CWX)
UMUs [ProtoMech]	Clan/E	XXFE	~3065 (CBS)	~3075 (CBS)	3084	101, *IO*	—
Vehicular Jump Jets	All/E	EXFE	2650 (TH)	~3083 (CHH)	—	348, *TO*	Ext: 2840; Ret: 3083 (CHH)
VTOL Jet Booster	All/D	XFED	3009 (FS)	~3078 (FS)	—	350, *TO*	Clan Prototype: 2839 (CHH)
Supercharger	All/C	FFFD	ES	~3078 (All)	—	345, *TO*	—
Tracks ['Mech]	All/C	DEED	~2430 (DC)	2440 (DC)	2500	249, *TM*	—
Anti-Missile Systems							
Anti-Missile System [IS]	IS/E	EFDC	~2613 (TH)	2617 (TH)	3048	204, *TM*	Ext: 2835; Ret: 3045 (CC)
Anti-Missile System [Clan]	Clan/F	XFDC	~2824 (CSA)	2831 (CSA)	2835	204, *TM*	—
Laser Anti-Missile System [IS]	IS/E	XXED	3059 (FS)	~3079 (FS)	3145	322, *TO*	—
Laser Anti-Missile System [Clan]	Clan/F	XXED	3048 (CWF)	~3079 (CWF)	3145	322, *TO*	—
Armor ('Mech/Vehicle/Fighter)							
Commercial Armor	IS/B	BBAA	~2290 (TA)	~2300 (TA)	2310	205, *TM*	—
Primitive Aerospace Fighter Armor	IS/C	BCBB	ES	~2300 (TH)	~2315	125, *IO*	—
Primitive 'Mech/Industrial Armor	IS/C	BCBB	~2430 (TH)	~2439 (TH)	2439	205, *TM*	—
Standard (or Heavy Industrial) Armor	IS/D	CCCB	~2460 (TH)	2470 (TH)	2470	205, *TM*	—
Anti-Penetrative Ablation (ABA) Armor	IS/E	XXXE	3105 (DC)	3114 (DC)	—	86, *IO*	—
Ballistic-Reinforced Armor	IS/E	XXXE	3120 (DC)	3131 (DC)	—	87, *IO*	—
Ferro-Fibrous/Ferro-Aluminum Armor [IS]	IS/E	DFDC	2557 (TH)	2571 (TH)	3055	205, *TM*	Ext: 2810; Ret: 3040 (DC)
Ferro-Fibrous/Ferro-Aluminum Armor [Clan]	Clan/F	XEDC	~2820 (CSR)	~2825 (CSR)	2830	205, *TM*	—
Ferro-Fibrous/Ferro-Aluminum Armor [Heavy]	IS/E	XXED	~3056 (FS/LC)	3069 (LC)	3070	205, *TM*	—
Ferro-Fibrous/Ferro-Aluminum Armor [Light]	IS/E	XXED	~3055 (FW)	3067 (FW)	3070	205, *TM*	—
Ferro-Lamellor Armor	Clan/F	XXFE	3070 (CSR)	3109 (CSF)	—	279, *TO*	—
Hardened Armor	All/D	XXFE	3047 (FS/LC)	~3081 (LC)	—	280, *TO*	Clan Prototype: 3061 (CGB)
Heat-Dissipating Armor	All/E	XXXE	3111 (CC)	3123 (CC)	—	87, *IO*	Clan Intro: 3126 (CHH)
Impact-Resistant Armor	IS/E	XXXE	~3092 (LC)	3103 (LC)	—	87, *IO*	—
Laser Reflective (Reflec/Glazed) Armor [IS]	IS/E	XXFE	3058 (LC)	~3080 (LC)	—	280 *TO*	—
Laser Reflective (Reflec/Glazed) Armor [Clan]	Clan/F	XXFE	3061 (CJF)	~3080 (CSF)	—	280 *TO*	—
Modular Armor	All/D	XXFE	3072 (CS)	~3096 (RS)	—	281, *TO*	Clan Prototype: 3074 (CWX)
Reactive (Blazer) Armor [IS]	IS/E	XXFE	3063 (DC)	~3081 (DC)	—	282, *TO*	—
Reactive (Blazer) Armor [Clan]	Clan/F	XXFE	3065 (CGB)	~3081 (CSF)	—	282, *TO*	—
Stealth Armor	IS/E	XXED	~3051 (CC)	3063 (CC)	3072	206, *TM*	—
Vehicle Stealth Armor	IS/E	XXFE	3067 (CC)	3084 (CC)	3145	282, *TO*	—

NOTE: Universal Technology Advancement Table Key on p. 63.

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Armor ('Mech/Vehicle/Fighter) (continued)							
Support Vehicle Armor (BAR 2-3)	All/A	AAAA	PS	PS	PS	206, *TM*	Always Available†
Support Vehicle Armor (BAR 4)	All/B	BBAA	PS	PS	PS	206, *TM*	Always Available†
Support Vehicle Armor (BAR 5)	All/B	BBBA	ES	ES	ES	206, *TM*	Always Available†
Support Vehicle Armor (BAR 6)	All/C	CBBA	ES	ES	ES	206, *TM*	Always Available†
Support Vehicle Armor (BAR 7)	All/C	CBBB	~2250 (TA)	~2300 (TA)	2305	206, *TM*	†
Support Vehicle Armor (BAR 8)	All/D	CCBB	2425 (TH)	2435 (TH)	2445	206, *TM*	†
Support Vehicle Armor (BAR 9)	All/D	CCCB	2440 (TH)	2450 (TH)	2470	206, *TM*	†
Support Vehicle Armor (BAR 10)	All/D	DDDC	~2460 (TH)	2470 (TH)	2505	206, *TM*	†
Armor (Small Craft, and Large Aerospace Craft)							
Primitive Armor	IS/C	BCBB	ES	~2300 (TH)	~2315	124, *IO*	—
Aerospace Armor	All/D	CCCB	~2460 (TH)	2470 (TH)	2470	205, *TM*	—
Improved Ferro-Aluminum Armor	All/E	EXED	~2500 (TH)	2520 (TH)	—	152, *SO*	Ext: 2950; Ret: 3052 (FS/LC)*
Ferro-Carbide Armor	All/E	EFED	~2550 (TH)	2570 (TH)	—	152, *SO*	Ext: 2950; Ret: 3055 (LC/DC)*
Lamellor Ferro-Carbide Armor	All/E	EFED	~2600 (TH)	2615 (TH)	—	152, *SO*	Ext: 2950; Ret: 3055 (FS/FW/CC)*
Armor (ProtoMech)							
ProtoMech Armor	Clan/F	XXDD	~3055 (CSJ)	3060 (CSJ)	3060	205, *TM*	—
ProtoMech Electric Discharge Armor	Clan/F	XXFX	~3071 (CFM)	—	—	64, *IO*	Ext: 3085
Armor (Battle Armor Infantry)							
Standard (Basic)	All/E	FFED	~2680 (TH)	2868 (CWF)	3054	252, *TM*	IS Prototype: 3050 (FS/LC/DC)
Standard (Advanced)	IS/E	XXFE	—	3057 (FW)	3060	252, *TM*	—
Stealth (Prototype)	IS/E	XXFX	3050 (FS/LC)	3052 (FS/LC)	3054	252,*TM*	Ext: 3055
Stealth (Basic)	IS/E	FFED	~2700 (TH)	2710 (TH)	3054	252, *TM*	Ext: 2770; Ret: 3052 (DC)
Stealth (Standard)	All/E	FXED	~2710 (TH)	2720 (TH)	3055	252,*TM*	Ext: 2770; Ret: 3053 (DC)
Stealth (Improved)	All/E	XXFE	~3055 (FW/WB)	3057 (FW/WB)	3059	252, *TM*	Clan Intro: 3058 (CSR)
Fire Resistant	Clan/F	XXFE	~3052 (CFM)	3058 (CFM)	3065	253, *TM*	—
Mimetic	IS/E	XXFE	~3058 (CS/WB)	3061 (WB)	3065	253, *TM*	—
Reactive (Blazer)	All/F	XXFE	3075 (CSF)	~3093 (RS)	3100	282, *TO*	—
Laser Reflective (Reflec/Glazed) Armor	All/F	XXFE	3074 (CSF)	~3089 (CNC/DC)	3105	280, *TO*	—
Armor (Conventional Infantry)							
Ablative, Standard	All/D	ABAA	ES	2300 (TA)	2305	317, *TO*	—
Ablative, Concealed	All/E	EDBB	~2390 (TH)	2400 (TH)	2410	317, *TO*	Clan Ext: ~2820
Ablative/Flak, Standard	All/D	BCBA	~2300 (TA)	2305 (TA)	2310	317, *TO*	—
Ablative/Flak, Concealed	All/E	FDCB	~2390 (TH)	2300 (TH)	2305	317, *TO*	Clan Ext: ~2825
Ballistic Plate, Standard	All/D	CCCC	~2305 (TA)	2310 (TA)	2315	317, *TO*	—
Ballistic Plate, Concealed	IS/E	XFDD	~2810 (LC)	2820 (LC)	2822	317, *TO*	—
Clothing, Fatigues/Civilian/Non-Armored	All/A	AAAA	PS	PS	PS	317, *TO*	Always Available
Clothing, Leather/Synthetic Hide	All/A	AAAA	PS	PS	PS	317, *TO*	Always Available
Clothing, Light (e.g. Summer Wear/None)	All/A	AAAA	PS	PS	PS	317, *TO*	Always Available
Engineering Suit	All/D	DDDC	~2340 (LC)	2350 (LC)	2351	317, *TO*	—
Environment Suit, Light	All/C	BBBB	ES	ES	2200	317, *TO*	—
Environment Suit, Hostile	All/D	CCCC	ES	2300 (TA)	2302	317, *TO*	—
Environment Suit, Marine	All/D	CDDC	~2315 (Per)	2325 (TC)	2330	317, *TO*	—
Flak Armor, Standard	All/C	AAAA	ES	ES	2200	317, *TO*	—
Flak, Concealed	All/D	DCBB	ES	ES	2230	317, *TO*	Clan Ext: ~2825
Heatsuit	All/D	CCCB	~2350 (TH)	2355 (TH)	2358	317, *TO*	—
MechWarrior Combat Suit	All/E	DFED	~2690 (TH)	2790 (DC)	2520	317, *TO*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Armor (Conventional Infantry) (Continued)							
MechWarrior Cooling Suit	All/E	DFED	~2680 (TH)	2500 (TH)	3065	317, *TO*	Ext: ~2850; Ret: 3050 (CS)*
MechWarrior Cooling Vest (Only)	All/D	CCCC	~2440 (TH)	2460 (TH)	2461	317, *TO*	—
Myomer, Suit	IS/E	XXED	~3045 (LC)	3047 (LC)	3052	317, *TO*	—
Myomer, Vest	IS/E	XXED	~3044 (LC)	3045 (LC)	3051	318, *TO*	—
Neo-Chainmail	IS/D	XXCC	~3062 (FS)	3065 (FS)	3066	318, *TO*	—
Parka	All/C	AAAA	PS	PS	PS	318, *TO*	Always Available
Snowsuit	All/C	AAAA	PS	PS	PS	318, *TO*	Always Available
Spacesuit	All/C	BBBB	ES	ES	ES	318, *TO*	Always Available
Spacesuit, Combat	All/C	CDED	ES	ES	2200	318, *TO*	—
Armor Kit (Capellan Confederation)	IS/C	XXCB	~3045 (CC)	3050 (CC)	—	318, *TO*	—
Armor Kit (Clan)	Clan/E	XEEC	~2850 (CHH)	2900 (Clan)	—	318, *TO*	—
Armor Kit (ComStar)	IS/F	XFDE	~2825 (CS)	2830 (CS)	—	318, *TO*	—
Armor Kit (Draconis Combine)	IS/C	BBBB	~2620 (DC)	2625 (DC)	—	318, *TO*	—
Armor Kit (Federated Suns)	IS/C	BBBF	~2325 (FS)	2330 (FS)	—	318, *TO*	Ext: 3035
Armor Kit (Federated Suns/LyranCommonwealth, 3030-3066)	IS/C	XDBE	~3025 (FS/LC)	3030 (FS/LC)	—	318, *TO*	Ext: 3070
Armor Kit (Federated Suns, 3067+)	IS/D	XXDC	~3065 (FS)	3067 (FS)	—	318, *TO*	—
Armor Kit (FR)	IS/C	XXBB	~3035 (FR)	3040 (FR)	—	318, *TO*	—
Armor Kit (FWL)	IS/C	BBBD	~2280 (FW)	2290 (FW)	—	318, *TO*	Ext: 3050
Armor Kit (FWL, 3035+)	IS/C	XEBB	~3030 (FW)	3035 (FW)	—	318, *TO*	—
Armor Kit (LyranCommonwealth)	IS/C	BBBE	~2420 (LC)	2425 (LC)	—	318, *TO*	Ext: 3067
Armor Kit (LyranCommonwealth, 3060+)	IS/C	XDBB	~3058 (LC)	3060 (LC)	—	318, *TO*	—
Armor Kit (Magistracy of Canopus)	IS/C	BBBB	~2600 (MC)	2610 (MC)	—	318, *TO*	—
Armor Kit (Marian Hegemony)	IS/C	XFBB	~3045 (CC)	3049 (MH)	—	318, *TO*	—
Armor Kit (SLDF)	All/E	CEFX	~2570 (TH)	2575 (TH)	2580	318, *TO*	Ext: 2800 (IS); Clan Ext: ~2950
Armor Kit (Taurian Concordat/Calderon Protectorate)	IS/C	XXBB	~3045 (TC)	3047 (TC/CP)	—	318, *TO*	—
Armor Kit (Word of Blake)	IS/F	XXDF	~3053 (WB)	3055 (WB)	—	318, *TO*	Ext: 3081
Armor Kit (Other/Generic)	All/C	BBBB	ES	ES	ES	318, *TO*	Always Available
Sneak Suit (DEST Infiltration Suit)	IS/D	XEEE	~2785 (DC)	~2800 (DC)	—	318, *TO*	Ext: ~2845; Ret: 3045 (DC)
Sneak Suit (One System)	All/D	CCCC	~2430 (TH)	2450 (TH)	2500	318, *TO*	—
Sneak Suit (Two Systems)	All/D	DDDD	~2445 (TH)	2460 (TH)	2505	318, *TO*	—
Sneak Suit (Three Systems)	All/D	DEEE	~2465 (TH)	2475 (TH)	2510	318, *TO*	—
Vintage Bulletproof Vest	All/C	BCDE	PS	PS	PS	195, *ATOWC*	Always Available
Vintage Bomb Suit	All/C	BCEF	PS	PS	PS	195, *ATOWC*	Always Available
Armored Component Systems							
Armored Components	All/E	XXFE	3061 (FW/CSF)	3077 (CJF)	—	283, *TO*	IS Intro: 3082 (FW)
Armored Motive System [IS]	IS/E	XXFE	3071 (FW)	3084 (LC)	—	283, *TO*	—
Armored Motive System [Clan]	Clan/F	XXFE	3057 (CHH)	3083 (CHH)	—	283, *TO*	—
Artillery and Artillery Cannons							
Artillery Weapons							
Arrow IV Artillery Missile [IS]	IS/E	EFED	2593 (TH)	2600 (TH)	3048	284, *TO*	Ext: 2830; Ret: 3044 (CC)
Arrow IV Artillery Missile [Clan]	Clan/F	XFED	—	2844 (CHH)	2850	284, *TO*	—
Conventional Artillery (Thumper, Sniper)	All/B	CCCC	PS	PS	PS	284, *TO*	—
Conventional Artillery (Long Tom)	All/B	CCCC	2445 (TH)	2500 (TH)	2520	284, *TO*	—
Cruise Missile Artillery (/50, /70, /90, /120)	IS/E	XXFE	3065 (FS)	3095 (FS)	—	284, *TO*	—
Artillery Cannons							
Artillery Cannons (Thumper, Sniper, Long Tom)	All/B	XFED	3012 (LC)	3079 (LC)	—	285, *TO*	Clan Prototype: 3032 (CWF)

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Autocannons and Rifles							
Standard Autocannon/2	All/C	CDDD	2290 (TA)	2300 (TA)	2305	208, *TM*	Clan Ext: ~2850
Standard Autocannon/5	All/C	CCDD	2240 (TA)	2250 (TA)	2255	208, *TM*	Clan Ext: ~2850
Standard Autocannon/10	All/C	CDDD	2443 (TH)	2460 (TH)	2465	208, *TM*	Clan Ext: ~2850
Standard Autocannon/20	All/C	DEDD	2488 (LC)	2500 (LC)	2502	208, *TM*	Clan Ext: ~2850
Improved Autocannon (/2, /5, /10, /20)	Clan/E	XCXX	—	~2815 (Clan)	2818	96, *IO*	Ext: 2833; Ret: 3080 (EI)
LB-X Autocannon (2, 5, 20) [IS]	IS/E	XXED	~3055 (FS)	3058 (FS)	3060	207, *TM*	—
LB 10-X AC [IS]	IS/E	EFDC	2590 (TH)	2595 (TH)	3040	207, *TM*	Ext: 2840; Ret: 3035 (FS)
LB-X Autocannon (2, 5, 10, 20) [Clan]	Clan/F	XDCB	~2824 (Clan)	~2826 (Clan)	2828	207, *TM*	—
Rotary Autocannon (/2, /5)	IS/E	XXED	~3060 (FS)	3062 (FS)	3071	207, *TM*	—
Clan Rotary Autocannon, RAC (/2, /5)	Clan/F	XXFE	3073 (CSF)	3104 (CSF)	3145	286, *TO*	—
Ultra Autocannon (/2, /10) [IS]	IS/E	XXED	~3055 (FW)	3057 (FW)	3060	208, *TM*	—
Ultra AC/5 [IS]	IS/E	DFDD	~2635 (TH)	2640 (TH)	3040	208, *TM*	Ext: 2915; Ret: 3035 (FS)**
Ultra AC/20 [IS]	IS/E	XXED	~3057 (FW)	3060 (LC/FW)	3061	208, *TM*	—
Ultra Autocannon (/2, /5, /10, /20) [Clan]	Clan/F	XDDC	~2825 (Clan)	~2827 (Clan)	2829	208, *TM*	—
Light Autocannon (/2, /5)	IS/D	XXFC	~3062 (FS)	3068 (FS)	3070	207, *TM*	—
Hyper-Velocity Autocannon, HVAC (/2, /5, /10)	IS/D	XXFE	3059 (CC)	3079 (CC)	—	285, *TO*	—
ProtoMech Autocannon, Proto-AC (/2, /4, /8)	Clan/F	XXFE	~3070 (CBS)	3073 (CBS)	3145	286, *TO*	—
Rifle (Cannon, All Sizes)	All/B	CFXD	PS	PS	3085	338, *TO*	Ext: ~2825; Ret: ~3084 (Per)**
BattleMech Melee Weapons							
Chain Whip	IS/C	XXFE	3071 (WB)	3084 (LC)	—	289, *TO*	—
Claws	All/B	XFED	~3050 (LC)	3060 (LC)	3145	289, *TO*	Clan Prototype: 3090 (CJF)
Flail	IS/B	XXEE	3057 (FS)	3079 (FS)	3085	289, *TO*	—
Hatchet	IS/B	XFDC	~3015 (LC/FS)	3022 (LC)	3025	220, *TM*	—
Lance	IS/C	XXFE	3064 (LC)	3083 (LC)	—	290, *TO*	—
Mace	IS/B	XFDD	3061 (LC)	3079 (LC)	3085	290, *TO*	—
Retractable Blade	IS/B	FDDD	~2400 (TH)	2420 (TH)	3075	236, *TM*	—
Shield (Small, Med, Large)	IS/D	XXFE	3067 (LC)	3079 (LC)	—	290, *TO*	—
Spikes	IS/C	XEED	3051 (LC)	3082 (LC)	—	290, *TO*	—
Sword	IS/B	XFDC	~3050 (DC)	3058 (DC)	3060	237, *TM*	—
Talons	Clan/E	XXFE	3072 (CJF)	3087 (CJF)	—	290, *TO*	—
Vibroblade (Small, Med)	IS/D	XXED	3065 (DC)	3091 (CC)	—	292, *TO*	—
Vibroblade (Large)	IS/D	XXED	3066 (DC)	3091 (DC)	—	292, *TO*	—
C^3 Systems							
C^3 Computer [Master]	IS/E	XXED	~3039 (DC)	3050 (DC)	3065	209, *TM*	—
C^3 Computer [Slave]	IS/E	XXED	~3039 (DC)	3050 (DC)	3065	209, *TM*	—
Improved C^3 Computer	IS/E	XXEX	~3052 (CS)	3062 (CS)	—	209, *TM*	Ext: 3085
C^3 Boosted System (C^3BS) [Master]	IS/E	XXFE	3071 (FS)	3100 (FS)	—	298, *TO*	—
C^3 Boosted System (C^3BS) [Slave]	IS/E	XXFE	3071 (FS)	3100 (FS)	—	298, *TO*	—
C^3 Emergency Master (C^3EM)	IS/E	XXFE	3071 (DC)	3099 (DC)	—	298, *TO*	—
C^3 Remote Sensor (C^3RS) Launcher	IS/E	XXFE	3072 (DC)	3093 (DC)	—	298, *TO*	—
Battle Armor C^3 (BC^3)	IS/E	XXEE	3073 (DC)	3095 (DC)	—	297, *TO*	—
Battle Armor Improved C^3 (BC^3I)	IS/E	XXEX	3063 (WB)	3095 (RS)	—	297, *TO*	Ext: 3085

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Capital Weapons							
Mass Driver (Light, Med, Heavy)	IS/D	FXFF	~2715 (TH)	—	—	323, *TO*	Ext: ~2855; Ret: 3066 (WB)*
Naval Gauss (Light, Medium, Heavy N-Gauss)	All/E	EXEE	~2440 (TH)	~2448 (TH)	—	333, *TO*	Ext: ~2950; Ret: 3052 (DC)*
Naval Laser (NL35, NL45, NL55)	All/D	DXEE	ES	~2305 (TA)	—	333, *TO*	Ext: ~2950; Ret: 3051 (FS/LC)*
Naval PPC (Light, Medium, Heavy N-PPC)	All/D	DXEE	~2350 (TH)	~2356 (TH)	—	333, *TO*	Ext: ~2950; Ret: 3052 (DC)*
Naval Autocannons (NAC/10, NAC/20)	All/D	EXEE	ES	~2195 (TA)	—	331, *TO*	Ext: ~2950; Ret: 3051 (FS/LC)*
Naval Autocannons (NAC/25, NAC/30)	All/D	EXEE	ES	2200 (TA)	—	331, *TO*	Ext: ~2950; Ret: 3051 (FS/LC)*
Naval Autocannons (NAC/35, NAC/40)	All/D	EXEE	ES	~2201 (TA)	—	331, *TO*	Ext: ~2950; Ret: 3051 (FS/LC)*
Capital Missile Launchers (Killer Whale, White Shark, Barracuda)	All/E	DEED	~2200 (TA)	2305 (TA)	3055	210, *TM*	Ext: ~2950; Ret: 3051 (FS/LC)*
Capital Missile Launcher (AR-10 Launcher)	All/E	DFED	~2540 (TH)	2550 (TH)	3055	210, *TM*	Ext: ~2950; Ret: 3051 (FS/LC)*
Tele-operated Missiles (Killer Whale, White Shark, Barracuda)	IS/F	XXED	3053 (CS/DC)	3056 (DC)	3060	210, *TM*	—
Tele-operated Missiles (Kraken)	IS/F	XXED	3053 (CS/DC)	3057 (DC)	3060	210, *TM*	—
Screen Launcher	IS/F	XXED	3053 (DC)	3055 (DC)	3057	237, *TM*	—
Sub-Capital Missile Launchers (All)	All/E	XXFD	~3066 (WB)	3072 (WB)	3145	345, *TO*	Clan Intro: 3073 (CGB/CNC)
Sub-Capital Cannons (Light, Medium, Heavy SCC)	All/E	XXFD	~3070 (WB)	3073 (WB)	3145	343, *TO*	Clan Intro: 3091 (CSR)
Sub-Capital Lasers (SCL/1, SCL/2, SCL/3)	All/E	XXFD	~3069 (WB)	3073 (WB)	3145	343, *TO*	Clan Intro: 3091 (CSR)
Word of Blake Dragon's Breath Multi-Missile Launch System	IS/E	XXFX	3077 (WB)	—	—	148, *IO*	Ext: 3078
CELLULAR AMMUNITION STORAGE EQUIPMENT (CASE)							
CASE [IS]	IS/E	CFDC	2452 (TH)	2476 (TH)	3045	210, *TM*	Ext: 2840; Ret: 3036 (DC)
CASE [Clan]	Clan/F	XFDC	~2824 (CCY)	2825 (CCY)	2828	210, *TM*	—
CASE II [IS]	IS/E	XXFD	3064 (FW)	~3082 (RS)	~3105	299, *TO*	—
CASE II [Clan]	Clan/F	XXFD	3062 (CCY)	~3082 (CWF)	~3105	299, *TO*	—
Cockpit Systems							
BattleMech Cockpit	All/D	CCCC	~2468 (TH)	2470 (TH)	2487	211, *TM*	—
Small Cockpit	All/E	XXED	3060 (FS)	3067 (FS)	3080	211, *TM*	Clan Intro: 3080 (CJF)
Primitive BattleMech Cockpit	All/D	DXXF	~2430 (TH)	2439 (TH)	—	123, *IO*	Ext: 2520
IndustrialMech Cockpit (w/o Fire Control)	All/C	BCCB	~2469 (TH)	2470 (TH)	2490	211, *TM*	—
IndustrialMech Cockpit (w/ Advanced Fire Control)	All/D	DEED	~2469 (TH)	2470 (TH)	2491	211, *TM*	—
Primitive IndustrialMech Cockpit	All/C	CXXF	~2300 (TA)	2350 (TH)	—	123, *IO*	Ext: 2520
ProtoMech Cockpit	Clan/F	XXED	~3055 (CSJ)	3060 (CSJ)	3060	211, *TM*	—
Inner Sphere ProtoMech Interface	IS/E	XXFX	~3071 (WB)	—	—	102, *IO*	Ext: 3085
Standard Aerospace Cockpit	All/C	CCCC	~2460 (TH)	2470 (TH)	2491	211, *TM*	—
Small Aerospace Cockpit	All/E	XXED	~3065 (WB)	3070 (WB)	3080	300, *TO*	Clan Intro: 3080 (CSR)
Primitive Aerospace Cockpit	All/C	DXXF	ES	~2300 (TA)	—	125, *IO*	Ext: 2520
Torso-Mounted Cockpit	All/D	XXFF	3053 (FS/LC)	~3080 (LC)	3100	300, *TO*	Clan Prototype: 3055 (CSJ)
Virtual Reality Piloting Pod	IS/E	XXFX	3052 (FS/LC)	—	—	69, *IO*	Ext: 3055
Cockpit Life Support and Sensors	All/C	CCCC	ES	ES	ES	52, *TM*	Always Available
BattleMech Interface Cockpit (Machina Domini) [IS]	IS/E	XXFX	~3074 (WB)	—	—	116, *IO*	—
BattleMech Interface Cockpit (Machina Domini) [Clan]	Clan/F	XXFF	~3083 (CHH)	—	—	116, *IO*	—
Cockpit Command Console	All/D	CFED	~2625 (TH)	2631 (TH)	—	300, *TO*	Ext: ~2850 (IS); Ret: ~3030 (FS)
QuadVee Cockpit	Clan/F	XXXF	~3130 (CHH)	3135 (CHH)	—	134, *IO*	—
Tripod 'Mech Cockpit	IS/E	XXXF	~2590 (TH)	2602 (TH)	—	165, *IO*	—
Superheavy BattleMech Cockpit	IS/E	XXFE	~3060 (WB)	3076 (WB)	—	162, *IO*	—
Superheavy IndustrialMech Cockpit	IS/D	XFFF	~2905 (FW)	2940 (FW)	—	162, *IO*	—
Superheavy Tripod 'Mech Cockpit	IS/E	XFXF	~3130 (RS)	3135 (RS)	—	165, *IO*	—
MechWarrior Aquatic Survival System (MASS)	All/D	XXDD	3048 (FS)	~3083 (FS)	—	325, *TO*	Clan Prototype: 3062 (CGS)
Damage Interrupt Circuit	IS/E	XXFF	3055 (FS/LC)	—	—	68, *IO*	Ext: 3060

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Cockpit Systems (Continued)							
Direct Neural Interface Cockpit Modification	IS/E	XXEF	3052 (FS)	3055 (WB)	—	68, *IO*	—
Standard Neurohelmet	All/D	CCCC	~2430 (TH)	2439 (TH)	2487	43, *TM*	—
SLDF Advanced Neurohelmet (MechWarrior)	IS/E	FXXX	2755 (TH)	2759 (TH)	—	68, *IO*	Ext: 2770**
SLDF Advanced Neurohelmet (Fighter Pilot)	IS/E	FXXX	2758 (TH)	2761 (TH)	—	68, *IO*	Ext: 2770**
Defensive Pods							
Anti-Personnel Pods (A-Pods)	All/B	XXDC	~2845 (CGB)	~2850 (CGB)	3055	204, *TM*	IS Intro: 3055 (CS)
Anti-BattleArmor Pods (B-Pods)	All/E	XXED	~3065 (CWX/LC)	3068 (CWX)	3070	204,*TM*	IS Intro: 3068 (LC/WB/FW)
M-Pod	IS/C	XXED	~3060 (LC)	3064 (LC)	3099	330, *TO*	—
Drone and Robotic Systems							
Drone (Remote) Carrier Control System	All/C	EFFE	ES	ES	—	305, *TO*	—
Drone (Remote) Operating System	All/C	EFFE	ES	ES	—	306, *TO*	—
Remote Drone Command Console	IS/D	XXXF	~3125 (LC)	3140 (RS)	—	90, *IO*	—
Smart Robotic Control System (SRCS)	All/C	EFFF	ES	ES	—	140, *IO*	—
Shielded Aerospace Smart Robotic Control System	All/D	EXFF	2755 (TH)	—	—	141, *IO*	Ext: 2780; Ret: 3077 (WB)*
SDS (Caspar) Drone Control System (SDS-DCS)	All/F	EXXX	2695 (TH)	—	—	142, *IO*	Ext: 2780
Capsar II Advanced Smart Robotic Control System	IS/E	XXFX	3064 (WB)	—	—	143, *IO*	Ext: 3078; Ret: 3082 (RS)
Autonomous Tactical Analysis Computer (ATAC)	All/E	FXFF	2705 (TH)	—	—	145, *IO*	Ext: 2780
Advanced Robotic Transport System (ARTS)	All/E	DEEE	~2600 (TH)	2609 (TH)	—	147, *IO*	Ext: 2804; Ret: 3068 (WB)*
Direct Tactical Analysis Control (DTAC) System	IS/F	XXFF	3072 (WB)	—	—	146, *IO*	Ext: 3078; Ret: 3082 (RS)
SDS Self-Destruct System	All/C	DFXX	2695 (TH)	—	—	147, *IO*	Ext: 2780*
SLDF SDS Jammer System	IS/E	FFXX	2776 (TH)	—	—	148, *IO*	Ext: 2780
Ejection and Escape Systems							
Combat Vehicle Escape Pod	IS/D	XXEE	3038 (FS/LC)	3079 (LC)	—	309, *TO*	—
BattleMech Full-Head Ejection System	All/D	XXED	3020 (LC)	3023 (LC)	3100	310, *TO*	Clan Intro: 3052 (CWF)
Ejection Seat (IndustrialMech)	All/B	DEFE	~2430 (TH)	2445 (TH)	2490	213, *TM*	—
Ejection Seat (Support Vehicle)	All/B	DDDD	PS	PS	PS	213, *TM*	Always Available
Escape Pod (Aerospace)	All/D	CDCC	ES	ES	ES	216, *TM*	Always Available
Escape Pod (Maritime)	All/C	CDCC	ES	ES	ES	216, *TM*	Always Available
Lifeboat (Maritime)	All/A	CCCC	PS	PS	PS	227, *TM*	Always Available
Lifeboat (Atmospheric)	All/A	CCCC	ES	ES	ES	227, *TM*	Always Available
Lifeboat (Aerospace)	All/C	BCCB	ES	ES	ES	227, *TM*	Always Available
Electronic Warfare Systems							
Active Probe (Beagle)	IS/E	EFDC	2560 (TH)	2576 (TH)	3048	204, *TM*	Ext: 2835; Ret: 3045 (CC)
Bloodhound Active Probe	IS/E	XXFE	3058 (CS)	3082 (RS)	3094	278, *TO*	—
Active Probe [Clan]	Clan/F	XEDC	~2830 (CGS)	2832 (CGS)	2835	204, *TM*	—
Light Active Probe [IS]	IS/E	XXFE	~3050 (FS/LC)	3052 (FS/LC)	3058	204, *TM*	—
Light Active Probe [Clan]	Clan/F	XXED	~2890 (CSJ)	2900 (CSJ)	2905	204, *TM*	—
ECM Suite (Guardian)	IS/E	EFDC	2595 (TH)	2597 (TH)	3050	213, *TM*	Ext: 2845; Ret: 3045 (CC)
ECM Suite [Clan]	Clan/F	XEDC	~2830 (CSJ)	2832 (CSJ)	2835	213, *TM*	—
Angel ECM Suite	All/F	XXFE	3057 (DC)	~3080 (DC)	3085	279, *TO*	Clan Prototype: 3058 (CNC)
Electronic Warfare (EW) Equipment	IS/D	XFEF	~3020 (CC)	3025 (CC)	—	310, *TO*	Ext: 3046
Watchdog Composite Electronic Warfare System (CEWS)	Clan/F	XXFE	3059 (CSJ)	3080 (CSF)	3085	278, *TO*	—
Nova Combine Electronic Warfare System (CEWS)	Clan/F	XXFX	~3065 (CCY)	—	—	66, *IO*	Ext: 3085
Recon Camera	All/B	BBBB	PS	PS	—	337, *TO*	Always Available†
Remote Sensors/Dispenser	All/C	EDDD	2586 (TH)	2590 (TH)	—	375, *TO*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Electronic Warfare Systems (Continued)							
Satellite Imager [Look-Down Radar]	All/B	DEDD	PS	PS	—	340, *TO*	Always Available†
Satellite Imager [Infrared Imager]	All/C	DEDD	ES	ES	—	339, *TO*	Always Available†
Satellite Imager [Hyperspectral Imager]	IS/D	XXFE	~3045 (FS)	~3055 (FS)	—	338, *TO*	—
Satellite Imager [High-Resolution (Hi-Res) Imager]	All/C	DEDD	ES	ES	—	338, *TO*	Always Available†
Fire Control and Targeting Systems							
General Fire Control Systems							
Basic Fire Control	All/B	BCCC	PS	PS	PS	217, *TM*	Always Available
Advanced Fire Control	All/C	CDDC	ES	~2300 (TA)	2300	217, *TM*	—
Missile-Enhancing Fire Control Systems							
Artemis IV Fire-Control System [IS]	IS/E	EFDC	2592 (TH)	2598 (TH)	3045	206, *TM*	Ext: 2855; Ret: 3035 (FW)
Artemis IV Fire-Control System [Clan]	Clan/F	EFDC	~2816 (CSA)	2818 (CSA)	2830	206, *TM*	—
Artemis V Fire-Control System	Clan/F	XXFE	3061 (CGS)	3085 (CSF/RD)	3093	283, *TO*	—
Apollo MRM Fire Control System	IS/D	XXED	~3065 (DC)	3071 (DC)	—		—
Targeting Computers							
Targeting Computer [IS]	IS/E	XXED	~3052 (FS/LC)	3062 (FS)	3067	238, *TM*	—
Targeting Computer [Clan]	Clan/F	XEDD	~2850 (CMN)	2860 (CMN)	2863	238, *TM*	—
Target Acquisition Gear (TAG)							
TAG [IS]	IS/E	EFDC	2593 (TH)	2600 (TH)	3045	238, *TM*	Ext: 2835; Ret: 3044 (FS/LC)*
TAG [Clan]	Clan/F	XEDC	~2828 (CHH)	2830 (CHH)	2834	238, *TM*	—
Light TAG [IS]	IS/E	XXFD	~3050 (DC)	3053 (DC)	3062	238, *TM*	—
Light TAG [Clan]	Clan/F	XXFD	~3051 (CWF)	3054 (CWF)	3059	238, *TM*	—
Flamers							
Flamer	All/C	BBBA	ES	ES	ES	218, *TM*	Clan Ext: 2830
Flamer [Clan]	Clan/C	XCBA	~2820 (CFM)	2827 (CFM)	2828	218, *TM*	—
Extended-Range (ER) Flamer	All/D	XXED	~3065 (CJF)	3067 (CJF)	3081	312, *TO*	IS Intro: 3070 (FS)
Heavy Flamer	All/C	XXED	~3065 (CJF)	3067 (CJF)	3079	312, *TO*	IS Intro: 3068 (LC)
Vehicle Flamer	All/B	AABA	PS	PS	PS	218, *TO*	—
Fluid Guns and Sprayers							
Fluid Gun	All/B	BBBB	PS	PS	PS	313, *TO*	Always Available
Sprayer ['Mech]	All/B	BBBB	~2305 (TA)	~2315 (FS)	2320	248, *TM*	—
Sprayer [Vehicular]	All/B	BBBB	PS	PS	PS	248, *TM*	Always Available
Gauss Rifles							
Standard Gauss Rifle [IS]	IS/E	DFDC	2587 (TH)	2590 (TH)	3045	219, *TM*	Ext: 2865; Ret: 3040 (FC/FW/DC)
Improved Gauss Rifle	Clan/E	XEXX	~2818 (CGS)	2821 (CGS)	2822	96, *IO*	Ext: 2837; Ret: 3080 (EI)
Standard Gauss Rifle [Clan]	Clan/F	XFDD	~2822 (CBR)	2828 (CBR)	2830	219, *TM*	—
Light Gauss Rifle	IS/E	XXED	~3049 (FW)	3056 (FW)	3065	219, *TM*	—
Heavy Gauss Rifle	IS/E	XXED	~3051 (FW)	3061 (LC)	3067	218, *TM*	—
Anti-Personnel Gauss Rifle	Clan/F	XXED	~3065 (CJF)	3069 (CJF)	3072	218, *TM*	—
Hyper-Assault Gauss Rifle (20, 30, 40)	Clan/F	XXED	~3062 (CHH)	3068 (CHH)	3072	219, *TM*	—
Improved Heavy Gauss	IS/E	XXFE	3065 (LC)	3081 (LC)	3090	313,*TO*	—
Magshot Gauss Rifle	IS/E	XXDC	~3059 (FS)	3072 (FS)	3090	314, *TO*	—
Silver Bullet Gauss Rifle	IS/E	XXFE	3051 (FS/LC)	3080 (LC)	3090	314, *TO*	—

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Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heat Sinks and Cooling Systems							
Heat Sinks	All/C	BBBB	ES	ES	ES	220, *TM*	Always Available
Compact Heat Sinks	IS/E	XXFE	3058 (FS)	3079 (FS)	—	316, *TO*	—
Double Heat Sinks [IS]	IS/E	CEDC	2559 (TH)	2567 (TH)	3045	221, *TM*	Ext: 2865; Ret: 3040 (FS)
Double Heat Sinks [Clan]	Clan/F	XEDC	~2825 (CCY)	~2827 (CCY)	2829	221, *TM*	—
Laser Heat Sinks	Clan/F	XXED	~3040 (CJF)	3051 (CJF)	3060	316, *TO*	—
ProtoMech Heat Sinks	Clan/F	XXEE	~3055 (CSJ)	3060 (CSJ)	3060	221, *TM*	—
Coolant Pod	All/D	XXED	3049 (FS/LC)	~3079 (LC)	3098	303, *TO*	Clan Intro: 3079 (CJF)
Radical Heat Sinks	IS/E	XXXE	~3115 (FS)	3122 (FS)	—	90, *IO*	—
Industrial Equipment							
Backhoe	All/B	BBBB	PS	PS	PS	241, *TM*	Always Available
Bridgelayer (Light)	All/B	DEDD	PS	PS	PS	242, *TM*	Always Available
Bridgelayer (Medium)	All/C	DEDD	PS	PS	PS	242, *TM*	Always Available
Bridgelayer (Heavy)	All/D	EEEE	PS	PS	PS	242, *TM*	Always Available
Bulldozer	All/B	CCCC	PS	PS	PS	242, *TM*	Always Available
Chainsaw	All/B	DDDD	PS	PS	PS	242, *TM*	Always Available
Combine	All/B	CCCC	PS	PS	PS	243, *TM*	Always Available
Dual Saw	All/C	DDDD	PS	PS	PS	243, *TM*	Always Available
Dumper	All/A	AAAA	PS	PS	PS	243,*TM*	Always Available
Extended IndustrialMech Fuel Tanks	All/C	CDDD	~2300 (TA)	2350 (TH)	2490	244, *TM*	—
Fluid Suction System [Light, 'Mech/Vehicular]	All/B	BBBB	PS	PS	PS	248, *TM*	Always Available
Fluid Suction System [Standard]	All/C	BBBB	PS	PS	PS	248, *TM*	Always Available
Heavy-Duty Pile Driver	All/C	DEDD	PS	PS	PS	244, *TM*	Always Available
Ladder	All/A	AAAA	PS	PS	PS	245, *TM*	Always Available
Lift Hoist/Arresting Hoist	All/A	AAAA	PS	PS	PS	245, *TM*	Always Available
Manipulator [Non-'Mech/Non-Battle Armor]	All/C	CDCC	ES	ES	ES	245, *TM*	Always Available
Mining Drill	All/B	CDDD	PS	PS	PS	246, *TM*	Always Available
Nail/Rivet Gun	All/C	CCCC	~2309 (FW)	~2310 (FW)	2312	246, *TM*	—
Refueling Drogue/Fluid Suction System	All/C	AAAA	PS	PS	PS	247, *TM*	Always Available
Rock Cutter	All/C	DDDD	PS	PS	PS	247, *TM*	Always Available
Salvage Arm	All/D	EFEE	~2400 (TH)	2415 (TH)	2420	248, *TM*	—
Spot Welder	All/C	CDCC	~2312 (LC)	~2320 (LC)	2323	248, *TM*	—
Wrecking Ball	All/A	CCCC	PS	PS	PS	249, *TM*	Always Available
Large Craft Systems							
Docking Hardpoint (Docking Collar) [Pre-KF Boom]	All/B	CXXX	2304 (TA)	2350 (TH)	2364	119, *IO*	Ext: 2520
Docking Hardpoint (Docking Collar) [Post-KF Boom]	All/C	CCCC	2458 (TH)	2470 (TH)	2500	304, *TO*	—
DropShip KF Boom	All/C	DCCC	2458 (TH)	2470 (TH)	2500	238, *TM*	—
Energy Storage Battery	All/D	CEDD	ES	2131	2135	306, *TO*	—
Grav Deck (All Sizes)	All/B	CCCC	ES	ES	ES	315,*TO*	—
Light Sail	All/C	CEDD	ES	2165	2170	323, *TO*	—
Naval Comm-Scanner Suite (Small, Large NCSS)	All/D	DEEE	ES	~2200 (TA)	—	332, *TO*	—
Naval C^3	IS/F	XXFE	3065 (DC)	—	—	332, *TO*	—
Naval Tug Adaptor	All/C	CCCC	ES	ES	ES	334, *TO*	Always Available
Power Collector and Microwave Transmitter	All/C	CCCC	ES	~2200 (TA)	—	337, *TO*	—
Space Station K-F Adapter	All/C	DFDD	2350 (TH)	2375 (TH)	—	105, *IO*	Ext: 2850; Ret: 3048 (FS)
Jump Sails	All/D	EEDD	2200 (TA)	2300 (TA)	2325	148, *SO*	—
Lithium-Fusion Battery	All/E	EFEE	~2520 (TH)	2529 (TH)	—	323, *TO*	Ext: 2819; Ret: 3043 (FS)*
Word of Blake Super-Jump System	IS/F	XXFX	~3059 (WB)	—	—	183, *IO*	Ext: 3085

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Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Large Craft Systems (Continued)							
Control System Components							
Bridge	All/C	CCCC	ES	ES	ES	158, *SO*	Always Available
Computer	All/B	CCCC	ES	ES	ES	158, *SO*	Always Available
Life Support	All/C	CCCC	ES	ES	ES	158, *SO*	Always Available
Sensors	All/C	CCCC	ES	ES	ES	158, *SO*	Always Available
Fire Control Computer	All/C	CCCC	ES	ES	ES	158, *SO*	Always Available
Gunnery Control Systems	All/C	CCCC	ES	ES	ES	158, *SO*	Always Available
Kearny-Fuchida Drive Components							
Drive Coil	All/D	DEDD	2107 (TA)	2120 (TA)	2300	158, *SO*	—
Initiator	All/D	DEDD	2107 (TA)	2120 (TA)	2300	158, *SO*	—
Controller	All/D	DEDD	2107 (TA)	2120 (TA)	2300	158, *SO*	—
Tankage	All/D	DEDD	2107 (TA)	2120 (TA)	2300	158, *SO*	—
Charging System	All/D	DEDD	2107 (TA)	2120 (TA)	2300	158, *SO*	—
Primitive K-F Core	All/D	DEDD	2107 (TA)	2110 (TA)	—	128, *IO*	Ext: 2500
Compact K-F Core	All/D	EFEE	2290 (TA)	2300 (TA)	—	148, *SO*	Ext: 2950; Ret: 3050 (FS/LC/DC)*
Sub-Compact K-F Drive System	All/E	FXFF	~2620 (TH)	—	—	344, *TO*	Ext: 2850*
Standard K-F Core	All/D	DEDD	2460 (TH)	~2470 (TH)	2490	148, *SO*	—
JumpShip Support Systems	All/D	DEDD	2460 (TH)	~2470 (TH)	2490	158, *SO*	—
WarShip Support Systems	All/D	EFEE	2107 (TA)	2120 (TA)	2300	158, *SO*	Ext: 2950; Ret: 3050 (FS/LC/DC)*
Maneuvering/Station Keeping Drive Components							
Drive Unit	All/D	CDCC	ES	ES	ES	158, *SO*	Always Available
Engine	All/D	CDCC	ES	ES	ES	158, *SO*	Always Available
Engine Control Unit	All/D	CDCC	ES	ES	ES	158, *SO*	Always Available
Attitude Thrusters	All/C	CCCC	ES	ES	ES	158, *SO*	Always Available
Fuel Tanks	All/B	AAAA	ES	ES	ES	158, *SO*	Always Available
Lasers							
Standard Lasers (Small, Medium)	All/C	BBBB	2290 (TA)	~2300 (TA)	2310	227, *TM*	Clan Ext: ~2850
Standard Large Laser	All/C	CDCB	2306 (TA)	2316 (TH)	2320	227, *TM*	Clan Ext: ~2850
Improved Large Laser	Clan/E	XDXX	~2812 (CNC)	~2815 (CNC)	2818	95, *IO*	Ext: 2830; Ret: 3080 (EI)
Binary Laser (Blazer) Cannon	IS/D	XEED	2812 (FW)	3077 (WB)	3085	319, *TO*	—
Bombast Laser	IS/E	XXEE	3064 (LC)	3085 (LC)	—	320, *TO*	—
Chemical Lasers	Clan/E	XXEE	3059 (CHH)	3083 (CHH)	3145	320, *TO*	—
Extended-Range (ER) Lasers (Small, Medium) [IS]	IS/E	XXDC	3052 (FW/WB)	3058 (FW)	3062	226, *TM*	—
ER Large Laser [IS]	IS/E	EFDC	2610 (TH)	2620 (TH)	3045	226, *TM*	Ext: 2950; Ret: 3037 (DC)
ER Large Laser [Clan]	Clan/F	XFDC	~2820 (CNC)	2825 (CNC)	2830	226, *TM*	—
ER Medium Laser [Clan]	Clan/F	XEDC	~2822 (CJF)	2824 (CJF)	2830	226, *TM*	—
ER Small Laser [Clan]	Clan/F	XEDC	~2822 (CJF)	2825 (CJF)	2830	226, *TM*	—
ER Pulse Lasers (Micro, Small, Medium, Large)	Clan/F	XXED	3057 (CWF)	3082 (CWF)	3095	320, *TO*	—
Heavy Lasers (Small, Medium, Large)	Clan/F	XXDD	~3057 (CBR/CSA)	3059 (CSA)	3064	226, *TM*	—
Improved Heavy Lasers	Clan/F	XXFD	3069 (CGS)	3079 (RD)	3085	321, *TO*	—
Pulse Lasers (Small, Medium, Large)	IS/E	EFDC	2595 (TH)	2609 (TH)	3042	226, *TM*	Ext: 2950; Ret: 3037 (DC)
Improved Large Pulse Laser	Clan/E	XEXX	2815 (CGS)	2818 (CGS)	2820	95, *IO*	Ext: 2826; Ret: 3080 (EI)
Large Pulse Laser [Clan]	Clan/F	XDCC	2820 (CCY)	2824 (CCY)	2831	226, *TM*	—
Medium Pulse Laser [Clan]	Clan/F	XDCC	~2825 (CJF/CGB)	2827 (CJF)	2831	226, *TM*	—
Small Pulse Laser [Clan]	Clan/F	XDCC	~2825 (CJF/CGB)	2829 (CGB)	2831	226, *TM*	—
Micro Lasers (ER, Pulse)	Clan/F	XXDC	~3059 (CSJ)	3060 (CSJ)	3061	226, *TM*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Lasers (Continued)							
Variable Speed Pulse (VSP) Lasers (Small, Medium, Large)	IS/E	XXED	3070 (FW/WB)	3072 (FW/WB)	3080	321, *TO*	—
X-Pulse Lasers	IS/E	XXED	3057 (LC/FS)	3078 (LC)	3082	321, *TO*	—
Re-Engineered Lasers (Small, Medium, Large)	IS/E	XXXE	~3120 (FS)	3130 (FS)	—	89, *IO*	—
Laser Insulator	AII/E	XEFF	2575 (TH)	—	—	322, *TO*	Ext: 2820*
Machine Guns							
Machine Gun [IS]	IS/B	AABA	PS	PS	PS	228, *TM*	Clan Ext: 2826
Machine Gun [Clan]	Clan/C	XBBA	~2821 (CSF)	2825 (CSF)	2830	228, *TM*	—
Light Machine Gun [IS]	IS/B	XXCB	~3064 (CC)	3068 (CC)	3070	228, *TM*	—
Light Machine Gun [Clan]	Clan/C	XXCB	~3055 (CSJ)	3060 (CSJ)	3070	228, *TM*	—
Heavy Machine Gun [IS]	IS/B	XXCB	~3063 (TC)	3068 (TC)	3070	228, *TM*	—
Heavy Machine Gun [Clan]	Clan/C	XXCB	~3054 (CHH)	3059 (CSJ)	3070	228, *TM*	—
Machine Gun Arrays	AII/E	XXFF	~3066 (FS)	3068 (TC)	3070	228, *TM*	Clan Intro: 3069 (CSF)
'Mech/Vehicle/Fighter Engines							
Standard Fusion	AII/D	CEDD	ES	ES	~2300	214, *TM*	—
Large-Fusion Engine (LSF)	AII/D	CEDD	2630 (TH)	~3085 (LC)	~3120	307, *TO*	—
Standard ICE/Turbine	AII/C	AAAA	ES	ES	~2300	214, *TM*	—
Large-ICE (LIC)	AII/C	AAAA	2630 (TH)	~3085 (LC)	—	307, *TO*	—
Light Fusion	IS/E	XXED	~3055 (Merc)	3062 (LC)	3067	214, *TM*	—
Large-Light (LLF)	IS/E	XXEE	~3064 (LC)	3065 (LC)	—	307, *TO*	—
Compact Fusion	IS/E	XXED	~3065 (LC)	3068 (LC)	3072	214, *TM*	—
Extralight (XL) Fusion [IS]	IS/E	DFED	2556 (TH)	2579 (TH)	3045	214, *TM*	Ext: 2865; Ret: 3035 (LC)
Extralight (XL) Fusion [Clan]	Clan/F	DEDD	~2824 (CFM)	2827 (CSR)	2829	214, *TM*	—
Large-XL (LXL) [IS]	IS/E	DFEE	~2635 (TH)	~3085 (LC)	—	307, *TO*	Ext: 2822; Proto: 3054 (FS/LC)
Large-XL (LXL) [Clan]	Clan/F	DFEE	~2850 (CIH)	~3080 (CHH)	—	307, *TO*	—
XXL Fusion [IS]	IS/F	XXFE	~3055 (FS/LC)	~3110 (LC)	—	309, *TO*	—
XXL Fusion [Clan]	Clan/F	XXFE	~2954 (CSF)	~3084 (CSF)	—	309, *TO*	—
Large-XXL (LXXL) [IS]	IS/F	XXFF	3058 (FS)	3130 (LC)	—	308, *TO*	—
Large-XXL (LXXL) [Clan]	Clan/F	XXFF	3055 (CSF)	3125 (CSF)	—	308, *TO*	—
Combat Vehicle Fission (CV-Fission)	AII/D	EEDD	2470 (TH)	2882 (TC)	3079	307, *TO*	—
Combat Vehicle Fuel Cell (CV-Cell)	AII/D	CDDC	~2300 (TA)	2470 (TH)	3078	307, *TO*	—
Support Vehicle [Steam]	AII/A	AAAA	PS	PS	PS	127, *TM*	Always Available†
Support Vehicle [Internal Combustion (ICE)]	AII/B	AAAA	PS	PS	PS	127, *TM*	Always Available†
Support Vehicle [Electric (Battery)]	AII/C	ABAA	PS	PS	PS	127, *TM*	Always Available†
Support Vehicle [Electric (External)]	AII/B	CCCC	PS	PS	PS	246, *TO*	Always Available†
Support Vehicle [Electric (Fuel Cell)]	AII/C	BCCB	PS	PS	PS	127, *TM*	Always Available†
Support Vehicle [Electric (Solar)]	AII/C	CDCC	PS	PS	PS	127,*TM*	Always Available†
Support Vehicle [Fission]	AII/C	EEDE	ES	ES	ES	127, *TM*	Always Available†
Support Vehicle [Fusion]	AII/C	CEDC	ES	ES	ES	127, *TM*	Always Available†
Support Vehicle [MagLev]	AII/C	DFED	ES	ES	ES	246, *TO*	Always Available†
Mine Dispensing/Clearing Systems							
Vehicular Dispenser (Land, Maritime)	AII/B	EEEE	PS	PS	PS	325, *TO*	Always Available
Space Dispenser	AII/D	EFEE	ES	ES	ES	325, *TO*	Always Available
Minesweeper	AII/C	DDDD	PS	PS	PS	326, *TO*	Always Available

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Miscellaneous Systems							
Blue Shield Particle Field Damper (PFD)	IS/E	XXFF	3053 (FS/LC)	—	—	296, *TO*	—
Booby Trap	IS/B	DFDD	PS	~3080 (WB)	—	297, *TO*	—
Centurion Weapon System	IS/E	FFFX	~2762 (TH)	—	—	85, *IO*	Ext: 2770
Chaff Pod	IS/C	XXEE	3069 (LC)	3079 (LC)	—	299, *TO*	—
Chameleon Light Polarization Shield (LPS)	IS/E	FXXF	2630 (TH)	—	—	300, *TO*	Ext: 2790; Ret: 3099 (FS)
Communications Equipment	All/D	CDCB	PS	PS	ES	212, *TM*	Always Available
Collapsible Command Module	All/D	EFEF	~2700 (TH)	2710 (TH)	—	301, *TO*	—
Docking Hardpoint (Non-Spacecraft)	All/B	CCCC	PS	PS	PS		—
Docking Thrusters	All/B	CCCC	PS	PS	PS	305, *TO*	Always Available
Extended Fuel Tanks	All/C	CDDC	ES	~2300 (TA)	2300	244, *TM*	—
Handheld Weapon	All/D	EEFE	3055 (FS/LC)	~3083 (FS/LC)	—	315, *TO*	Clan Intro: 3085
BattleMech HarJel System	All/E	XXEE	3059 (CSF)	~3115 (CSF)	—	288, *TO*	IS Intro: 3115 (LC)
HarJel Repair Systems (HarJel II)	Clan/F	XXXF	~3120 (CSF)	3136 (CSF)	—	88, *IO*	—
HarJel Repair Systems (HarJel III)	Clan/F	XXXF	~3137 (CSF)	3139 (CSF)	—	88, *IO*	—
Mobile Field Base	All/D	FXED	~2540 (TH)	3059 (FS/LC)	—	330, *TO*	—
MASH Equipment	All/B	CEDC	PS	PS	—		Always Available
Null-Signature System	IS/E	EXXF	~2615 (TH)	2630 (TH)	—	336, *TO*	Ext: 2790; Ret: ~3110 (CS)
Paramedic Equipment	All/C	CCCC	PS	PS	—	233, *TM*	Always Available
Power Amplifiers	All/D	BCBB	ES	~2300 (TA)	2300	235, *TM*	—
Searchlight (Handheld)	All/A	AAAA	PS	PS	PS	237, *TM*	—
Searchlight (Mounted)	All/A	AABA	PS	PS	PS	237, *TM*	—
Vehicular Dropchute (Standard)	All/D	DEBB	~2348 (TH)	2351 (TH)	—	348, *TO*	—
Vehicular Dropchute (Camouflage)	All/D	DECC	~2348 (TH)	2351 (TH)	—	348, *TO*	—
Vehicular Dropchute (Stealth)	All/D	EFDD	~2353 (TH)	2355 (TH)	—	348, *TO*	—
Vehicular Dropchute (Reusable)	All/F	EFFE	~2348 (TH)	2353 (TH)	—	348, *TO*	—
Void-Signature System	IS/E	XXEF	3070 (WB)	3085 (RS)	—	349, *TO*	—
VTOL Mast Mount	All/C	FFFF	PS	PS	—	350, *TO*	—
Additional ProtoMech Equipment							
Magnetic Clamp System	Clan/F	XXFE	~3070 (CFM)	3075 (CSF)	—	66, *IO*	—
ProtoMech Melee Weapon	Clan/F	XXED	3067 (Clan)	3077 (Clan)	3085	337, *TO*	—
ProtoMech Quad Melee Weapon System	Clan/F	XXFE	~3066 (CCC)	3072 (CHH)	3085	67, *IO*	—
Mobile Hyperpulse Generators							
Mobile Hyperpulse Generators (Mobile HPG)	All/E	FFFF	~2645 (TH)	2655 (TH)	—	330, *TO*	—
Mobile Hyperpulse Generators (Ground-Mobile HPG)	All/F	FFFF	~2740 (TH)	2751 (TH)	—	330, *TO*	—
RISC Equipment							
RISC Advanced Point Defense System (Standard)	IS/E	XXXE	3134 (RS)	3137 (RS)	—	91, *IO*	—
RISC Advanced Point Defense System (Battle Armor)	IS/E	XXXE	3132 (RS)	3134 (RS)	—	91, *IO*	—
RISC Emergency Coolant System	IS/F	XXXF	3136 (RS)	—	—	92, *IO*	Ext: 3140
RISC Heat Sink Override Kit	IS/D	XXXF	3134 (RS)	—	—	92, *IO*	Ext: 3139
RISC Hyper Laser	IS/F	XXXF	3134 (RS)	—	—	93, *IO*	Ext: 3141
RISC Laser Pulse Module	IS/F	XXXF	3137 (RS)	—	—	93, *IO*	Ext: 3140
RISC Repeating TSEMP	IS/E	XXXF	3133 (RS)	—	—	94, *IO*	Ext: 3138
RISC Super-Cooled Myomer	IS/F	XXXF	3132 (RS)	—	—	94, *IO*	Ext: 3140
RISC Viral Jammers (Decoy)	IS/F	XXXF	3136 (RS)	—	—	94, *IO*	Ext: 3142
RISC Viral Jammers (Homing Beacon)	IS/F	XXXF	3137 (RS)	—	—	94, *IO*	Ext: 3142

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Missile Launchers							
Long-Range Missiles (LRM 5, 10, 15, 20)	All/C	CCCC	2295 (TA)	2300 (TA)	2400	229, *TM*	Clan Ext: 2830
Improved LRMs (5, 10, 15, 20)	Clan/F	XDXX	2815 (CCY)	2818 (CCY)	2820	96, *IO*	Ext: 2831; Ret: 3080 (EI)
Long-Range Missiles (LRM 5, 10, 15, 20) [Clan]	Clan/F	XDCC	~2820 (CCY)	2824 (CCY)	2825	229, *TM*	—
Short-Range Missiles (SRM 2, 4, 6)	All/C	CCCC	2365 (TH)	2370 (TH)	2400	229, *TM*	Clan Ext: 2836
Improved SRMs (2, 4, 6)	Clan/F	XDXX	2815 (CCC)	2817 (CCC)	2819	96, *IO*	Ext: 2828; Ret: 3080 (EI)
Short-Range Missiles (SRM 2, 4, 6) [Clan]	Clan/F	XDCC	~2820 (CCC)	2824 (CCC)	2825	229, *TM*	—
Medium-Range Missiles (MRM 10, 20, 30, 40)	IS/C	XXED	~3052 (DC)	3058 (DC)	3063	229, *TM*	—
Multi-Missile Launchers (MML 3, 5, 7, 9)	IS/D	XXED	~3067 (Merc)	3068 (WB)	3072	229, *TM*	—
Advanced Tactical Missile System (ATM 3, 6, 9, 12)	Clan/F	XXDD	~3052 (CCY)	~3053 (CCY)	~3054	229, *TM*	—
Improved Advanced Tactical Missile (IATM) Launchers (3, 6, 9, 12)	Clan/F	XXFE	~3054 (CCY)	3070 (CCY)	—	65, *IO*	—
Rocket Launchers (10, 15, 20)	All/B	BBBB	ES	3064 (MH)	3067	229, *TM*	Clan Ext: 2823
Enhanced Long-Range Missile (NLRM) Launchers (5, 10, 15, 20)	IS/E	XXFE	3058 (FS)	3082 (FS)	3090	326, *TO*	—
Extended Long-Range Missile (ELRM) Launchers (5, 10, 15, 20)	IS/E	XXFE	3054 (FS/LC)	3078 (LC)	3083	327, *TO*	—
Streak LRM Launchers (5, 10, 15, 20)	Clan/F	XXFE	3057 (CCY)	~3079 (CJF)	3088	327, *TO*	—
Streak Short-Range Missiles (2)	All/E	EFDD	2645 (TH)	2647 (TH)	~2650	230, *TM*	Ext: 2845; Ret: 3035 (FW)
Streak Short-Range Missiles (4, 6)	All/E	XXED	3055 (DC)	3058 (DC)	~3060	230, *TM*	Clan Ext: 2836
Streak Short-Range Missiles (2, 4, 6) [Clan]	Clan/F	XDDD	2819 (CSA)	~2822 (CSA)	2830	230, *TM*	—
Thunderbolt Missile Launcher (5, 10, 15, 20)	IS/E	XXFE	3052 (FS)	3072 (FS/LC)	3081	347, *TO*	—
Single-Shot (OS) Missile Launchers	IS/Var	As Weapon	~2665 (TH)	2676 (TH)	3045	230, *TM*	Ext: 2800; Ret: 3030 (FW)*
Improved One-Shot (I-OS) Missile Launcher	All/B	XXFE	3056 (DC)	~3081 (DC)	3085	327, *TO*	Clan Prototype: 3058 (CNC)
Narc Missile Beacon	All/E	EFDC	~2580 (TH)	2587 (TH)	3049	232, *TM*	Ext: 2795; Ret: 3055 (FS/LC)*
Narc Missile Beacon [Clan]	Clan/F	XEDC	~2820 (CHH/CIH)	2828 (CIH)	2830	232, *TM*	—
Improved Narc Launcher	IS/E	XXED	~3054 (CS)	3062 (CS/WB)	3070	232, *TM*	—
Torpedo Launchers (All Standard LRTs and SRTs)	All/C	As Weapon	2370 (TH)	2380 (TH)	2400	230, *TM*	—
Fusillade Launcher	Clan/F	XXFX	~3072 (CCY)	—	—	65, *IO*	Ext: 3075
Mortars and Grenade Launchers							
'Mech Mortars (1, 2, 4, 8) [IS]	IS/B	DFFE	~2526 (TH)	2531 (TH)	3052	324, *TO*	Ext: 2819; Ret: 3043 (FS/LC)
'Mech Mortars (1, 2, 4, 8) [Clan]	Clan/B	DFEE	~2835 (CBR)	2840 (CBR)	—	324, *TO*	—
Grenade Launchers, Vehiclular (VGL)	All/C	DEFE	PS	ES	3078	315, *TO*	—
Plasma Weapons							
Plasma Rifle	IS/E	XXED	~3061 (CC)	3068 (CC)	3072	234, *TM*	—
Plasma Cannon	Clan/F	XXED	~3068 (CSF)	3069 (CSF)	3070	234, *TM*	—
PPCs							
Standard PPC	All/D	CCCC	~2440 (TH)	2460 (TH)	2500	234, *TM*	Clan Ext: 2825
Improved PPC	Clan/F	XDXX	~2819 (CSR)	2820 (CSR)	—	95, *IO*	Ext: 2832; Ret: 3080 (EI)
Light PPC	IS/E	XXEC	3064 (DC)	3067 (DC/FW)	3068	234, *TM*	—
Heavy PPC	IS/E	XXEC	3062 (DC)	3067 (DC/FW)	3068	234, *TM*	—
Snub-Nosed PPC	IS/E	FXFD	~2779 (TH)	2784 (TH)	3068	234, *TM*	Ext: 2790; Ret: 3067 (DC/FW)
Extended-Range (ER) PPC [IS]	IS/E	EFDC	~2740 (TH)	2751 (TH)	3042	233, *TM*	Ext: 2860; Ret: 3037 (DC)*
Extended-Range (ER) PPC [Clan]	Clan/F	XFDC	~2823 (CSR)	2826 (CSR)	2828	233, *TM*	—
Enhanced PPC	Clan/F	XEXX	~2822 (CWV)	2823 (CWV)	—	95, *IO*	Ext: 2831; Ret: 3080 (EI)
PPC Capacitor	All/E	XXED	3060 (DC)	3081 (DC)	—	337, *TO*	Clan Intro: 3101



Stone's Lament makes a highly visible and impressive symbol of the Republic of the Sphere's ability to leverage its authority.

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Structural Components ('Mech)							
Internal Structure							
Standard (BattleMech) Structure	All/D	CCCC	~2430 (TH)	2439 (TH)	2505	225, *TM*	—
Endo-Steel (BattleMech) Structure [IS]	IS/E	DFED	~2480 (TH)	2487 (TH)	3040	224, *TM*	Ext: 2850; Ret: 3035 (DC)
Endo-Steel (BattleMech) Structure [Clan]	Clan/F	XEDD	~2825 (CIH)	~2827 (CIH)	2830	224, *TM*	—
Composite (BattleMech) Structure	IS/E	XXED	3061 (FS)	3082 (FS)	—	342, *TO*	—
Endo-Composite (BattleMech) Structure	All/E	XXFE	3067 (LC)	~3085 (LC)	—	342, *TO*	Clan Prototype: 3073 (CWX)
Reinforced (BattleMech) Structure	All/E	XXED	3057 (CS)	~3084 (CGB)	—	342, *TO*	Clan Prototype: 3065 (CGB)
IndustrialMech Structure	All/C	CCCC	~2300 (TA)	2350 (TH)	2490	224, *TM*	—
IndustrialMech Structure w/ Environmental Sealing	All/C	CCCC	~2300 (TA)	2350 (TH)	2495	224, *TM*	—
Tripod 'Mech Internal Structure (Standard Sizes)	IS/E	EFXE	~2590 (TH)	2602 (TH)	—	165, *IO*	—
Tripod 'Mech Internal Structure (Superheavy)	IS/E	XXXF	~3130 (RS)	3135 (RS)	—	165, *IO*	—
Standard Superheavy (BattleMech) Structure	IS/E	XXFF	~3060 (WB)	3076 (WB)	—	161, *IO*	—
Superheavy Endo Composite (BattleMech) Structure	IS/E	XXFF	~3130 (RS)	3135 (RS)	—	161, *IO*	—
Superheavy Endo-Steel (BattleMech) Structure	IS/E	XXFF	~3060 (WB)	3076 (WB)	—	161, *IO*	—
Industrial Superheavy Structure	IS/D	XFFF	~2905 (FW)	2940 (FW)	—	161, *IO*	—
Actuators and Actuator Systems							
'Mech Actuators (All)	All/C	CCCC	~2300 (TA)	2350 (TH)	2505	—	—
Superheavy 'Mech Actuators (All)	IS/D	XFFF	~2905 (FW)	2940 (FW)	3076	—	—
Actuator Enhancement System (AES)	All/E	XXFE	3070 (Merc)	3108 (RD)	—	279, *TO*	IS Intro: 3109 (CC)
Musculature						—	
Standard 'Mech Musculature	All/D	CCCC	~2300 (TA)	2350 (TH)	2505	—	—
Superheavy 'Mech Musculature	IS/D	XFFF	~2905 (FW)	2940 (FW)	—	—	—
Triple-Strength Myomer (Musculature)	IS/E	XXDD	~3028 (FS/CC)	3050 (CC)	3055	240, *TM*	—
Industrial TSM (Musculature)	IS/E	XXED	~3035 (FS)	3045 (FS)	3055	240, *TM*	—
Gyroscopes							
Standard Gyro	All/D	CCCC	~2300 (TA)	2350 (TH)	2505	219, *TM*	—
Compact Gyro	IS/E	XXED	~3055 (FS/LC)	3068 (FS/LC)	3072	219, *TM*	—
Heavy-Duty Gyro	IS/E	XXED	~3055 (DC)	3067 (DC)	3072	219, *TM*	—
Extralight (XL) Gyro	IS/E	XXED	~3055 (CS)	3067 (CS)	3072	220, *TM*	—
Superheavy Gyro	IS/D	XFFF	~2905 (FW)	2940 (FW)	—	162, *IO*	—
Structural Components (Non-'Mech)							
Aerospace Fighter Structure	All/C	CDDC	~2200 (TA)	2470 (TH)	2490	186, *TM*	—
Conventional Fighter Structure	All/C	CCCC	PS	2470 (TH)	2490	187, *TM*	—
Small Craft/DropShip Structure	All/C	DDDD	~2200 (TA)	~2470 (TH)	2490	187, *TM*	—
JumpShips	All/D	DEDF	~2100 (—)	~2300 (TA)	—	—	—
WarShips	All/E	DEEF	~2300 (TA)	2470 (TH)	—	148, *SO*	Ext: 2950; Ret: 3050 (FS/LC/DC)*
Space Stations	All/D	CDCC	ES	ES	—	—	—
ProtoMech Structure	Clan/D	XXCD	~3055 (CSJ)	3060 (CSJ)	3060	82, *TM*	—
ProtoMech Actuators (All)	Clan/D	XXDD	~3055 (CSJ)	3060 (CSJ)	3060	—	—
ProtoMech Musculature	Clan/D	XXED	~3055 (CSJ)	3060 (CSJ)	3060	—	—
Combat Vehicle Structure	All/D	AAAA	~2460 (TH)	2470 (TH)	2510	98, *TM*	—
Combat Vehicle Control Components	All/C	AAAA	~2460 (TH)	2470 (TH)	2510	103, *TM*	—
Combat Vehicle Lift/Dive Equipment	All/D	BBBB	~2460 (TH)	2470 (TH)	2510	102, *TM*	—
Combat Vehicle Rotors	All/D	CDCC	~2460 (TH)	2470 (TH)	2510	102, *TM*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Structural Components (Non-'Mech) (Continued)							
Primitive Combat Vehicle/Support Vehicle (BAR 2-3)	All/A	AAAA	PS	PS	PS	121, *TM*	Always Available†
Primitive Combat Vehicle/Support Vehicle (BAR 4)	All/B	BBAA	PS	PS	PS	121, *TM*	Always Available†
Primitive Combat Vehicle/Support Vehicle (BAR 5)	All/B	BBBA	ES	ES	ES	121, *TM*	Always Available†
Primitive Combat Vehicle/Support Vehicle (BAR 6)	All/C	CBBB	ES	ES	ES	121, *TM*	Always Available†
Primitive Combat Vehicle/Support Vehicle (BAR 7)	All/C	CBBB	~2250 (TA)	2300 (TA)	2305	121, *TM*	†
Support Vehicle (BAR 8)	All/D	CCBB	~2420 (TH)	2430 (TH)	2435	121, *TM*	†
Support Vehicle (BAR 9)	All/D	CCCB	~2420 (TH)	2430 (TH)	2435	121, *TM*	†
Support Vehicle (BAR 10)	All/D	DDDC	~2420 (TH)	2430 (TH)	2435	121, *TM*	†
Combat Vehicle Chassis Mod [Flotation Hull]	All/B	BBBB	2470 (TH)	2472 (TH)	—	302, *TO*	—
Combat Vehicle Chassis Mod [Limited Amphibious]	All/B	BBBB	2470 (TH)	2472 (TH)	—	302, *TO*	—
Combat Vehicle Chassis Mod [Fully Amphibious]	All/B	BBBB	2470 (TH)	2474 (TH)	—	303, *TO*	—
Combat Vehicle Chassis Mod [Dune Buggy]	All/B	BBBB	2470 (TH)	2471 (TH)	—	303, *TO*	—
Combat Vehicle Chassis Mod [Environmental (Vacuum) Sealing]	All/B	CDCB	—	2475	—	303, *TO*	—
Support Vehicle Chassis Mod [All]	All/Var	As Mod	As Mod	As Mod	As Mod	302, *TO*	See p. 280, TM
Taser							
Battle Armor Taser	IS/E	XXEE	~3060 (WB)	3067 (WB)	—	345, *TO*	—
BattleMech Taser	IS/E	XXFE	3065 (FS)	3084 (RS)	—	346, *TO*	—
Transport Launching/Recovery Systems							
Arresting Hoist	All/C	CFED	PS	PS	PS	245, *TM*	Always Available
'Mech Cubicle	All/C	DCCC	~2445 (TH)	2470 (TH)	2500	239, *TM*	—
ProtoMech Cubicle	Clan/C	XXDD	~3060 (CSJ)	3066 (CBS)	3070	239, *TM*	—
Fighter Cubicle	All/C	CCCC	ES	ES	ES	239, *TM*	Always Available
Small Craft Bay	All/C	BBBB	ES	ES	ES	239, *TM*	Always Available
DropShuttle Bay	IS/C	CXXX	~2110 (TA)	2120 (TA)	—	119, *IO*	Ext: 2500
Battle Armor Bay	All/D	XFCB	~2867 (CWF)	2868 (CWF)	2870	239, *TM*	IS Intro: 3050 (FS/LC)
Flight Deck	All/B	AAAA	PS	PS	PS	312, *TO*	Always Available
Helipad	All/B	AAAA	PS	PS	PS	312, *TO*	Always Available
Landing Deck	All/B	CCCC	ES	ES	ES	319, *TO*	Always Available
Naval Repair Facilities [Standard, Unpressurized]	All/C	CEDD	ES	ES	ES	334, *TO*	Always Available
Naval Repair Facilities [Standard, Pressurized]	All/C	CEDD	ES	ES	ES	334, *TO*	Always Available
Naval Repair Facilities [Reinforced, Unpressurized]	IS/C	FXFF	~2750 (TH)	—	—	334, *TO*	Ext: 2766; Ret: 3065 (WB)
Transport Bays, Quarters, and Seating							
Cargo (Container)	All/A	AAAA	PS	PS	PS	239, *TM*	Always Available
Cargo (Other)	All/A	AAAA	PS	PS	PS	239, *TM*	Always Available
Infantry (Compartment)	All/A	BBBB	PS	PS	PS	239, *TM*	Always Available
Infantry (Bay)	All/A	BBBB	PS	PS	PS	239, *TM*	Always Available
Battle Armor (Compartment)	All/D	XFCB	ES	ES	ES	239, *TM*	Always Available
Vehicle Cubicle (Light)	All/C	BBBB	PS	PS	PS	239, *TM*	Always Available
Vehicle Cubicle (Heavy)	All/C	BBBB	PS	PS	PS	239, *TM*	Always Available
Vehicle Cubicle (Super-Heavy)	All/C	CCCC	PS	PS	PS	239, *TM*	Always Available
Quarters (Crew/Steerage/Second Class Passenger)	All/A	AAAA	PS	PS	PS	236, *TM*	Always Available
Quarters (Officer/First Class Passenger)	All/B	BBBB	PS	PS	PS	236, *TM*	Always Available
Seating (All)	All/A	AAAA	PS	PS	PS	236, *TM*	Always Available
TSEMP Weapons							
TSEMP Cannon	IS/E	XXXE	~3100 (RS)	3109 (RS)	—	91, *IO*	—
TSEMP One-Shot	IS/E	XXXE	~3090 (RS)	3095 (RS)	—	90, *IO*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Turrets							
Turret Mount (Vehicle, Building, Structure)	All/B	AAAA	PS	PS	PS	241, *TM*	Always Available
BattleMech Turret (Shoulder)	All/C	FXFE	2450	~3082	—	347, *TO*	—
BattleMech Turret (Head)	IS/C	XXFE	3055 (FS/LC)	~3082	—	347, *TO*	—
BattleMech Turret (Quad)	All/C	FFFE	2320	~3079	—	347, *TO*	—
Vehicular Dual Turret	All/B	FFFE	PS	~3080	3080	347, *TO*	—
Vehicular Sponson Turret	All/B	FFFD	PS	~3079	3080	348, *TO*	—
VTOL Chin Turret	All/B	FFFE	PS	~3079	3080	348, *TO*	—
Construction Options							
BattleMechs and IndustrialMechs							
Primitive BattleMechs (Biped and Quad)	IS/D	DXFF	2439 (TH)	2443 (TH)	2470	122, *IO*	Ext: 2520**
Standard BattleMechs (Biped and Quad)	All/D	CEDC	2460 (TH)	2470 (TH)	2500	44, *TM*	—
Primitive IndustrialMechs (Biped and Quad)	IS/C	CXFF	2300 (TA)	2350 (TH)	2425	122, *IO*	Ext: 2520**
Standard IndustrialMechs (Biped and Quad)	All/C	CCCB	2460 (TH)	2470 (TH)	2500	64, *TM*	—
Bimodal Land-Air BattleMechs	All/E	EFXX	2680 (TH)	2684 (TH)	—	105, *IO*	Ext: 2781; Clan Ext: 2801
Standard Land-Air BattleMechs	All/E	DEFF	2683 (TH)	2688 (TH)	—	105, *IO*	Ext: 3085; Clan Ext: 2825
Quad-Vee	Clan/F	XXXF	~3130 (CHH)	3135 (CHH)	—		—
Tripod 'Mechs	IS/D	FFFE	~2585 (TH)	2602 (TH)	—	163, *IO*	—
Superheavy 'Mechs (Biped and Quad)	IS/D	XFFF	3077 (WB)	3078 (WB)	—	159, *IO*	—
Superheavy 'Mechs (Tripod)	IS/D	XFXF	~2930 (FW)	2940 (FW)	—	160, *IO*	—
Super-Heavy Vehicles (Combat)	All/C	EFFE	~2470 (LC)	—	~3075	378, *TO*	—
Ultra-Light BattleMechs	All/D	EFEE	~2500 (TH/FW)	2519 (FW)	~3075	378, *TO*	—
ProtoMechs							
ProtoMechs [Biped, Standard]	Clan/F	XXED	~3055 (CSJ)	3059 (CSJ)	3060	80, *TM*	—
ProtoMechs [Quad (ProtoQuads)]	Clan/F	XXED	3075 (Clan)	~3083 (CCC)	3100	98, *IO*	—
ProtoMechs [Gliders]	Clan/F	XXEE	3075 (Clan)	~3084 (CSR)	3100	98, *IO*	—
ProtoMechs [Ultraheavy (Ultras)]	Clan/F	XXDD	3075 (Clan)	~3083 (CCY)	3100	98, *IO*	—
Battle Armor and Exoskeletons							
Exoskeleton	All/C	BBBB	~2100 (—)	—	~2200	160, *TM*	—
Battle Armor [PA(L)]	All/D	FXED	2710 (TH)	—	3058	160, *TM*	Ext: 2766*; Ret: 2905 (CS)
Battle Armor [Light]	All/E	XFED	~2865 (CWF)	2870 (CIH)	2900	160, *TM*	IS Intro: 3050 (FS/LC)
Battle Armor [Medium]	All/E	XDDD	~2840 (CGS)	2868 (CWF)	2875	160, *TM*	IS Intro: 3052 (FS/LC/CS)
Battle Armor [Heavy]	All/E	XFED	~2867 (CWF)	2875 (CHH)	3058	160, *TM*	IS Intro: 3050 (FS/LC)
Battle Armor [Assault]	All/E	XFED	~2870 (CNC)	2877 (CGB)	3060	160, *TM*	IS Intro: 3058 (DC)
Combat and Support Vehicles							
Primitive Combat Vehicles (All Motive Types)	IS/Var	As Vehicle	As Vehicle	As Vehicle	As Vehicle	124, *IO*	Support Vehicles, Tech A-C
Standard Combat Vehicles (All Motive Types)	All/D	CCCB	—	2470 (TH)	2490	94, *TM*	—
Support Vehicles (All Sizes, Motive Types)	All/Var	As Vehicle	As Vehicle	PS	PS	116, *TM*	Always Available
Fighters and Small Aerospace Units							
Primitive Aerospace Fighters	IS/D	DXFF	ES	~2200 (TA)	—	125, *IO*	Ext: 2520**
Standard Aerospace Fighters	All/D	CEDC	—	2470 (TH)	2490	180, *TM*	—
Primitive Conventional Fighters	IS/C	As Vehicle	As Vehicle	As Vehicle	As Vehicle	124, *IO*	Support Vehicles, Tech A-C
Standard Conventional Fighters	All/D	CDCB	—	2470 (TH)	2490	180, *TM*	—
Primitive Small Craft (incl. Small DropShuttles)	IS/D	DXFF	ES	~2200 (TA)	—	125, *IO*	Ext: 2400**
Standard Small Craft	All/D	DEDD	—	~2350 (TH)	2400	181, *TM*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Construction Options (Continued)							
Large Aerospace Units							
Primitive DropShips (incl. Large DropShuttles)	IS/D	DXXX	ES	~2200 (TA)	—	126, *IO*	Ext: 2500**
Standard DropShips	All/D	DEDD	—	~2470 (TH)	2490	180, *TM*	—
Primitive JumpShips	IS/D	DXXX	~2100 (—)	~2200 (TA)	—	128, *IO*	Ext: 2500**
Standard JumpShips	All/D	DEDF	—	~2300 (TA)	—	142, *SO*	—
WarShips	All/E	DEEF	~2300 (TA)	2305 (TH)	—	142, *SO*	Ext: 2950; Ret: 3050 (FS/LC/DC)*
Space Stations	All/D	CDCC	ES	ES	—	142, *SO*	—
Modular Space Stations	All/D	EXXE	2565 (TH)	2585 (TH)	—	117, *IO*	Ext: 2790; Ret: 3090 (RS)*
Mobile Structures (All)	All/Var	FFFF	ES	—	—	259, *TO*	—
Buildings							
Standard Buildings (Light, Medium)	All/A	AAAA	PS	PS	PS	114, *TO*	Always Available
Standard Buildings (Heavy)	All/B	BBBB	PS	PS	PS	114, *TO*	Always Available
Standard Buildings (Hardened)	All/C	BBBB	PS	PS	PS	114, *TO*	Always Available
Castles Brian Complexes	All/E	EFFF	2391 (TH)	—	—	141, *TO*	Ext: 2780; Ret: 3060 (WB)*
Construction Options							
Omni Technology	All/E	XEED	~2854 (CCY/CSF)	2856 (CCY)	2864	19, *TM*	IS Intro: 3052 (DC)
Patchwork Armor	All/Var	EDEE	PS	3075 (—)	~3080	377, *TO*	—
Mixed Technology	All/Var	XXED	~3050 (DC/FS/LC)	~3082 (—)	~3115	377, *TO*	Clan Prototype: ~2820 (Clan)
Battle Armor Tech							
Active Probe (Light)	All/E	XFEE	~2898 (CSJ)	2900 (CSJ)	3050	252, *TM*	IS Intro: 3050 (FS/LC)
Angel ECM [Battle Armor]	All/F	XXFE	3058 (CNC)	~3080 (DC)	3097	279, *TO*	IS Prototype: 3063 (DC)
Bomb Rack	Clan/F	XXFE	~3055 (CCC)	3060 (CCC)	3065	253, *TM*	—
Camo System	IS/E	XFFE	~2790 (CS)	~2800 (CS)	3058	253, *TM*	—
Cutting Torch	All/C	BBBB	ES	ES	ES	254, *TM*	—
ECM Suite (Light)	All/E	EFFE	~2718 (TH)	2720 (TH)	3060	254, *TM*	Ext: 2766; Ret: 3057 (FW/WB)*
Extended Life Support	All/E	EFED	~2712 (TH)	~2715 (TH)	2720	254, *TM*	—
Fuel Tank	All/C	XEEE	~2740 (TH)	2744 (TH)	3053	255, *TM*	Ext: 2781; Ret: 3051 (FS/LC)*
HarJel	Clan/F	XCCC	~2838 (CSF)	~2840 (CSF)	2855	256, *TM*	—
Heat Sensor	All/D	XFFF	~2879 (CBS)	~2880 (CBS)	3050	256, *TM*	IS Intro: 3050 (FS/LC)
Improved Sensors	All/E	XFED	~2887 (CBS)	~2890 (CBS)	3051	257, *TM*	IS Intro: 3051 (Merc)
Laser Microphone	All/C	EEFF	ES	ES	ES	258, *TM*	—
Parafoil	All/D	BBCB	PS	PS	PS	266, *TM*	—
Power Pack	All/C	BCBB	PS	PS	PS	268, *TM*	—
Remote Sensors/Dispenser [Battle Armor]	All/D	EDDD	~2700 (TH)	3050 (FS)	—	268, *TM*	—
Searchlight	All/A	AAAA	PS	PS	PS	269, *TM*	—
Shotgun Microphone	All/C	EEFF	PS	PS	PS	269, *TM*	—
Space Operations Adaptation	All/E	XEED	~2890 (CSR)	2895 (CSR)	3015	269, *TM*	IS Intro: 3011 (TC)
BA Manipulators [Armored Gloves]	All/C	DDDC	ES	ES	ES	259, *TM*	—
BA Manipulators [Manipulator (Basic)]	All/C	CDCC	ES	~2110 (TA)	~2120	259, *TM*	—
BA Manipulators [Battle Claw, Heavy Battle Claw]	All/E	XEDC	~2865 (CWF)	2868 (CWF)	3050	259, *TM*	IS Intro: 3050 (FS/LC)
BA Manipulators [Cargo Lifter]	All/C	DDDC	ES	~2110 (TA)	~2120	259, *TM*	—
BA Manipulators [Industrial Drill]	All/C	DDDC	ES	ES	ES	259, *TM*	—
BA Manipulators [Salvage Arm]	All/D	EEED	~2410 (TH)	2415 (TH)	2420	260, *TM*	—
BA Manipulator Adaptation [Magnet Claws]	All/E	XXEE	~3053 (FS/LC)	3055 (FS/LC)	3058	260, *TM*	Clan Intro: 3058 (CFM)
BA Manipulator Adaptation [Mine Clearance Equipment]	All/D	XXEE	~3055 (CC)	3057 (CC)	3060	260, *TM*	Clan Intro: 3063 (CGB)
BA Manipulator Adaptation [Vibro-Claw]	All/E	XXED	~3053 (DC)	3054 (DC)	3058	260, *TM*	Clan Intro: 3062 (CIH)

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Battle Armor Tech (Continued)							
BA Manipulator Adaptation [Modular Equipment Adaptor]	All/E	XXED	~3052 (DC)	3058 (DC)	3060	260, *TM*	Clan Intro: 3061 (CNC/CWX)
Jump Jets/Jump Pack [BA]	All/C	DDDC	ES	ES	ES	257, *TM*	—
Jump Booster [BA]	All/E	XXED	~3050 (FS/LC)	3051 (Merc)	~3061	257, *TM*	Clan Intro: 3062 (CIH)
Magnetic Clamps [BA]	IS/C	XXED	~3057 (CC)	3062 (CC)	3067	259, *TM*	—
Battle Armor Mechanical Jump Booster	All/E	XXFE	3070 (LC)	~3084 (LC)	3096	286, *TO*	Clan Intro: 3090
Battle Armor Myomer Booster	Clan/F	XXFE	3072 (CIH)	3085 (CIH)	3104	287, *TO*	—
Partial Wing [BA]	IS/D	XXFE	~3051 (DC)	3053 (DC)	3059	266, *TM*	—
Underwater Maneuvering Units (UMU) [BA]	Clan/F	XEEE	~2840 (CGS)	3059 (CGS)	3065	270, *TM*	—
VTOL Equipment [BA]	Clan/F	XXFE	~3052 (CCC)	3060 (CCC)	3066	271, *TM*	—
Battle Armor DropChute [Standard]	All/D	XEBB	~2874 (CHH)	2875 (CHH)	—	348, *TO*	IS Intro: 3051 (FS/LC)
Battle Armor DropChute [Camouflage]	All/D	XECC	~2874 (CHH)	2875 (CHH)	—	348, *TO*	IS Intro: 3051 (FS/LC)
Battle Armor DropChute [Stealth]	All/D	XFDD	~2878 (CHH)	2880 (CHH)	—	348, *TO*	IS Intro: 3054 (DC)
Battle Armor DropChute [Reusable]	All/E	XFEE	~2874 (CHH)	2876 (CHH)	—	348, *TO*	IS Intro: 3053 (FS/LC)
Battle Armor Weapons							
Anti-Personnel Weapons	All/Var	As Weapon	—	2868 (CWF)	2870	271, *TM*	IS Intro: 3050 (FS/LC/DC)
Battle Armor Detachable Missile Pack (DMP), Mod [DMP]	All/E	XEED	~2870 (CSV)	~2885 (CSV)	3051	287, *TO*	IS Intro: 3051 (FS/LC/DC)
Battle Armor Detachable Missile Pack (DMP), Mod [DWP]	All/E	XXFD	3070 (CHH)	3072 (CHH)	3080	287, *TO*	IS Intro: 3073 (WB)
Squad Support Weapon Mod (SSW)	All/Var	As Weapon	~3052 (DC)	3056 (DC)	3060	270, *TM*	Clan Intro: 3058 (CWF)
Flamer [BA]	All/C	XDBB	~2865 (CWF)	2868 (CWF)	3050	255, *TO*	IS Intro: 3050 (FS/LC)
Heavy Flamer [BA]	All/C	XXED	~3070 (LC)	3073 (LC)	3075	312, *TO*	Clan Intro: 3073 (CJF)
Gauss Rifle [Anti-personnel Gauss Rifle]	Clan/F	XXED	~3066 (CJF)	3069 (CJF)	3072	255, *TM*	—
Gauss Rifle [Grand Mauler]	IS/E	XXDE	~3055 (FS)	3059 (FS)	3060	255, *TM*	—
Gauss Rifle [Tsunami]	IS/E	XXEE	~3054 (DC)	3056 (DC)	3058	255, *TM*	—
Gauss Rifle [Magshot]	IS/E	XXED	~3057 (FS)	3059 (FS)	3060	255, *TM*	—
Gauss Rifle [David/King David]	IS/E	XXEE	~3058 (FW)	3063 (FW)	3065	255, *TM*	—
Grenade Launcher (Micro)	All/B	XBBB	ES	ES	3050	256, *TM*	—
Grenade Launcher (Heavy)	All/C	XDDC	~2880 (CSF)	2900 (CSF)	3050	256,*TM*	IS Intro: 3050 (FS/LC)
Standard Laser (Small, Medium)	IS/E	XXBB	~3050 (FS/LC)	3050 (FS/LC/DC)	3050	258, *TM*	—
ER Laser (Small, Medium)	IS/E	XXDC	~3055 (FW)	3058 (FW)	3062	258, *TM*	—
Pulse Laser (Small, Medium)	IS/E	XXDC	~3057 (LC)	3060 (LC)	3062	258, *TM*	—
Clan Standard Laser (Small)	Clan/E	XCBB	~2865 (CWF)	2868 (CWF)	2870	258, *TM*	—
Clan Heavy Laser (Small, Medium)	Clan/F	XXDD	~3057 (CSA)	3059 (CSA)	3062	258, *TM*	—
Clan ER Laser (Small, Medium)	Clan/F	XEDC	~2872 (CJF)	~2875 (CJF)	2880	258, *TM*	—
Clan ER Micro Laser	Clan/F	XXDC	~3055 (CSJ)	3060 (CSJ)	3064	258, *TM*	—
Clan Pulse Laser (Small, Medium)	Clan/F	XEDC	~2870 (CHH)	~2872 (CHH)	2880	258, *TM*	—
Clan Pulse Laser (Micro)	Clan/F	XXDC	~3055 (CSJ)	3060 (CSJ)	3063	258, *TM*	—
ER Pulse Lasers	Clan/F	XXED	3057 (CWF)	3082 (CWF)	3085	258,*TM*	—
LB-X Autocannon	Clan/F	XXED	3075 (CNC)	3085 (CNC)	—	207, *TM*	—
Machine Gun (Light)	All/C	XXCB	~3055 (CSJ)	3060 (CSJ)	3068	258, *TM*	IS Intro: 3068 (CC)
Machine Gun (Medium)	All/C	XDBB	PS	2868 (CWF)	2870	258, *TM*	IS Intro: 3050 (FS/LC)
Machine Gun (Heavy)	All/C	XXCB	~3055 (CSJ)	3059 (CSJ)	3068	258, *TM*	IS Intro: 3068 (TC)
Machine Gun (Bearhunter Autocannon)	Clan/D	XXFD	~3060 (CHH)	3062 (CHH)	3065	258, *TM*	—
Mine Dispenser	IS/D	XXFE	~3057 (CC)	3062 (CC)	3068	260, *TM*	—
Long-Range Missile (LRM) Launchers [IS]	IS/E	XXED	~3055 (FS)	3057 (FS)	3060	261, *TM*	—
Short Range Missile (SRM) Launcher [IS]	IS/E	XXDB	~3050 (FS/LC)	3050 (FS/LC)	3051	261, *TM*	—
Medium Range Missile (MRM) Launcher	IS/D	XXDD	~3058 (DC)	3060 (DC)	3067	261, *TM*	—

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Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Battle Armor Weapons (Continued)							
Rocket Launchers	IS/E	XXBB	~3050 (FS/LC)	3050 (FS/LC)	3052	261, *TM*	—
Long-Range Missile (LRM) Launchers [Clan]	Clan/F	XXFD	~3058 (CGS)	3060 (CGS)	3062	261, *TM*	—
Short Range Missile (SRM) Launcher [Clan]	Clan/F	XDCB	~2865 (CWF)	2868 (CWF)	2870	261, *TM*	—
Advanced Short Range Missile Launcher [Clan]	Clan/F	XXFD	~3052 (CHH)	3056 (CHH)	3062	261, *TM*	—
Mortar	All/B	XXCC	~3054 (FS/LC)	3057 (LC)	3063	263, *TM*	Clan Intro: ~3065 (CHH)
Narc (Compact)	All/E	XFED	~2870 (CSV)	2875 (CSV)	3065	263, *TM*	IS Intro: 3060 (LC)
Needler (Firedrake)	IS/D	XXCB	~3058 (LC)	3060 (LC)	3068	266, *TM*	—
Particle Projector Cannon (Support)	All/D	XFDC	~3051 (DC)	3053 (DC)	3056	267, *TM*	Clan Intro: ~2950 (CGB)
Plasma Rifle (Man-Portable)	IS/E	XXDC	~3063 (CC)	3065 (CC)	3074	267, *TM*	—
Pop-Up Mine	IS/E	XXEF	—	3050 (FS/LC)	—	267, *TM*	—
Recoilless Rifle (Light, Medium, Heavy)	All/C	XXDD	~3052 (FS/LC)	3054 (FS/LC)	3056	268, *TM*	Clan Intro: ~3062 (CHH)
TAG (Light)	All/E	XXFE	~3051 (DC)	3053 (DC)	3057	270, *TM*	Clan Intro: 3054 (CWF)
Tube Artillery [BA]	IS/E	XXFE	~3070 (CS)	3075 (CS)	—	284, *TO*	—
Conventional Infantry Tech							
Motive Type: Beast-Mounted	All/A	AAAA	PS	PS	—	295, *TO*	‡
Motive Type: Foot	All/A	AAAA	PS	PS	PS	145, *TM*	Always Available†
Motive Type: Foot (SCUBA)	All/B	DDDD	PS	PS	—	340, *TO*	Always Available†
Motive Type: Motorized	All/B	AAAA	PS	PS	PS	145, *TM*	Always Available†
Motive Type: Motorized (SCUBA)	All/B	DDDD	PS	PS	—	340, *TO*	Always Available†
Motive Type: Jump	All/D	BBBB	ES	ES	ES	145, *TM*	Always Available†
Motive Type: Mechanized (Wheeled)	All/A	ABAA	PS	PS	PS	145, *TM*	Always Available†
Motive Type: Mechanized (Tracked)	All/B	BCBB	PS	PS	PS	145, *TM*	Always Available†
Motive Type: Mechanized (Hover)	All/C	ABAB	PS	PS	PS	145, *TM*	Always Available†
Motive Type: Mechanized (Microlite VTOL)	All/C	CDDC	ES	ES	—	324, *TO*	Always Available†
Motive Type: Mechanized (Micro-copter VTOL)	All/C	CDDC	ES	ES	—	324, *TO*	Always Available†
Motive Type: Mechanized (SCUBA)	All/C	DDDD	PS	PS	—	145, *TM*	Always Available†
Disposable Weapons	All/Var	AAAA	PS	PS	PS	304, *TO*	Always Available†
Field Gun	All/Var	As Weapon	As Weapon	As Weapon	—	311, *TO*	—
Field Artillery	All/Var	As Weapon	As Weapon	As Weapon	—	311, *TO*	Always Available†
TAG Troops	All/E	FXEE	~2590 (TH)	2600 (TH)	—	311, *TO*	Ext: 2835; Ret: 3037 (FS)
Training Type: Anti-'Mech Attacks	All/D	DDDD	~2456 (LC)	2460 (LC)	2500	220, *TW*	—
Training Type: Xeno-Planetary Conditions	All/Var	CCCC	ES	ES	ES	351, *TO*	†
Training Type: Specialized (Other)	All/Var	AAAA	PS	PS	PS	351, *TO*	Always Available†
Conventional Infantry Weapons							
Archaic Weapons							
Bow (Compound)	All/C	BAAA	PS	PS	PS	272, *TM*	Always Available
Bow (Daikyu)	All/A	CDDC	PS	PS	PS	272, *TM*	Always Available
Bow (Hankyu)	All/A	CCCC	PS	PS	PS	272, *TM*	Always Available
Bow (Longbow)	All/A	BBBB	PS	PS	PS	272, *TM*	Always Available
Bow (Shortbow)	All/A	AAAA	PS	PS	PS	272, *TM*	Always Available
Bow (Primitive)	All/A	AAAA	PS	PS	PS	272, *TM*	Always Available
Club (Blackjack/Sap)	All/A	AAAA	PS	PS	PS	272, *TM*	Always Available
Club (Club/Improvised)	All/A	AAAA	PS	PS	PS	272, *TM*	Always Available
Club (Vibro-Mace)	IS/E	XFEE	~3000 (CF)	~3050 (CF)	3100	272, *TM*	—
Crossbow (Basic/Heavy)	All/A	AAAB	PS	PS	PS	272, *TM*	Always Available
Blade (Archaic Sword)	All/A	AAAB	PS	PS	PS	272, *TM*	Always Available

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons (Continued)							
Blade (Axe/Hatchet/Tomahawk)	All/A	AAAA	PS	PS	PS	272, *TM*	Always Available
Blade (Bayonet/Dagger/Knife)	All/A	AAAA	PS	PS	PS	272, *TM*	Always Available
Blade (Bokken)	All/A	BBBB	PS	PS	PS	272, *TM*	Always Available
Blade (Carbon-Reinforced Nails)	IS/D	XDDE	~2980 (CC)	2990 (CC)	—	272, *TM*	—
Blade (Dao/Katana/No-Dachi/Sword/Wakizashi)	All/A	CCCC	PS	PS	PS	272, *TM*	Always Available
Blade (Jousting Lance)	All/A	AAAB	PS	PS	PS	272, *TM*	Always Available
Blade (Shuriken/Thrown Knives)	All/A	CCCB	PS	PS	PS	272, *TM*	Always Available
Blade (Vibro-Axe)	All/E	CDDC	~2435 (LC)	2445 (LC)	2600	272, *TM*	—
Blade (Vibro-Blade)	All/D	BCBB	~2398 (FW)	2400 (FW)		272, *TM*	—
Blade (Vibro-Katana)	All/E	EEDC	~2440 (DC)	2450 (DC)	—	272, *TM*	Clan Ext: ~2850
Blade (Vibro-Sword, Inner Sphere)	All/E	DDCC	~2435 (TH)	2440 (TH)	2500	272, *TM*	Clan Ext: ~2850
Blade (Vibro-Sword, Clan)	Clan/F	XFED	~2815 (CJF)	2820 (CJF)	—	272, *TM*	—
Blade (Zweihänder Sword)	All/A	AAAB	PS	PS	PS	272, *TM*	Always Available
Staff (Basic/Pole Arm)	All/A	AAAB	PS	PS	PS	272, *TM*	Always Available
Staff (Nunchaku/Pole Arm)	All/A	BBBB	PS	PS	PS	272, *TM*	Always Available
Staff (Shock Staff)	IS/E	XXFE	~3074 (CC)	~3077 (CC)	3130	272, *TM*	—
Staff (Stun Staff, Single-End)	All/C	ACAB	ES	ES	ES	272, *TM*	—
Staff (Stun Staff, Double-End)	All/C	ACAC	ES	ES	ES	272, *TM*	—
Stunstick	All/C	AAAB	ES	ES	ES	272, *TM*	Always Available
Stunstick (Mini)	All/C	BAAB	ES	ES	ES	272, *TM*	Always Available
Whip	All/A	AAAA	PS	PS	PS	272, *TM*	Always Available
Whip (Monowire)	All/E	EFEF	ES	ES	—	272, *TM*	—
Whip (Medusa)	Clan/E	XFEE	~2820 (CWM)	~2825 (CWM)	—	272, *TM*	—
Whip (Neural Lash)	All/D	EEDE	~2300 (pDC)	~2320 (DC)	2500	272, *TM*	—
Whip (Neural Whip)	All/D	FFEF	~2315 (DC)	~2325 (DC)	2500	272, *TM*	Clan Ext: ~2786
Pistols							
Auto-Pistol	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Auto-Pistol (Magnum)	All/C	AABB	PS	PS	PS	273, *TM*	Always Available
Auto-Pistol (Nambu)	All/C	BCCC	~2535 (DC)	2540 (DC)	2600	273, *TM*	—
Auto-Pistol (Sternsnacht Python)	IS/C	XXCB	~3048 (LC)	3051 (FS/LC)	3068	273, *TM*	—
Auto-Pistol (M&G)	All/C	CBCB	~2490 (LC)	2495 (LC)	2550	273, *TM*	—
Auto-Pistol (Hawk Eagle)	IS/C	XFCC	~3030 (FW)	3035 (FW)	3050	273, *TM*	—
Auto-Pistol (Serrek 7875D)	IS/C	XCBB	~2805 (FS)	2810 (FS)	2900	273, *TM*	—
Auto-Pistol (Vintage)	All/C	CDDE	PS	PS	PS	273, *TM*	Always Available
Dart Gun	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Flare Pistol	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Gauss Pistol	Clan/F	XDDC	~2845 (CSA)	2850 (Clans)	—	273, *TM*	—
Gauss Pistol (Mandrake Hold-Out)	IS/E	XXED	~3050 (CC)	3052 (CC)	3085	273, *TM*	—
Gyrojet Pistol	All/D	DDCB	~2620 (TH)	2625 (TH)	2700	273, *TM*	—
Gyrojet Pistol (Coventry Handrocket)	IS/D	XXDC	~3050 (LC)	3052 (LC/FS)	3090	273, *TM*	—
Gyrojet Pistol (Hold-Out)	All/D	DDCB	ES	ES	ES	273, *TM*	Always Available
Harpoon Gun (Pequod, Mk. I)	All/B	DCBB	~2760 (TC)	~2762 (TC)	2770	273, *TM*	—
Laser Pistol	All/D	BAAB	ES	ES	ES	273, *TM*	—
Laser Pistol (Blazer)	All/D	CCDC	ES	~2295 (FW)	2350	273, *TM*	—
Laser Pistol (ER)	Clan/F	XDCC	~2833 (CFM)	2835 (CFM)	—	273, *TM*	—
Laser Pistol (Hold-Out)	All/D	BBBB	~2318 (LC)	2320 (LC)	2350	273, *TM*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons						**273,** *TM*	
Laser Pistol (Hold-Out [White Dwarf])	IS/D	XXCC	~3056 (FW)	3058 (FW)	3075	273, *TM*	—
Laser Pistol (Nakjima)	IS/D	XDCC	~2875 (DC)	2880 (DC)	3000	273, *TM*	—
Laser Pistol (Sunbeam)	IS/D	XFDC	~3015 (FW)	3020 (FW)	3050	273, *TM*	—
Laser Pistol (Sunbeam Nova)	IS/D	XXDC	~3050 (FW)	3053 (FW)	3057	273, *TM*	—
Needler Pistol	All/D	AAAA	PS	PS	PS	273, *TM*	Always Available
Needler Pistol (Hold-Out)	All/D	CBBA	~2510 (TH)	2515 (TH)	2570	273, *TM*	—
Needler Pistol (M&G Flechette)	All/D	BBCC	~2350 (LC)	2360 (LC)	2400	273, *TM*	—
Needler Pistol (Sea Eagle)	IS/D	XFDC	~3030 (FW)	3035 (FW)	3052	273, *TM*	—
Paint Gun (LGB-46R)	All/C	AABB	PS	PS	PS	273, *TM*	Always Available
Pistol (Flamer)	All/C	BBBB	ES	ES	ES	273, *TM*	Always Available
Pistol (Hold-Out)	All/D	AABB	PS	PS	PS	273, *TM*	Always Available
Pistol (Makeshift)	All/B	AAAA	PS	PS	PS	273, *TM*	Always Available
Pistol (TK Enforcer Semi-Auto)	IS/C	XXBB	~3055 (LC)	3058 (LC)	3085	273, *TM*	—
Pistol (Spitball Gas Weapon)	IS/C	XXCC	~3056 (LC)	3059 (LC)	3100	273, *TM*	—
Pistol (Sternsnacht Heavy [Claymore])	IS/C	XEDC	~2882 (LC)	2885 (LC)	2950	273, *TM*	—
Pulse Laser Pistol (Clan)	Clan/F	XCCC	~2835 (CFM)	2840 (CFM)	—	273, *TM*	—
Pulse Laser Pistol (IS)	All/D	BFCC	~2615 (TH)	2620 (TH)	2700	273, *TM*	—
Revolver	All/B	AAAA	PS	PS	PS	273, *TM*	Always Available
Revolver (Magnum)	All/C	BBBB	PS	PS	PS	273, *TM*	Always Available
Sonic Stunner	All/D	BCBB	~2365 (TH)	2375 (TH)	2400	273, *TM*	—
Tranq Gun	All/A	AAAA	PS	PS	PS	273, *TM*	Always Available
Rifles							
Auto-Rifle (Modern, Generic)	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Elephant Gun	All/B	BCCC	PS	PS	PS	273, *TM*	Always Available
Gauss Rifle (Thunderstroke)	IS/E	XXEF	~3055 (FS)	3058 (FS)	3081	273, *TM*	Ext: 3095
Gauss Rifle (Thunderstroke II)	IS/E	XXDD	~3058 (FS)	3062 (FS)	3090	273, *TM*	—
Gyroslug Carbine	All/D	CDCC	~2570 (CC)	2580 (CC)	2650	273, *TM*	—
Gyroslug Carbine (Star King)	IS/D	XCDC	~2775 (LC)	2789 (LC)	2825	273, *TM*	—
Gyroslug Rifle	All/D	BCCC	~2520 (TH)	2530 (TH)	2570	273, *TM*	—
Gyrojet Gun (Heavy)	All/D	CDCC	~2585 (LC)	2590 (LC)	2600	273, *TM*	—
Gyrojet Rifle	All/D	CCBB	~2535 (TH)	2540 (TH)	2570	273, *TM*	—
Harpoon Gun (Pequod, Mk. II)	All/C	FDBB	~2761 (TC)	~2764 (TC)	2775	273, *TM*	—
Laser Rifle	All/D	CBBB	ES	2230 (TA)	2300	273, *TM*	—
Laser Rifle (Blazer)	All/D	CCDC	ES	2290 (FW)	2350	273, *TM*	—
Laser Rifle (Ebony Assault)	IS/F	XXED	~3056 (MC)	3063 (MC)	—	273, *TM*	—
Laser Rifle (ER)	Clan/F	XDDC	~2840 (CSA)	2845 (CSA)	—	273, *TM*	—
Laser Rifle (ER [Sunbeam Starfire])	IS/E	XXED	~3050 (FW)	3052 (FW)	3075	273, *TM*	—
Laser Rifle (Federated-Barrett M61A)	IS/D	XXDC	~3058 (FS)	3062 (FS)	3085	273, *TM*	—
Laser Rifle (Intek)	IS/D	XDDC	~2875 (FW)	2880 (FW)	2950	273, *TM*	—
Laser Rifle (Magna)	All/D	CCDD	~2460 (DC)	2465 (DC)	2500	273, *TM*	—
Laser Rifle (Marx XX)	All/D	DEDD	~2685 (TH)	2670 (TH)	2690	273, *TM*	—
Laser Rifle (Mauser 960)	All/E	CFDE	~2698 (TH)	2700 (TH)	2710	273, *TM*	—
Laser Rifle (Mauser 1200 LSS)	IS/E	XXED	~3052 (WB)	3055 (WB)	3075	273, *TM*	—
Laser Rifle (Mauser IIC IAS)	Clan/F	XFED	~3013 (CHH)	3015 (CHH)	—	273, *TM*	—
Laser Rifle (Maxell PL-10)	IS/D	XXCC	~3057 (LC)	3059 (LC)	3075	273, *TM*	—
Needler Rifle	All/D	BBBB	ES	ES	ES	273, *TM*	Always Available

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons							
Needler Rifle (Shredder Heavy)	IS/D	XXCC	~3051 (LC/FS)	3054 (LC/FS)	3067	273, *TM*	—
Needler Rifle (M&G Flechette)	All/D	CCCB	~2320 (LC)	2325 (LC)	2350	273, *TM*	—
Pulse Laser Rifle (Clan)	Clan/F	XEDC	~2833 (CGS)	2835 (CGS)	—	273, *TM*	—
Pulse Laser Rifle (Inner Sphere)	All/D	DECC	~2678 (TH)	2680 (TH)	2700	273, *TM*	—
Rifle (Bolt-Action)	All/B	AAAB	PS	PS	PS	273, *TM*	Always Available
Rifle (Federated-Barrett M42B)	IS/C	XXDC	~3060 (FS)	3064 (FS)	3095	273, *TM*	—
Rifle (Federated Long)	IS/C	XCAB	~2860 (FS)	2870 (FS)	3000	273, *TM*	—
Rifle (Imperator AX-22 Assault)	IS/C	XXBB	~3052 (FW)	3060 (FW)	3085	273, *TM*	—
Rifle (M&G G-150)	IS/C	XXCB	~3058 (LC)	3060 (LC)	3075	273, *TM*	—
Rifle (Makeshift)	IS/B	AAAA	PS	PS	PS	273, *TM*	Always Available
Rifle (Minolta 9000 Advanced Sniper System)	IS/D	XXED	~3052 (CC)	3055 (CC)	3100	273, *TM*	—
Rifle (Radium Sniper)	IS/E	FXFF	~2582 (TC)	2583 (TC)	—	273, *TM*	Ext: 2607; Ret: 3062 (TC)
Rifle (Sniper)	All/B	CCCC	PS	PS	PS	273, *TM*	Always Available
Rifle (TK Assault)	IS/C	XCAB	~2865 (LC)	2870 (LC)	2925	273, *TM*	—
Rifle (Vintage Assault)	All/C	CDDE	PS	PS	PS	273, *TM*	Always Available
Rifle (Zeus Heavy)	All/C	CBBB	~2740 (FS)	2745 (FS)	2750	273, *TM*	—
Variable-Pulse Laser Rifle	IS/E	XXED	3075 (FS)	3077 (FS)	3085	273, *TM*	—
Shotguns							
Auto-Shotgun	All/C	BBCC	ES	ES	ES	273, *TM*	Always Available
Ceres Arms Crowdbuster	IS/D	XFDC	~3028 (CC)	3030 (CC)	3058	273, *TM*	—
Gel Gun (Buccaneer)	IS/C	XXDC	~3030 (FW)	3035 (FW)	3057	273, *TM*	—
Shotgun (Avenger CCW)	Clan/C	XECD	~3019 (CSV)	3020 (CSV)	—	273, *TM*	—
Shotgun (Combat)	All/C	BBBB	PS	PS	PS	273, *TM*	Always Available
Shotgun (Double-Barrel)	All/B	AAAA	PS	PS	PS	273, *TM*	Always Available
Shotgun (Double-Barrel, Sawed-Off)	All/B	AAAA	PS	PS	PS	273, *TM*	Always Available
Shotgun (Pump-Action)	All/B	AAAA	PS	PS	PS	273, *TM*	Always Available
Shotgun (Pump-Action, Sawed-Off)	All/B	AAAA	PS	PS	PS	273, *TM*	Always Available
Submachine Guns							
Auto-Pistol (Mydron)	All/C	CBBB	~2607 (FS)	2612 (FS)	2700	273, *TM*	—
Auto-Pistol (Stetta)	IS/D	XFCB	~3005 (LC)	3010 (LC)	3050	273, *TM*	—
Gauss Submachine Gun	Clan/E	XXDD	~3051 (CSF)	3055 (CSF)	3060	273, *TM*	—
Machine Pistol (Martial Eagle)	IS/D	XFDC	~3040 (FW)	3045 (FW)	3060	273, *TM*	—
Submachine Gun	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Submachine Gun (Gunther MP-20)	IS/C	XECC	~3005 (LC)	3007 (LC)	3025	273, *TM*	—
Submachine Gun (Imperator 2894A1)	IS/C	XCBC	~2838 (FW)	2842 (FW)	2900	273, *TM*	—
Submachine Gun (KA-23 Subgun)	IS/D	XCDD	~2890 (DC)	2895 (DC)	2950	273, *TM*	—
Submachine Gun (Rorynex RM-3/XXI)	All/D	CBCD	~2655 (TH)	2660 (TH)	2663	273, *TM*	—
Submachine Gun (Rugan)	All/C	DBCD	~2718 (TH)	2720 (TH)	2750	273, *TM*	—
Grenades							
Grenade (Standard)	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Grenade (Micro)	All/C	BCCB	PS	PS	PS	273, *TM*	Always Available
Grenade (Mini)	All/C	BBBB	PS	PS	PS	273, *TM*	Always Available
Grenade (Rocket-Assisted)	IS/C	XXDC	~3062 (FS)	3065 (FS)	3085	273, *TM*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons							
Support Weapons							
AA Weapon (Mk. 1 Light AA)	All/D	EFDD	~2490 (TH)	2500 (TH)	2590	273, *TM*	Ext: 2790; Ret: 3056 (FW)*
AA Weapon (Mk. 2 Man-Portable AA)	All/D	EFDD	~2498 (TH)	2510 (TH)	2590	273, *TM*	Ext: 2790; Ret: 3056 (FW)*
Autocannon (Bearhunter Superheavy)	Clan/D	XXDD	~3059 (CHH)	3062 (CHH)	—	273, *TM*	—
Autocannon (Semi-Portable)	All/C	CDDC	ES	2255 (TA)	2300	273, *TM*	—
Flamer (Heavy)	All/C	BBBB	ES	ES	ES	273, *TM*	Always Available
Flamer (Man-Portable)	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Gauss Cannon (Grand Mauler)	IS/E	XXDE	~3055 (FS)	3059 (FS)	3065	273, *TM*	—
Gauss Rifle (Gungnir Heavy)	IS/E	XXFE	~3074 (LC)	3080 (LC)	—	273, *TM*	—
Gauss Rifle (MagShot)	IS/E	XXED	~3058 (FS)	3059 (FS)	3065	273, *TM*	—
Gauss Rifle (Tsunami Heavy)	IS/E	XXDE	~3053 (DC)	3056 (DC)	3068	273, *TM*	—
Gauss Rifle, Light (David)	IS/E	XXED	~3060 (FW)	3063 (FW)	3075	273, *TM*	—
Gauss Rifle, Light (King David)	IS/E	XXED	~3060 (FW)	3063 (FW)	3075	273, *TM*	—
Grenade Launcher	All/C	ABBA	PS	PS	PS	273, *TM*	Always Available
Grenade Launcher (Automatic)	All/C	BBBB	ES	ES	ES	273, *TM*	Always Available
Grenade Launcher (Compact)	All/C	BCBB	ES	ES	ES	273, *TM*	Always Available
Grenade Launcher (Heavy)	IS/C	XXDC	~3049 (FS/LC)	3050 (FS/LC)	3057	273, *TM*	—
Grenade Launcher (Heavy Auto)	Clan/D	XXDD	~2896 (CSF/CHH)	2900 (CSF)	—	273, *TM*	—
Laser (Hellbore Assault)	IS/E	XXED	~3054 (CS)	3058 (CS)	3062	273, *TM*	—
LRM Launcher (Corean Farshot)	IS/D	XXDD	~3055 (FW/CC)	3057 (FW)	3065	273, *TM*	—
Machine Gun (Light)	All/C	BBBB	PS	PS	PS	273, *TM*	Always Available
Machine Gun (Portable)	All/C	BBBB	PS	PS	PS	273, *TM*	Always Available
Machine Gun (Semi-Portable)	All/C	BBBB	PS	PS	PS	273, *TM*	Always Available
Machine Gun (Support)	All/C	CCCC	PS	PS	PS	273, *TM*	Always Available
Machine Gun (Vintage)	All/C	DEEF	PS	PS	PS	273, *TM*	Always Available
Mag-Pulse Harpoon Gun	IS/E	XXFE	~3070 (FW)	3079 (FW)	3100	273, *TM*	—
Mortar (Heavy)	All/B	CCCC	PS	PS	PS	273, *TM*	Always Available
Mortar (Light)	All/B	CCCC	PS	PS	PS	273, *TM*	Always Available
MRM Launcher	IS/D	XXED	~3063 (DC)	3065 (DC)	3075	273, *TM*	—
Needler, Support (Firedrake)	IS/D	XXCC	~3058 (LC)	3061 (LC)	3075	273, *TM*	—
Particle Cannon (Semi-Portable)	All/E	DEDC	~2430 (DC)	2436 (DC)	2450	273, *TM*	—
Particle Cannon (Support)	All/E	CDCD	~2465 (TH)	2470 (TH)	2500	273, *TM*	—
Plasma Rifle, Man-Portable	IS/E	XXDC	~3063 (CC)	3065 (CC)	3075	273, *TM*	—
Pulse Laser (Dragonsbane Disposable)	IS/E	XXDF	~3054 (DC)	3058 (DC)	3068	273, *TM*	—
Recoilless Rifle (Heavy)	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Recoilless Rifle (Light)	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Recoilless Rifle (Medium)	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
Rocket Launcher (LAW)	All/C	ABBB	PS	PS	PS	273, *TM*	Always Available
Rocket Launcher (V-LAW)	All/C	AAAA	PS	PS	PS	273, *TM*	Always Available
SRM Launcher (Standard, Two-Shot)	All/C	CCDC	~2365 (TH)	2370 (TH)	2400	273, *TM*	—
SRM Launcher (Heavy, One-Shot)	All/C	CCDC	~2366 (TH)	2370 (TH)	2400	273, *TM*	—
SRM Launcher (Light, One-Shot)	All/C	CCDC	~2365 (TH)	2370 (TH)	2400	273, *TM*	—
Support Laser	All/D	BCDC	~2377 (TH)	2380 (TH)	2410	273, *TM*	—
Support Laser (ER, Clan)	Clan/F	XEDC	~2824 (CHH)	2825 (CHH)	—	273, *TM*	—
Support Laser (ER, Inner Sphere)	IS/E	XXED	~3054 (FW)	3059 (FW)	3075	273, *TM*	—
Support Laser (ER Heavy, Clan)	Clan/F	XEDC	~2825 (CHH)	2827 (CHH)	—	273, *TM*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons							
Support Laser (ER Heavy, Inner Sphere)	IS/E	XXED	~3054 (FW)	3060 (FW)	3075	273, *TM*	—
Support Laser (ER, Semi-Portable)	Clan/F	XXCD	~3056 (CSJ)	3060 (CSJ)	—	273, *TM*	—
Support Laser (Heavy)	All/D	EEDC	~2400 (TH)	2405 (TH)	2450	273, *TM*	—
Support Laser (Heavy, Semi-Portable)	Clan/F	XXDD	~3055 (CBR)	3061 (CSA)	—	273, *TM*	—
Support Laser (Semi-Portable)	All/D	CDCC	~2395 (TH)	2400 (TH)	2450	273, *TM*	—
Support Laser (Ultra-Heavy)	Clan/F	XXDD	~3055 (CBR)	3062 (CSA)	—	273, *TM*	—
Support Pulse Laser	All/E	DEDC	~2605 (TH)	2610 (TH)	2650	273, *TM*	—
Support Pulse Laser (Heavy)	All/E	EFED	~2610 (TH)	2615 (TH)	2675	273, *TM*	—
Support Pulse Laser (Semi-Portable)	Clan/F	XXDD	~3056 (CSJ)	3059 (CSJ)	—	273, *TM*	—
Support PPC (Snub-Nose)	IS/E	XXFE	~3075 (DC)	3082 (DC)	3090	273, *TM*	—
TAG (Light, Man-Portable)	All/E	FXEE	~2598 (TH)	~2610 (TH)	—	273, *TM*	Ext: 2770; Ret: 3051 (DC)
Vintage Gatling Gun	All/B	EEFF	PS	PS	PS	273, *TM*	Always Available
Vintage Minigun	All/C	EEEF	PS	PS	PS	273, *TM*	Always Available
Wire-Guided Missile Launcher	All/C	EFXX	ES	ES	ES	273, *TM*	Always Available
Warrior Augmentations							
Belter Infantry Package	IS/C	AAAB	~2570 (TH)	—	—	74, *IO*	—
Belter Fighter Pilot Package	IS/C	AAAB	~2570 (TH)	—	—	74, *IO*	—
Belter Vacuum-Resistance Package	IS/C	AAAB	~2570 (TH)	—	—	74, *IO*	—
Clan Enhanced Imaging Implants	Clan/F	XXDD	3040 (CSJ)	—	—	75, *IO*	—
Artificial Pain Shunt	All/C	XXFF	ES	—	—	77, *IO*	—
Cybernetic Communications Implants	All/E	EFDE	2600 (TH)	—	—	78, *IO*	—
Cybernetic Boosted Communications Implants	IS/E	XXCD	3060 (WB)	—	—	78, *IO*	—
Cybernetic Sensory Implants (IR/EM/Audio)	All/E	DECD	2610 (TH)	—	—	78, *IO*	—
Cybernetic Sensory Implants (Laser/Telescopic)	All/E	DECD	2610 (TH)	—	—	78, *IO*	—
Cybernetic Multi-Modal Sensory Implants	IS/E	XXDE	3055 (WB/CC)	—	—	79, *IO*	—
Cybernetic Enhanced Multi-Modal Sensory Implants	IS/E	XXEF	3060 (WB/CC)	—	—	79, *IO*	—
Cybernetic Filtration Implants	All/C	AAAB	2580 (TH)	—	—	79, *IO*	—
Cybernetic Gas Effuser, Pheromone	IS/E	XXFF	3060 (WB/CC/MC)	—	—	79, *IO*	—
Cybernetic Gas Effuser, Toxin	IS/F	XXEF	3060 (WB/CC/MC)	—	—	80, *IO*	—
Cybernetic Myomer Implants, Dermal Armor	IS/E	XEEE	~2950 (CC/MC)	—	—	80, *IO*	—
Cybernetic Myomer Implants, Dermal Camouflage Armor	IS/D	XXFF	3065 (CC)	—	—	80, *IO*	—
Cybernetic Myomer Implants, Triple-Strength	IS/F	XXEF	3060 (WB/CC/MC)	—	—	81, *IO*	—
Cybernetic Triple-Core Processor Implant	IS/E	XXFX	3068 (WB)	—	—	81, *IO*	Ext: 3085
Cybernetic Vehicular Direct Neural Interface	IS/E	XXEF	3055 (WB/FS/CC)	—	—	82, *IO*	—
Cybernetic Buffered VDNI	IS/F	XXFF	3065 (WB)	—	—	82, *IO*	—
Prototype Direct Neural Interface	IS/E	XXFX	3052 (FS)	—	—	83, *IO*	Ext: 3055
Explosive Suicide Implants	All/C	AAAA	PS	—	—	83, *IO*	—
Prosthetic Leg MASC	IS/E	XXFF	3065 (WB/CC)	—	—	83, *IO*	—
Prosthetic Limb, Enhanced	All/E	FEDE	ES	—	—	84, *IO*	—
Prosthetic Limb, Improved Enhanced	All/E	XFEF	~2650 (TH)	—	—	84, *IO*	—
Prosthetic Limb, Extraneous (Enhanced) Limbs	IS/F	XXFX	3068 (CC)	—	—	84, *IO*	Ext: 3085
Prosthetic Tail, Enhanced	IS/E	XXFX	3068 (CC)	—	—	85, *IO*	Ext: 3085
Prosthetic Wings, Glider	IS/E	XXEX	3069 (CC)	—	—	85, *IO*	Ext: 3085
Prosthetic Wings, Powered Flight	IS/F	XXFX	3070 (CC)	—	—	85, *IO*	Ext: 3085

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heavy Weapons Ammunition							
Anti-Missile System Ammo [IS]	IS/E	EFDC	~2613 (TH)	2617 (TH)	3048	204, *TM*	Ext: 2835; Ret: 3045 (CC)
Anti-Missile System Ammo [Clan]	Clan/F	XFDC	~2824 (CSA)	2831 (CSA)	2835	204, *TM*	—
Arrow Missile Launchers and Artillery Ammo							
Arrow IV [Standard Missile]	All/E	EFED	2593 (TH)	2600 (TH)	—	284, *TO*	Ext: 2830; Ret: 3044 (CC)
Arrow IV [Air-Defense Arrow (ADA) Missiles]	IS/E	XXFE	3068 (CC)	3080 (CC)	—	353, *TO*	—
Arrow IV [Cluster Arrow Missile]	All/E	EFED	2594 (TH)	2600 (TH)	—	354, *TO*	Ext: 2830; Ret: 3047 (CC)
Arrow IV [Homing Missiles]	All/E	EFED	2593 (TH)	2600 (TH)	—	354, *TO*	Ext: 2830; Ret: 3045 (CC)
Arrow IV [Illumination Arrow Missiles]	All/C	DDDD	2615 (TH)	2621 (TH)	—	355, *TO*	Ext: 2800; Ret: 3047 (CC)
Arrow IV [Inferno-IV Missiles]	IS/C	XXDD	3053 (CC)	3055 (CC)	—	356, *TO*	—
Arrow IV [Laser-Inhibiting (LI) Arrow Missiles]	IS/E	XXFF	3053 (FS/LC)	3083 (FS/LC)	—	356, *TO*	—
Arrow IV [Smoke Arrow Missiles]	All/B	EFED	2595 (TH)	2600 (TH)	—	356, *TO*	Ext: 2840; Ret: 3044 (CC)
Arrow IV [Thunder (FASCAM) Arrow Missiles]	All/C	EFDD	2621(TH)	2844 (CHH)	—	357, *TO*	Ext: 2770; Ret: 3051 (CC)
Arrow IV [Thunder Active-IV]	IS/D	XXEE	3056 (CC)	3065 (CC)	—	357, *TO*	—
Arrow IV [Thunder Vibrabomb-IV]	IS/D	XXEE	3056 (CC)	3065 (CC)	—	357, *TO*	—
Standard HE Shells (Long Tom, Sniper, Thumper)	All/B	CCCC	PS	PS	—	284, *TO*	Long Tom Intro: 2500 (TH)
Cluster Shells (Long Tom, Sniper, Thumper)	All/E	EFED	PS	PS	—	354, *TO*	Long Tom Intro: 2500 (TH)
Copperhead Shells (Long Tom, Sniper, Thumper)	All/E	EFED	2640 (TH)	2645 (TH)	—	355, *TO*	Ext: 2800; Ret: 3051 (CC)
Flechette Shells (Long Tom, Sniper, Thumper)	All/E	EFED	ES	ES	—	355, *TO*	Long Tom Intro: 2500 (TH)
Illumination Shells (Long Tom, Sniper, Thumper)	All/C	DDDD	ES	ES	—	355, *TO*	Long Tom Intro: 2505 (TH)
Smoke Shells (Long Tom, Sniper, Thumper)	All/B	AAAA	PS	PS	—	355, *TO*	Long Tom Intro: 2500 (TH)
Cruise Missiles (/50, /70, /90, /120)	IS/E	XXFE	3065 (FS)	3095 (FS)	—	284, *TO*	—
Artillery Cannon Shells (Long Tom, Sniper, Thumper)	IS/B	XFED	3012 (LC)	3072 (LC)	—	285, *TO*	All Standard Artillery Shell Types
Battle Armor Tube Artillery Shells	IS/E	XXFE	~3070 (CS)	3075 (CS)	—	284, *TO*	HE and Smoke Shell Types only
Fuel-Air Missile (Arrow IV)	All/C	EFEE	PS	PS	—	165, *IO*	—
Fuel-Air Shells (Long Tom, Sniper, Thumper)	All/C	EFEE	PS	PS	—	165, *IO*	—
Fuel-Air Cannon Shells (Long Tom, Sniper, Thumper)	All/C	EFEE	PS	PS	—	165, *IO*	—
Autocannon and Rifle Ammo							
Standard (AC, LAC, PAC)	All/B	CCDD	As Weapon	As Weapon	As Weapon	207, *TM*	—
Armor-Piercing (AC, LAC, PAC)	All/E	XXEE	3055 (FS/LC)	3059 (FS)	3063	208, *TM*	Clan Intro: 3105 (CJF)
Caseless (AC, LAC, PAC)	All/D	XXED	3056 (FS/LC)	3079 (FS)	3115	352, *TO*	Clan Intro: 3109 (CSR)
Flak (AC, LAC, PAC)	All/B	EFFE	ES	~2310 (TA)	3070	352, *TO*	—
Flechette (AC, LAC, PAC)	All/E	XXEE	3053 (FS/LC)	3055 (FS)	3058	208, *TM*	Clan Intro: 3105 (CHH)
Precision (AC, LAC, PAC)	IS/E	XXEE	3058 (FS)	3062 (FS)	3066	208, *TM*	—
Tracer (AC, LAC, PAC)	All/B	DEFE	ES	~2300 (TA)	3060	353, *TO*	—
HV Standard (Hyper-Velocity AC)	IS/D	XXFE	3059 (CC)	3079 (CC)	—	285, *TO*	—
LB Cluster (LB-X)	All/E	As Weapon	As Weapon	As Weapon	As Weapon	208, *TM*	—
LB Standard (LB-X)	All/E	As Weapon	As Weapon	As Weapon	As Weapon	207, *TM*	—
Ultra Standard (Ultra AC)	All/E	As Weapon	As Weapon	As Weapon	As Weapon	208, *TM*	—
Rotary Standard (Rotary AC)	All/E	XXED	As Weapon	As Weapon	As Weapon	207, *TM*	—
Rifle (Cannon) Shells	All/B	CFXD	PS	PS	3085	338, *TO*	Ext: ~2900; Ret: ~3084 (Per)**
Bombs and other External Hardpoint Ordnance							
Air-to-Air (AAA) Arrow	All/E	XXFE	~3069 (LC/CWX)	3072 (LC)	—	357, *TO*	Clan Intro: 3072 (CWX)
Anti-Ship (AS) Missiles	All/D	XXFE	3071 (FS)	~3075 (FS)	—	358, *TO*	Clan Intro: 3076 (CNC)
Anti-Ship Electronic Warfare (ASEW) Missiles	IS/E	XXEE	3067 (LC)	3073 (LC)	—	358, *TO*	—
Arrow IV Homing Missile (Air-Launched Version)	All/E	EFEE	~2595 (TH)	2600 (TH)	—	358, *TO*	Ext: ~2835; Ret: 3047 (CC)*
Arrow IV Non-Homing Missile (Air-Launched Version)	All/E	EFEE	~2622 (TH)	2623 (TH)	—	359, *TO*	Ext: ~2850; Ret: 3046 (CC)*

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heavy Weapons Ammunition (Continued)							
Cluster Bomb	All/B	DDDD	PS	PS	PS	246, *TW*	—
Fuel-Air Bomb (Small)	All/C	EFEE	PS	PS	—	165, *IO*	—
Fuel-Air Bomb (Large)	All/C	EFEE	PS	PS	—	165, *IO*	—
High-Explosive (Standard) Bomb	All/B	CCCC	PS	PS	PS	246, *TW*	—
Inferno Bomb	All/B	DDDC	PS	PS	PS	359, *TO*	—
Laser-Guided (LG) Bomb	All/C	EFED	ES	ES	3065	247, *TW*	Ext: 2800; Ret: 3060 (FW)*
Light Air-to-Air (LAA) Missiles	All/E	XXFD	~3069 (FW)	3072 (FW)	—	359, *TO*	Clan Intro: 3074 (CWX)
Mines	All/C	EEDD	PS	PS	PS	364, *TO*	—
Rocket Launcher Pod	IS/B	XXBB	~3060 (MH)	3064 (MH)	3067	229, *TM*	—
TAG Pod	All/E	EFDD	~2600 (TH)	2605 (TH)	2645	238, *TM*	Ext: 2835; Ret: 3035 (FS)*
Thunder (FASCAM) Bombs	All/C	EEDD	~2600 (TH)	2623 (TH)	—	360, *TO*	Ext: ~2850; Ret: 3052 (CC)*
Thunder Active Bombs	IS/E	XXED	~3060 (CC)	3065 (CC)	—	360, *TO*	—
Thunder Vibrobombs	IS/E	XXED	~3060 (CC)	3065 (CC)	—	360, *TO*	—
Torpedo Bombs	All/B	CCCC	PS	PS	—	360, *TO*	—
Chemical Laser Ammo	Clan/E	XXEE	3059 (CHH)	3085 (CHH)	3145	320, *TO*	—
Flamer and Fluid Gun/Sprayer Ammo							
Coolant Ammo [Flamers/Fluid Guns/Sprayer]	All/C	BBBB	ES	ES	ES	360, *TO*	—
Corrosive Ammo [Fluid Guns/Sprayers]	All/C	CDDD	PS	ES	ES	361, *TO*	—
Flame-Retardant Foam Ammo [Fluid Guns/Sprayers]	All/B	BBBB	PS	PS	PS	361, *TO*	—
Flamer Fuel Ammo [Flamers/Fluid Guns]	All/C	BBBA	PS	PS	PS	218, *TM*	—
Inferno Fuel Ammo [Flamers/Fluid Guns]	All/D	DEDC	~2390 (TH)	2400 (TH)	2425	361, *TO*	—
Oil Slick Ammo [Fluid Guns/Sprayers]	All/B	BBBB	PS	PS	PS	362, *TO*	—
Paint/Obscurant Ammo [Fluid Guns/Sprayers]	All/B	BBBB	ES	ES	ES	362, *TO*	—
Water Ammo [Flamers/Fluid Guns/Sprayers]	All/A	AAAA	PS	PS	PS	362, *TO*	—
Gauss Rifle Ammo							
Gauss Rifle Ammo [IS]	IS/E	DFDC	2587 (TH)	2590 (TH)	3045	218, *TM*	Ext: 2865; Ret: 3040 (FC/FW/DC)
Improved Gauss Rifle Ammo	Clan/E	XEXX	~2818 (CGS)	2821 (CGS)	2822	96, *TO*	Ext: 2837
Gauss Rifle Ammo [Clan]	Clan/F	XFDD	~2822 (CBR)	2828 (CBR)	2830	218, *TM*	—
Light Gauss Rifle Ammo	IS/E	XXED	~3049 (FW)	3056 (FW)	3065	219, *TM*	—
Heavy Gauss Rifle Ammo	IS/E	XXED	~3051 (FW)	3061 (LC)	3067	218, *TM*	—
Anti-Personnel Gauss Rifle Ammo	Clan/F	XXED	~3065 (CJF)	3069 (CJF)	3072	218, *TM*	—
Hyper-Assault Gauss Rifle Ammo (All Sizes)	Clan/F	XXED	~3062 (CHH)	3068 (CHH)	3072	218, *TM*	—
Improved Heavy Gauss Rifle Ammo	IS/E	XXFE	3065 (LC)	3081 (LC)	3090	314, *TO*	—
Magshot Gauss Rifle Ammo	IS/E	XXDC	~3059 (FS)	3072 (FS)	3090	314, *TO*	—
Silver Bullet Gauss Rifle Ammo	IS/D	XXFE	3051 (FS/LC)	3080 (LC)	3090	314, *TO*	—
Grenade Launcher Ammo							
Chaff Grenades [VGL]	All/B	DEEE	~3050 (DC)	3052 (DC)	—	363, *TO*	Clan Intro: 3063 (CWX)
Fragmentation Grenades [VGL]	All/B	BBBB	PS	ES	~3070	363, *TO*	—
Incendiary Grenades [BA GL/VGL]	All/B	BBBB	PS	PS	~3070	364, *TO*	—
Smoke Grenades [BA GL/VGL]	All/A	BBBB	PS	PS	~3070	364, *TO*	—
Machine Gun Ammo							
Standard Machine Gun Ammo	IS/B	AABA	PS	PS	PS	228, *TM*	—
Light Machine Gun Ammo	IS/B	XXCB	~3055 (CSJ)	3060 (CSJ)	3070	228, *TM*	IS Intro: 3068 (CC)
Heavy Machine Gun Ammo	All/B	XXCB	~3054 (CHH)	3059 (CSJ)	3070	228, *TM*	IS Intro: 3068 (TC)

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heavy Weapons Ammunition (Continued)							
Minefield Ordnance							
Standard (Conventional) Mines (Land/Sea)	All/B	CCCC	PS	PS	PS	367, *TO*	—
Active Mines (Land)	All/C	FEED	ES	ES	ES	364, *TO*	—
Command-Detonated Mines (Land/Sea)	All/B	CDCC	PS	PS	PS	365, *TO*	—
Electromagnetic Pulse (EMP) Mines, Vibrabomb (Land)	All/E	FXFD	~2675 (TH)	2680 (TH)	—	365, *TO*	Ext: 2825; Ret: 3058 (FW)*
Electromagnetic Pulse (EMP) Mines, Command-Detonated (Land)	All/E	XXFD	~3063 (WB)	3065 (WB)	—	365, *TO*	—
Inferno Mines (Land/Sea)	All/C	XXDD	~3053 (CC)	3055 (CC)	3060	366, *TO*	Clan Intro: 3066 (CHH)
Space Mines (Space)	All/C	EFEE	ES	ES	—	366, *TO*	—
Vibrabombs (Land)	All/C	EEDC	~2440 (LC)	2445 (LC)	2490	367, *TO*	—
Missile Launcher Munitions							
Standard ATMs (ATM, Fusillade)	Clan/F	XXDD	~3052 (CCY)	3053 (CCY)	3060	138, *TW*	—
Extended-Range ATMs (ATM, Fusillade)	Clan/F	XXDD	~3052 (CCY)	3053 (CCY)	3060	138, *TW*	—
High-Explosive ATMs (ATM, Fusillade)	Clan/F	XXDD	~3052 (CCY)	3054 (CCY)	3060	138, *TW*	—
Improved Inferno ATMs (ATM, Fusillade)	Clan/F	XXFX	~3070 (CCY)	—	—	67, *IO*	—
Improved Magnetic Pulse ATMs (ATM, Fusillade)	Clan/F	XXFX	~3070 (CCY)	—	—	67, *IO*	Ext: 3080
Standard LRMs (LRM, MML)	All/C	CCCC	2295 (TA)	2300 (TA)	2400	229, *TM*	—
Flare LRMs (LRM, MML)	All/C	EFEE	~2376 (FS)	2377 (FS)	3058	230, *TM*	Ext: 2790; Ret: 3054 (FW)*
Follow-the-Leader LRMs (LRM, MML)	All/E	FXEX				368, *TO*	Ext: ~2770; Ret: 3046 (FS/LC)*
Heat-Seeking LRMs (LRM, MML)	All/C	EEEF	~2390 (TH)	2430 (TH)	2440	369, *TO*	—
Incendiary LRMs (LRM, MML)	All/D	EEEE	2341 (TH)	2342 (TH)	2352	370, *TO*	—
Semi-Guided LRMs (LRM, MML)	IS/E	XXDD	3053 (FW)	3057 (FW)	3065	231, *TM*	—
Smoke LRMs (LRM, MML)	All/C	DDDD	2341 (TH)	2342 (TH)	2350	371, *TO*	—
Swarm LRMs (LRM, MML)	All/E	EXDD	~2615 (TH)	2621 (TH)	3058	371, *TO*	Ext: 2833; Ret: 3053 (FS/LC)*
Swarm-I LRMs (LRM, MML)	IS/E	XXDD	~3052 (FW)	3057 (FW)	3066	371, *TO*	—
Thunder LRMs (LRM, MML)	All/E	DXDD	~2618 (TH)	2620 (TH)	2650	373, *TO*	Ret: 2840; 3052 (FS/LC)*
Thunder Active LRMs (LRM, MML)	IS/E	XXEE	~3054 (CC)	3058 (CC)	3064	373, *TO*	—
Thunder Augmented LRMs (LRM, MML)	IS/E	XXEE	~3054 (CC)	3057 (CC)	3064	373, *TO*	—
Thunder Vibrabomb LRMs (LRM, MML)	IS/E	XXEE	~3054 (CC)	3056 (CC)	3066	373, *TO*	—
Thunder Inferno LRMs (LRM, MML)	IS/E	XXDD	~3054 (CC)	3056 (CC)	3062	373, *TO*	—
Standard MRMs (MRM)	IS/C	XXED	~3052 (DC)	3058 (DC)	3063	229, *TM*	—
Standard SRMs (SRM, MML)	All/C	CCCC	2365 (TH)	2370 (TH)	2400	229, *TM*	—
Acid SRMs (SRM, MML)	IS/E	XXFF	3053 (FS/LC)	—	—	368, *TO*	—
Harpoon SRMs (SRM)	All/C	CCCC	~2395 (LC)	2400 (LC)	2415	369, *TO*	—
Heat-Seeking SRMs (SRM, MML)	All/C	EEEF	~2365 (TH)	2370 (TH)	—	369, *TO*	—
Inferno SRMs (SRM, MML)	All/B	DDDD	~2370 (TC)	2380 (TH)	2400		—
Smoke SRMs (SRM, MML)	All/C	DDDD	2333 (TH)	2370 (TH)	—	371, *TO*	—
Tandem Charge SRMs (SRM, MML)	IS/E	XXEE	2757 (TH)	(FS)	—	372, *TO*	—
Tear Gas SRMs (SRM, MML)	All/C	BBBB	~2370 (TH)	2375 (TH)	2385	372, *TO*	—
Standard Rocket Launcher (RL)	All/B	BBBB	ES	3064 (MH)	3067	229, *TM*	—
Standard Streak SRMs (Streak SRM)	All/E	EEDD	2645 (TH)	2647 (TH)	2650	230, *TM*	—
Retro-Streak SRMs (Streak SRM)	IS/E	XXFX	3048 (DC)	—	—	193, *IO*	Ext: 3057
Anti-TSM Missiles (LRM, SRM, MML)	IS/E	XXFF	3026 (FS)	3027 (FS)	—	104, *IO*	—
Artemis IV Missiles (LRM, SRM)	All/E	EFDC	2592 (TH)	2598 (TH)	3045	207, *TM*	Clan Intro: 2818 (CSA)
Artemis V Missiles (LRM, SRM, MML)	Clan/F	XXFE	~3061 (CGS)	3085 (CSF/RD)	3095	283, *TO*	—
Dead-Fire Missiles (LRM, SRM, MML)	IS/C	XXEE	3052 (DC)	—	—	131, *IO*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heavy Weapons Ammunition (Continued)							
Fragmentation Missiles (LRM, SRM, MML)	All/D	EFED	~2375 (FS)	2377 (FS)	3058	230, *TM*	Ext: 2790; Ret: 3054 (FW)*
Listen-Kill Missiles (LRM, SRM, MML)	IS/D	XXFX	~3037 (FS/LC)	—	—	105, *IO*	Ext: 3040
Magnetic Pulse Missiles (LRM, SRM, MML)	IS/E	XXFX	3055 (FW)	3057 (FW/WB)	—	370, *TO*	Ext: 3065
Mine Clearance Missiles (LRM, SRM, MML)	IS/C	XXED	~3065 (FS)	3069 (FS)	—	370, *TO*	—
Multi-Purpose Missiles (LRM, SRM)	Clan/F	XXEE	~3055 (CGS)	3060 (CGS)	3065	229, *TW*	Battle Armor Launchers only
Narc-Capable Missiles (LRM, SRM)	All/E	EFDC	~2520 (TH)	2587 (TH)	3049	142, *TW*	Clan Intro: 2828 (CIH)
Anti-Radiation Missiles (LRM, SRM, MML)	All/E	XXEF	3066 (FW)	—	—	368, *TO*	Clan Prototype: 3057 (CSJ)
Standard Narc Homing Beacon (Narc, iNarc)	All/E	EFDC	~2580 (TH)	2587 (TH)	3049	141, *TW*	Clan Intro: 2828 (CIH)
Bola Narc Pods (Narc)	IS/D	XXEF	3056 (CC)	—	—	368, *TO*	—
Explosive Narc Pods (Narc)	IS/E	XXDD	~3054 (DC)	3060 (DC)	3064	141, *TW*	—
Shoot-and-Sit Missiles (Narc)	IS/E	XXFX	3049 (FS/LC)	—	—	132, *IO*	Ext: 3059
Improved Narc Homing Beacon (iNarc)	IS/E	XXED	~3054 (CS)	3062 (CS/WB)	3066	141, *TW*	—
Improved Narc ECM Pods (iNarc)	IS/E	XXDD	~3054 (CS)	3062 (CS/WB)	3066	141, *TW*	—
Improved Narc Explosive Pods (iNarc)	IS/E	XXDD	~3054 (CS)	3062 (CS/WB)	3066	141, *TW*	—
Improved Narc Haywire Pods (iNarc)	IS/E	XXED	~3054 (CS)	3062 (CS/WB)	3066	141, *TW*	—
Improved Narc Nemesis Pods (iNarc)	IS/E	XXED	~3054 (CS)	3062 (CS/WB)	3066	142, *TW*	—
Torpedo (LRT, SRT)	All/C	CCCC	~2370 (TH)	2380 (TH)	2400	230, *TM*	—
Fusillade Ammo (Fusillade)	Clan/F	XXFX	~3072 (CCY)	—	—	65, *IO*	Ext: 3080
Mortar Munitions							
Standard Mortars	All/B	DFFE	~2526 (TH)	2531 (TH)	3052	263, *TM*	Ext: 2819; Ret: 3043 (FS/LC)*
Airburst Mortars	All/C	BDCD	~2540 (TH)	2544 (TH)	—	373, *TM*	—
Anti-Personnel Mortars	All/B	BBBB	~2526 (TH)	2531 (TH)	3052	374, *TM*	—
Armor Piercing Mortars	All/C	BBBB	~2526 (TH)	2531 (TH)	3052	374, *TM*	Ext: 2819; Ret: 3043 (FS/LC)*
Flare Mortars	All/B	AAAA	~2533 (TH)	2536 (TH)	—	374, *TM*	—
Semi-Guided Mortars	IS/C	XXED	~3055 (FW)	3064 (FW)	—	374, *TM*	—
Smoke Mortars	All/B	AAAA	~2526 (TH)	2531 (TH)	—	375, *TM*	—
Plasma Rifle Ammo	IS/E	XXED	~3061 (CC)	3068 (CC)	3072	234, *TM*	—
Plasma Cannon Ammo	Clan/F	XXED	~3068 (CSF)	3069 (CSF)	3070	234, *TM*	—
RISC Advanced Point Defense System (Standard)	IS/E	XXXE	3134 (RS)	3137 (RS)	—	91, *IO*	—
RISC Advanced Point Defense System (Battlesuit)	IS/E	XXXE	3132 (RS)	3134 (RS)	—	91, *IO*	—
Taser Ammo (BattleMech)	IS/E	XXFE	3065 (FS)	3084 (RS)	—	346, *TO*	—
Capital and Sub-Capital Weapon Munitions							
Mass Drivers (Light, Med, Heavy)	IS/D	FXFF	~2715 (TH)	—	—	323, *TO*	Ext: ~2855; Ret: 3066 (WB)*
Naval Gauss (Light, Medium, Heavy N-Gauss)	All/E	EXEE	~2440 (TH)	~2448 (TH)	—	333, *TO*	Ext: ~2950; Ret: 3052 (DC)*
Naval Autocannon (All)	All/D	EXEE	ES	~2200 (TA)	—	331, *TO*	Ext: ~2950; Ret: 3051 (FS/LC)*
Capital Missiles (Killer Whale, White Shark, Barracuda)	All/E	DEED	~2200 (TA)	2305 (TA)	3055	210, *TM*	Ext: ~2950; Ret: 3051 (FS/LC)*
Tele-operated Missiles (KW, WS, Barracuda)	IS/F	XXED	3053 (CS/DC)	3056 (DC)	3060	251, *TW*	—
Tele-operated Missiles (Kraken)	IS/F	XXED	3053 (CS/DC)	3057 (DC)	3060	251, *TW*	—
Screen Launcher	IS/F	XXED	3053 (DC)	3055 (DC)	3057	251, *TW*	—
Sub-Capital Missiles (All)	All/E	XXFD	~3066 (WB)	3072 (WB)	3145	345, *TO*	Clan Intro: 3073 (CGB/CNC)
Sub-Capital Cannons (Light, Med, Heavy)	All/E	XXFD	~3070 (WB)	3073 (WB)	3145	343, *TO*	Clan Intro: 3091 (CSR)
Industrial Munitions							
Nail/Rivet Gun Ammo	All/A	AAAA	PS	PS	PS	246, *TM*	Always Available
Remote Sensors	All/C	FFDD	2586 (TH)	2590 (TH)	—	375, *TO*	—

UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Weapons of Mass Destruction							
Nuclear Weapons (General)	IS/C	FFFF	PS	—	—	169, *IO*	Always Available
Std. Nuclear Weapon (Type Ia/Davy Crockett)	IS/E	FFFF	2412 (TH)	—	—	174, *IO*	—
Std. Nuclear Weapon (Type Ib/Davy Crockett-M)	IS/E	FFFF	2480 (TH)	—	—	174, *IO*	—
Std. Nuclear Weapon (Type II/Alamo)	IS/E	FFFF	2200 (TA)	—	—	174, *IO*	—
Std. Nuclear Weapon (Type III/Santa Ana)/Launcher	IS/E	FFFF	2300 (TA)	—	—	174, *IO*	—
Std. Nuclear Weapon (Type IV/Peacemaker)/Launcher	IS/E	FFFF	2300 (TA)	—	—	176, *IO*	—
Std. Nuclear Weapon (Elias)	IS/E	FFFF	2792 (FS)	—	—	174, *IO*	—
Std. Nuclear Weapon (AMW)	IS/E	FFFF	2790 (FW)	—	—	176, *IO*	—
Chemical Weapon (Class I)	All/A	CCCC	PS	—	—	180, *IO*	—
Chemical Weapon (Class II)	All/B	CCCC	PS	—	—	180, *IO*	—
Chemical Weapon (Class III)	All/B	CDCD	PS	—	—	180, *IO*	—
Chemical/Biological Weapon (Class IV)	All/C	DDDD	ES	—	—	181, *IO*	—
Chemical/Biological Weapon (Class V)	All/C	EFFF	ES	—	—	182, *IO*	—

KEY OF TERMS

Rule Classes

Prototype = Initial Development, uses Experimental Rules (Requires *TO*, *SO*, or *IO*; not in general production)

Production = Early Releases, uses Advanced Rules (May require *TO*, *SO*, or *IO*; now in general production)

Common = Widely Deployed/Understood, considered Advanced or Tournament Legal (Compatible with *TW*; may require *TO* or *SO*; now in wide production)

Prototype Years and Tech Base

PS = Pre-Spaceflight

ES = Early Spaceflight

IS = Inner Sphere technology base (includes non-Clan Periphery realms)

Clan = Clan technology base (includes Homeworld Clans and Clan-controlled Inner Sphere regions)

All = Inner Sphere and Clan tech bases

Var = Variable Tech Base, based on items used; Exact Tech Base of combined items = highest Base from the range of items used.

Notes

Ext = Extinct (production lost)

Ret = Returned to production

*Extinction/Return Dates apply to Inner Sphere factions only (this technology was never lost in Clan space, and remains understood by ComStar/Word of Blake).

**Extinction/Return Dates apply to all factions (technology was abandoned or lost even by the Clans).

†Tech and Availability Ratings listed reflect minimum required for listed item.

‡This motive type is only available if suitable, trained mounts are available.

Inner Sphere Faction Codes

CC = Capellan Confederation
CF = Circinus Federation
CP = Calderon Protectorate
CS = ComStar
DC = Draconis Combine
EI = Escorpión Imperio
FR = Free Rasalhague Republic
FS = Federated Suns
FW = Free Worlds League
LC = Lyran Alliance/Commonwealth
MC = Magistracy of Canopus
MH = Marian Hegemony
OA = Outworlds Alliance
TA = Terran Alliance
TC = Taurian Concordat
TH = Terran Hegemony
RD = Rasalhague Dominion/ Ghost Bear Dominion
RS = Republic of the Sphere
RA = Raven Alliance
RW = Rim Worlds Republic
WB = Word of Blake

Clan Faction Codes

CBR = Clan Burrock
CBS = Clan Blood Spirit
CCY = Clan Coyote
CCC = Clan Cloud Cobra
CFM = Clan Fire Mandrill
CGB = Clan Ghost Bear
CGS = Clan Goliath Scorpion
CHH = Clan Hell's Horses
CIH = Clan Ice Hellion
CJF = Clan Jade Falcon
CMN = Clan Mongoose
CNC = Clan Nova Cat
CSF = Clan Sea Fox/ Clan Diamond Shark
CSJ = Clan Smoke Jaguar
CSR = Clan Snow Raven
CSV = Clan Steel Viper
CSA = Clan Star Adder
CWM = Clan Widowmaker
CWF = Clan Wolf
CWX = Clan Wolf (in Exile)
CWV = Clan Wolverine

Note: A faction name of "Clan" indicates that multiple Clans developed a given item at the same time. A faction name of "Merc" indicates that the given item was developed/deployed by a mercenary organization. A faction name of "Per" indicates that the given item was developed or deployed by an unaffiliated or minor Periphery-based organization, such as a pirate faction or an independent Periphery world.



The massive brawl outside of the Kerensky Bloodchapel on Strana Mechty violated Clan rules of warfare on many, many levels.

This chapter provides game play and construction rules for advanced and/or experimental units, weapons and equipment that are considered era specific. In other words, they are not appropriate for all eras and so appear here (as opposed to one of the other core rulebooks). For example, Land-Air BattleMechs (LAMs) are only truly appropriate for the Star League and Jihad Eras, as they were introduced during the Star League, but all but vanished in the wars that erupted after the fall of the Star League, and only came back during the final days of the Word of Blake Jihad. To be fair, many LAMs managed to survive all the way through the intervening years, and one model even remained in limited production right up to the Clan Invasion era, but their use rapidly declined during the onset of the Succession Wars, rendering them extremely rare.

The weapons and equipment discussed in this chapter, combined with their data in the Universal Technology Advancement Table and the Additional Alternate Era Weapons and Equipment Tables, will explain for players not only how to use these items in gameplay, but will also define when and—where appropriate—by what groups these items are appropriate for era-specific game play. As indicated in the Universal Technology Advancement Table, the availability data focuses primarily on when an item came into "large-scale use". Items can still appear in eras long after they reportedly went extinct, but such occurrences should be a rare sight in *BattleTech* games.

Ammunition: Unless otherwise stated, ammunition is not compatabile across Prototype, Primitive, Improved and Production versions of equipment.

Costs and Availability: Costs and Availability for all equipment/units are found in the next chapter, starting on page 184.

Battle Value: Battle Values for all equipment/units are found in the next chapter, starting on page 189.

BattleForce: *BattleForce*-scale rules covering this information are found at the end of the next chapter, starting on page 198.

ADVANCED CLAN EQUIPMENT (WARS OF REAVING)

Introduced: Variable (See Rules)
Extinct: Variable (See Rules)

During the Wars of Reaving that largely took place in the Clan homeworlds during the Jihad, a number of experimental and advanced technologies were debuted. Many of these technologies were devised by the Society, the secretive collective of scientist caste leaders who launched a rebellion against the warrior castes of all Clans during the internecine conflicts. While some of these developments were lost in the fighting and its aftermath, others survived and even proliferated to the Inner Sphere Clans by the time of the Dark Age era.

ELECTRIC DISCHARGE PROTOMECH (EDP) ARMOR

R&D Start Date: 3066 (Clan Fire Mandrill)
Prototype Design and Production: circa 3071 (Society/Clan Fire Mandrill)

ProtoMech pilots are taught to engage their enemies in close proximity, and often resort to physical attacks. In an effort to maximize the potential damage resulting from this tactic, Clan scientists devised a spike-laden armor system that drew power from the ProtoMech's fusion engine and into compound capacitors distributed throughout. Though relatively successful in delivering overload-capable jolts to enemy units, the long recharge time and close-quarters nature of the system limited its deployment.

Electric Discharge ProtoMech (EDP) Armor Rules

Rules Level: Experimental
Available to: PM
Tech Base (Ratings): Clan (F/XXFX)

Game Rules: Whenever a ProtoMech with charged EDP armor successfully executes a Frenzy attack (see p. 187, *TW*), the armor will deliver a powerful discharge that works as an automatic hit from a BattleMech Taser (see pp. 345-346, *TO*). But, when rolling on the Taser Effects Table, EDP armor applies a –2 modifier to the roll result.

Against conventional infantry, a ProtoMech with charged EDP armor will deliver 1 additional point of damage on a successful Frenzy attack (or 2 points, if the infantry unit is cybernetically enhanced).

The EDP armor's capacitors need 6 turns to recharge after any discharge, during which time none of the ProtoMech's weapons that require heat sinks will function. The ProtoMech warrior can switch this charge cycle on and off, however, so these 6 turns need not be consecutive; the ProtoMech's player can elect in every End Phase to "pause" charging the EDP armor for the following turn, thus re-enabling his energy weapons. Each turn that the EDP armor is being charged must be recorded on the ProtoMech's record sheet.

Finally, whenever the Torso location of a ProtoMech with EDP armor suffers 1 or more critical hits following a check on the Determine Critical Hits table, immediately assign 5 points of damage to that location after the resolution of that critical damage, as a result of the explosive surge caused by the ruptured capacitors in that location.

Construction Rules: EDP armor reduces the maximum number of items a ProtoMech may carry in its Torso Location by 1. Each EDP armor point weighs 75 kilograms.

EXTENDED JUMP JET (XJJ) SYSTEM

Introduced: 3075 (Clan Snow Raven)

Impressed by the sustained VTOL capability of Cloud Cobra's Sylph battle armor, Clan Snow Raven sought to use the technology as a springboard to provide similar capabilities for their ProtoMech and BattleMech programs. Though the Raven scientists never managed to apply the technology as envisioned, they did manage to create ProtoMech-scale jump jets powerful and efficient enough to match the capabilities of BattleMech-mounted improved jump jets. During the Wars of Reaving, the Ravens' Society cell siphoned the project for proliferation among its own ProtoMech efforts.

Extended Jump Jet (XJJ) System Rules

Rules Level: Tournament Legal
Available to: PM
Tech Base (Ratings): Clan (F/XXFD)

Game Rules: ProtoMech extended jump jets are the effective analog to BattleMech improved jump jets, enabling a maximum jump distance equal to the unit's Running MP rather than its Walking MP.

Construction Rules: Extended jump jet systems weigh twice as much as the standard ProtoMech jump jet weights (100 kilograms per Jump MP for ProtoMechs under 6 tons, 200 kilograms per Jump MP for Protos 6 to 9 tons in total mass, and 300 kilograms per Jump MP for ProtoMechs over 9 tons in total mass). Unlike standard jump jets, ProtoMechs may mount as many XJJs as they have Running MP.

Glider ProtoMechs (see pp. 99) cannot use extended jump jets.

FUSILLADE LAUNCHER

R&D Start Date: 3068 (Clan Coyote)
Prototype Design and Production: circa 3072 (Society/Clan Coyote)

The Fusillade launcher evolved from an attempt to create a ProtoMech-friendly version of the advanced tactical missile (ATM) weapon system. While mass and physical limitations made it impossible to fully use the ATM's flexibility, Clan scientists ultimately created a three-tube launcher that could accept any ATM-friendly munitions, and carried one additional reload in internal stores that could be of a different ammo type. Maintaining a damage and range profile similar to standard ATM missiles, the system was bulky and undesirable compared to Streak or LRM launchers.

During the Wars of Reaving, the Fusillade was rushed into service before its engineers considered their task complete, but further development ended when the weapon's main design lab was destroyed in 3075.

Fusillade Launcher Rules

Rules Level: Experimental
Available to: PM
Tech Base (Ratings): Clan (F/XXFX)

Game Rules: Fusillade launchers have only one reload (for a total of two shots per launcher), and incorporate an Artemis IV targeting system at no cost in space or mass. Even though they are derived from improved ATM launchers, Fusillade launchers lack the Streak-like features of such weapons. A Fusillade thus will fire even if the attack roll fails, and must roll on the 3 column of the Cluster Hits Table upon any successful attack. A +2 modifier applies to the Cluster Hits Table roll result, to account for the integral Artemis, unless hostile ECM interferes (as per normal ECM rules).

The Fusillade launcher vents heat in the same manner as missile weapons on vehicles, and thus does not generate heat for the ProtoMech. Fusillades may make use of all ATM and iATM munitions (see p. 201, *The Wars of Reaving*). The salvos fired by a Fusillade launcher need not be of the same missile type, but players should record the missile types carried prior to the start of the scenario.

Construction Rules: The Fusillade launcher can only be mounted on a ProtoMech, and requires no heat sinks for its operation. The weapon's contained ammunition magazine supports two ATM-3 rounds of any type (including improved ATM munitions), which need not be identical. The Fusillade launcher's magazine cannot be expanded beyond these two rounds. When not specified, the Fusillade launcher is presumed to be firing standard ATM munitions.

IMPROVED ADVANCED TACTICAL MISSILE (IATM) LAUNCHERS

Introduced: 3070 (Society/Clan Coyote)

When the Coyotes debuted the advanced tactical missile system to the warrior caste in 3054, the design was presented primarily as a stopgap measure to quell political haranguing from the Clan Council. While the basic ATM system was deemed a success, the Society—free to continue developmental improvements in secret—continued their technological research and eliminated some of the ATM's original design flaws. In the process, they improved both the weapon's accuracy and the diversity of its payloads. These weapons came as a complete surprise to the warrior caste when the scientist-led Society rebelled during the Wars of Reaving.

Improved Advanced Tactical Missile (iATM) Game Rules

Rules Level: Advanced
Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS
Tech Base (Ratings): Clan (F/XXFE)

Game Rules: iATM attacks are resolved in the same way as a standard ATM with the following exceptions:

When fired directly, the iATM's targeting system functions as that of a Streak SRM (but using the range and damage values of the ammo type used), and will abort the shot if the attack roll fails, due to the weapon's failure to "lock on". Also like a Streak launcher, the iATM hits with all missiles on a successful direct-fire attack, requiring no roll on the Cluster Hits Table. All hit locations are then determined as appropriate for the munitions type used. The iATM must reacquire a lock every time it executes a direct-fire attack; previous lock-ons do not carry over to subsequent turns.

The iATM may also make use of indirect fire rules (see p. 111, *TW*), regardless of the munitions used. When firing indirectly, the iATM resolves the attack like a standard LRM (but using the range and damage values of the ammo type used), and must roll on the appropriate Cluster Hits Table to determine the number of missiles that strike the target.

Finally, in addition to the standard, extended-range, and high-explosive ATM munitions available to the original ATM weapons, iATM launchers may also make use of improved magnetic pulse (IMP) and improved Inferno (IIW) munitions (see p. 67).

Construction Rules: iATMs are mounted in accordance with the unit's standard construction rules for missile weapons. A unit may mount any number of iATM launchers desired, but must also mount any ammunition in full-ton lots.

MAGNETIC CLAMP SYSTEM

Introduced: 3075 (Society/Clan Fire Mandrill)

The magnetic clamp system (MCS) was developed by Clan scientists during the Wars of Reaving as a means to improve deployment options for slower ProtoMechs by using the same process as mechanized battle armor. Based on the Inner Sphere's battle armor-scale version of the technology, the ProtoMech magnetic clamp system made it possible for any BattleMech to carry up to two ProtoMechs into battle at a time. The technology eventually made its way back into the Inner Sphere via Diamond Shark merchants, where it was used sporadically by Clans Hell's Horses and Snow Raven.

Magnetic Clamp System Game Rules

Rules Level: Advanced
Available to: PM
Tech Base (Ratings): Clan (F/XXFE)

Game Rules: When functional, ProtoMechs may use the magnetic clamp system to mount any BattleMech (Omni or otherwise) per the *Mechanized Battle Armor* rules (see pp. 226-227, *TW*). However, a BattleMech may carry no more than two standard-size ProtoMechs in this fashion, with the carried ProtoMechs "occupying" the front or rear Center Torso locations only. If the ProtoMech weighs more than 9 tons, only one may be carried via the MCS, and must mount up on the 'Mech's front Center Torso location.

If the 'Mech receives damage to a location where a ProtoMech is mounted, only half of the attack's damage (round down) will actually strike the 'Mech, while the remainder is applied to the ProtoMech in a random location—rerolling any Near Miss location results until this damage is resolved. A ProtoMech that is damaged while riding on a BattleMech in this fashion is immediately dismounted in the BattleMech's current hex, and begins the next turn phase as a separate unit.

While transporting ProtoMechs, a BattleMech's speed is reduced in accordance with the standard rules for carrying unprotected external cargo (see p. 261, *TW*), using the total weight of the ProtoMechs being carried to compute the change in MP. OmniMechs—which can accommodate up to six battle-armored troopers without affecting their speed—subtract 3 tons from the weight of each ProtoMech (to a minimum of 0 tons) carried in this manner when computing the external cargo weight.

ProtoMechs may not be transported by vehicles or aerospace units, even if such units are Omnis.

Any critical hits to a ProtoMech's torso automatically destroy the MCS.

Construction Rules: The magnetic clamp system may not be mounted on Quad or Glider ProtoMech types, but may be mounted on Ultraheavy ProtoMechs. The system weighs 250 kilograms for ProtoMechs under 6 tons, 500 kilograms for ProtoMechs 6 to 9 tons in total mass, and 1,000 kilograms for ProtoMechs of 10 tons or more. It occupies one weapon slot in the ProtoMech's torso.

NOVA COMBINED ELECTRONIC WARFARE SYSTEM (CEWS)

Introduced: 3065 (Society/Clan Coyote)

The Nova Combined Electronic Warfare System (CEWS) was an upgraded adaptation of the Inner Sphere's C^3 computer network that was also combined with an ECM suite and active probe. The result was a comprehensive electronics package that not only improved a unit's detection and counter-measures abilities, but also enabled the on-the-fly creation of a C^3 network with any two other units equipped with a similar system—a feat beyond even the Inner Sphere's dedicated networks.

Physical limitations prevented the Nova's creators from building larger networks, or eliminating the waste heat the system generated while in use, but despite these drawbacks, the system proved supremely effective. With its ability to bypass network breaks by simply finding another compatible unit operating nearby, the improved targeting data helped close the gap between the rebel Society's inexperienced pilot corps and the veteran Clan warriors they opposed.

Nova Combined Electronic Warfare System (CEWS) Game Rules

Nova Rules Level: Experimental
Available to: BM, IM, CV, SV, AF, CF, SC
Tech Base (Ratings): Clan (F/XXFX)

Game Rules: The Nova CEWS operates as a combination of ECM, active probe and C^3i equipment, with the following exceptions.

The Nova CEWS can link up to two other units mounting a Nova CEWS. A unit wishing to link with another unit must declare the connection in the End Phase. Beginning in the next turn, the two units are linked and operate per the rules for C^3i (see p. 131, *TW*). Units may not link to more than two other units at a time. ECM does not affect the link, unless it originates from another hostile, active Nova CEWS.

The Nova CEWS does not provide the abilities of TAG.

The Nova CEWS may be mounted on units with the Null Signature System or Chameleon Light Polarization Shield. These systems will function normally.

Units with multiple Nova CEWS may only use one at a time in game play. Fighters and small craft may only use Nova CEWS when interacting with ground units. Nova CEWS can be turned off in any End Phase. While active, Nova CEWS' effects are considered active even if the unit's pilot or crew is rendered incapable of acting in combat, but will shut off if the carrying unit is shut down or destroyed.

The Nova CEWS generates +2 heat while active.

Construction Rules: The Nova CEWS can only be mounted on units with a fusion engine (including standard, compact, light, XL, and XXL engines).

PROTOMECH QUAD MELEE WEAPON SYSTEM

Introduced: 3072 (Clan Hell's Horses)

The ProtoMech quad melee weapon system is a combination of physical modifications to quadruped ProtoMechs designed to improve their damage potential in melee attacks. While the system looked like the same type of cosmetics introduced in the first generation of ProtoMechs, added reinforcements and articulation made it possible for quadruped ProtoMechs to use them as effective weapons in their own right. Developed in the Wars of Reaving, the technology eventually made its way to the Inner Sphere via the Hell's Horses Clan, where it has appeared sporadically ever since.

ProtoMech Quad Melee Weapon System Game Rules

Rules Level: Advanced
Available to: PM
Tech Base (Ratings): Clan (F/XXFE)

Game Rules: Quadruped ProtoMechs equipped with the quad melee weapon system add 2 points of damage to the ProtoMech's base damage in a Frenzy attack for every 5 tons of ProtoMech weight (or fraction thereof). A critical hit to the ProtoMech's quad melee weapon system slot destroys enough of these physical modifications to render the system useless.

Construction Rules: The ProtoMech quad melee weapons system weighs 1 ton (1,000 kg) and may only be mounted in the Torso location of a quadruped ProtoMech. ProtoMechs built using a biped configuration may not install this item.

SPECIALTY MUNITIONS: IMPROVED MAGNETIC PULSE (IMP) MISSILES

Introduced: 3070 (Society/Clan Coyote)

Improved magnetic pulse (IMP) missiles were developed in concert with—and specifically for use with—the improved Advanced Tactical Missile launcher system. Capable of delivering a potent, short-range burst of electromagnetic radiation on impact, these weapons delivered only modest physical damage.

Improved Magnetic Pulse Missile Rules

Rules Level: Experimental
Available to: Any unit equipped with improved ATM or Fusillade launchers
Tech Base (Ratings): Clan (F/XXFE)

Game Rules: IMP missiles provide the same number of shots per ton, and have the same range as ATM HE missiles. Each missile inflicts 1 point of damage, as well as the following effects, based on the target it hits:

- **ProtoMechs:** For every 3 missiles that strike a ProtoMech, the unit suffers the effects of a hostile standard-type ECM, as well as a +1 to-hit modifier and a 1-MP reduction in its Walking *and* Jumping movement through the End Phase of the following turn. These modifiers stack to a maximum of +3 to-hit, and –3 Walking/Jumping MPs. Recalculate Running MPs from modified Walking MPs as normal. Additional IMP missile strikes that hit the ProtoMech after it has suffered its maximum modifier effects will still inflict standard damage, but will not impact its roll or movement modifiers further.
- **Conventional Infantry:** Resolve IMP attacks against infantry as a standard LRM attack. If the unit is using energy weapons of any kind (including field guns or infantry weapons), these are rendered inoperative through the End Phase of the following turn. If the infantry unit is equipped with cybernetic enhancements of any kind (see pp. 76-85), the unit suffers double damage.
- **Battle Armor:** For battle armor squads, each IMP missile that hits the unit disables one battle suit trooper through the End Phase of the following turn. Additional hits have no additional effect beyond the missiles' normal damage. Reduce the Ground and Jump MP of any battle armor unit hit by IMPs by 1 MP per disabled trooper, and resolve any weapons fire using the Cluster Hits Table column appropriate to the number of active battle armor troopers not disabled by IMP missiles.
- **'Mechs, Vehicles, Fighters, and Small Craft:** For every 3 IMP missiles that strike one of these targets, the unit is treated as if it is within a hostile standard ECM field, and receives a +1 to-hit modifier for all attack rolls (to a maximum of +2 to-hit). The unit also loses 1 MP to its Walking/Cruise and Jumping rates (or Safe Thrust, for aerospace units) for every 3 IMP missiles that hit (to a maximum MP/Jump/Thrust point modifier of –2). Recalculate Running/Flank/Maximum Thrust MPs from modified Walking/Cruise/Safe Thrust MPs as normal. These effects will persist until the End Phase of the following turn, during which time additional IMP missile strikes will still inflict standard damage as normal, but no additional to-hit or movement effects. Heat-tracking units unit struck by IMP missiles will also suffer +1 heat for every 3 IMP missiles that strike it, following the *Outside Heat Sources* rule (see p. 159, *TW*). Units not powered by fusion engines may ignore the MP reduction and heat effects of IMP missiles, but not the normal missile damage or the ECM and to-hit modifier effects.
- **DropShips, JumpShips, WarShips, Space Stations, and Mobile Structures:** IMP missiles inflict no additional effect against these units.
- **ECM/ECCM Rules:** If the optional ECM/ECCM rules are in play (see pp. 100-102, *TO*), the effects of an IMP attack may not be used as ECCM, nor do they add a cumulative effect to any actual ECM-capable equipment in play.

Construction Rules: Improved magnetic pulse missiles are compatible only with Improved ATM missile launchers, and may only be carried in full-ton lots. A ton of IMP missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes.

SPECIALTY MUNITIONS: IMPROVED INFERNO (IIW) MISSILES

Introduced: 3070 (Society/Clan Coyote)

Improved Inferno warhead (IIW) missiles were also developed for use with the improved advanced tactical missile launcher system. These warheads gave the iATMs the incendiary abilities that the basic-model ATMs lacked.

Improved Inferno Missile Rules

Rules Level: Experimental
Available to: Any unit equipped with improved ATM or Fusillade launchers
Tech Base (Ratings): Clan (F/XXFE)

Game Rules: IIW missiles use the same range as standard ATM missiles. Each successful IIW missile attack is resolved using the standard *Infernos* rules (see p. 141, *TW*).

Construction Rules: Inferno missiles are compatible only with Improved ATM missile launchers, and may only be carried in full-ton lots. A ton of IIW missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes.

ADVANCED PILOT INTERFACES (MULTIPLE ERAS)

Introduced: Variable (See Rules)
Extinct: Variable (See Rules)

At the peak of the Star League, and during the early years of the Clan Invasion, a number of minor pilot interface technologies were debuted that offered some additional aid to MechWarriors and fighter pilots in combat. These interface modifications included the SLDF's advanced neurohelmets for MechWarriors and fighter pilots, and damage-interrupt circuits that emerged briefly during the time of the Clan invasion. Never produced in great numbers, few examples of these technologies survived their respective time periods.

DAMAGE INTERRUPT CIRCUIT

R&D Start Date: 3053 (Federated Commonwealth)
Prototype Design and Production: 3055 (Federated Commonwealth)

The damage interrupt circuit was a short-lived device, conceived as part of an effort to further protect MechWarriors from the neurohelmet feedback caused by internal ammunition explosions. In an age where the recovery of CASE made it possible for warriors to remain in action after such an event, the DIC was meant to make it possible to keep those warriors in fighting trim.

Unfortunately, the circuits proved to be somewhat glitchy and prone to shorting vital neurohelmet feeds under some battlefield conditions. The dissolution of the Federated Commonwealth halted further research into this interface upgrade, as the Inner Sphere faced renewed Clan hostilities and internal divisions that prompted greater emphasis on more broadly useful weapons research. Thus, the use of DIC technology was largely abandoned by the end of the Clan Invasion era.

Damage Interrupt Circuit Rules

Rules Level: Experimental
Available to: BM, IM
Tech Base (Ratings): Inner Sphere (E/XXFF)

Game Rules: A MechWarrior whose cockpit features a working damage interrupt circuit (DIC) receives only 1 pilot damage hit in the event of an internal explosion, rather than the usual 2. If the unit has a cockpit that seats more than one pilot, the DIC protects both warriors equally.

However, the circuit is disabled if the 'Mech suffers a critical hit to a Life Support slot, or if the 'Mech suffers any damage that strikes a location roll result of 2 on the standard Hit Locations Table (regardless of whether or not the attack delivers a critical hit). A disabled DIC not only fails to protect its MechWarriors against the full effects of internal explosions, it also imposes an additional +1 target number modifier to all Piloting Skill checks made by the unit until the system can be repaired.

Construction Rules: The DIC may only be installed on a 'Mech's cockpit, and is considered a modification to the existing control systems. The circuit takes up no weight and occupies no critical slots on the 'Mech's record sheet, but increases the cost of the cockpit by 150 C-bills (per pilot), to reflect the changes made to the unit's control interfaces and the warrior's neurohelmet.

The DIC can be installed "in the field" for the same cost in C-bills, which covers the electronics components and tools necessary for the job. The modification takes the same amount of time and requires the same target roll and modifiers as a repair of 2 life support critical hits (see pp. 181-185, *SO*). If this roll fails, the DIC will fail to operate and must be replaced.

DIRECT NEURAL INTERFACE COCKPIT MODIFICATION

Introduced: 3055 (Word of Blake)
Extinct: N/A

The direct neural interface technology that came to be used most widely by the Word of Blake's elite Manei Domini MechWarriors was actually developed in the late 3040s by NAIS scientists. While the prototype DNI implant technology proved too unstable, the cockpit interface modifications were sound, and remained largely unchanged even when modified for the more reliable vehicular DNI, buffered VDNI, and other experimental direct-to-brain control systems that followed.

Direct Neural Interface Cockpit Modification Rules

Rules Level: Advanced
Available to: BM, IM, BA, CV, SV, AF, CF
Tech Base (Ratings): Inner Sphere (E/XXEF)

Game Rules: The direct neural interface cockpit modification is required to enable a unit to be piloted directly by a warrior augmented by a direct neural interface implant. A cockpit that is not so modified can only be operated manually and/or with standard neurohelmet aid, thus negating all of the benefits of the neural interface technology. The limits and capabilities of these implants are covered further under *Augmented Warriors* (see pp. 74-85).

If the Design Quirks special rules from *Strategic Operations* are in use (see pp. 193-199, *SO*), the addition of a direct neural interface cockpit modification will add the Hard to Pilot Quirk onto the unit if it does not already possess it (no further effect if the unit is already Hard to Pilot). However, as this only reflects the control system modifications in favor of a direct neural connection, this Quirk's effects only apply if the unit is being piloted by a warrior who lacks compatible implants. Suitably augmented pilots ignore any Hard to Pilot Quirks the unit possesses, if the cockpit uses a direct neural interface.

Construction Rules: Direct neural interface modifications add no significant weight or critical space to the cockpit and control systems of the modified unit, but will add 250,000 to the cockpit's cost in C-bills.

While the Machina Domini and Inner Sphere ProtoMech interface technologies use a variant of this system, they are covered by their own rules, and do not require this particular DNI cockpit modification.

SLDF ADVANCED NEUROHELMET

Introduced: 2759 (Terran Hegemony [MechWarrior's Neurohelmet]), 2761 (Terran Hegemony [Fighter Pilot's Neurohelmet])
Extinct: 2770

Not to be confused with the combat neurohelmet that became standard issue in the SLDF (and which has since survived in the armies of the Clans, ComStar and the Word of Blake), the advanced neurohelmet was developed initially for the SLDF's most elite MechWarriors and eventually adapted by their aerospace fighter counterparts. With improved sensory inputs, these helmets offered superior piloting performance, and—despite their significant expense—were nearing mass production at the time of the New Vandenburg uprising. Unfortunately, Stefan Amaris' coup led directly to the extinction of these superior neurohelmets, as the factories to produce them were destroyed during the war that followed.

Curiously, despite having access to an abundance of these neurohelmets during the Exodus, the Clans did not maintain their use. The mystery as to why was revealed by declassified ComStar documents, released in the early 3060s, which demonstrated that the finely-tuned

advanced SLDF neurohelmets tended to accumulate bio-feedback over years of regular use, which not only led to growing electronic and control problems with their related cockpit systems, but also caused mental disorders in the pilots who used them—especially when inheriting a neurohelmet from a previous user. Unable to conclusively track down the cause of this technical issue (which many techs referred to as "cyber-haunting"), ComStar abandoned the general use of their stockpiled helmets in the late 3030s. Presumably, the Clans did the same during their "Golden Century" period.

SLDF Advanced Neurohelmet Rules

Rules Level: Advanced
Available to: BM, IM, AF
Tech Base (Ratings): Inner Sphere (E/FXXX)

Game Rules: The SLDF advanced neurohelmet provides a –1 target modifier to all Piloting or Control Skill rolls required by a unit so equipped. In addition, a unit controlled with an SLDF advanced neurohelmet interface also receives the Multi-Trac design quirk (see p. 195, *SO*).

The SLDF advanced neurohelmet is incompatible with implant-based direct-neural interfaces, including the Clans' enhanced imaging neural implants, vehicular direct-neural interfaces, and the "Machina Domini" neural interface technology. For units with a dedicated pilot and gunner, both warriors require an SLDF advanced neurohelmet to gain the benefits of this system; if only one warrior is so equipped, the unit will receive none of the advanced neurohelmet benefits.

Neurohelmet Degradation: To reflect the odd cases of "cyber-haunting" that plagued these neurohelmet systems over time, the controlling player of a unit whose pilot is using an SLDF advanced neurohelmet must roll 2D6 for that pilot prior to the start of a mission or campaign, applying a –1 modifier to the roll result for every full increment of 50 years the scenario or campaign takes place after the year 2770. If the modified result is 6 or higher, his SLDF advanced neurohelmet will function as described above.

If the modified result is less than 6, the neurohelmet no longer grants the Multi-Trac design quirk. If the modified result is less than 4, the neurohelmet not only loses the Multi-Trac design quirk, but also now applies the Sensor Ghosts Design Quirk (see p. 199, *SO*). If the modified result is 2 or less, the unit loses Multi-Trac, picks up Sensor Ghosts, and also adds the Hard to Pilot design quirk. If the modified result is 0 or less, in addition to the loss of Multi-Trac and the addition of Sensor Ghosts and Hard to Pilot design quirk effects, the warrior himself will increase his Piloting and Gunnery target numbers by +1 each. This last, worst effect demonstrates the mental deterioration that accompanies prolonged use of an SLDF advanced neurohelmet deep in the throes of a "cyber-haunting".

For the purposes of extended campaigns, each of these declining neurohelmet features becomes permanent the first time they appear, and cannot be corrected by repair checks; they will only persist—and grow worse—as long as that particular neurohelmet is used to pilot a unit. If a neurohelmet degrades in this way during one such check, subsequent rolls that yield a higher roll result will not improve them (but will, at least, not make them any *worse*).

In the event that the warrior himself is afflicted by a faulty neurohelmet (on a degradation check result of 0 or less), the warrior may recover only if he spends a minimum of 6 consecutive months out of the cockpit (and away from all neurohelmet-related activities), and never uses that particular neurohelmet again. During this time, the warrior is presumed to be either convalescing or performing other low-stress duties where neurohelmet use is not a requirement.

Construction Rules: SLDF advanced neurohelmets may only be used by MechWarriors and aerospace fighter pilots, and are considered to be a modification to the existing control systems from the perspective of unit construction. Advanced MechWarrior neurohelmets may only be used in conjunction with 'Mech units, and advanced fighter pilot neurohelmets may only be used with aerospace fighter units.

These helmet interfaces take up no weight and occupy no critical slots on the unit's record sheet, but they do increase the cost of the unit's cockpit by 5,000 C-bills (per pilot), to reflect the changes made to the unit's control interfaces and the warrior's neurohelmet.

An appropriate unit can be modified to work with an SLDF advanced neurohelmet "in the field" for the same cost in C-bills as indicated above. This covers the helmet itself, as well as its installation kit. The modification takes the same amount of time and requires the same target roll and modifiers as a repair of 2 sensor critical hits (see pp. 181-185, *SO*). If this roll fails, the system fails to recognize the neurohelmet's unique features, and will only operate as a "normal" unit, with none of the advanced helmet's benefits (and, fortunately, no degradation rolls required).

VIRTUAL REALITY PILOTING POD

R&D Start Date: 3047 (Federated Commonwealth)
Prototype Design and Production: 3052 (Federated Commonwealth)

Developed by a Federated Commonwealth scientist who reportedly went rogue soon afterward, the virtual-reality piloting pod (VRPP) was designed to sidestep difficulties that arose amid early efforts to produce a direct-neural interface. The VRPP used advanced sensors and a head-encompassing wrap-around apparatus to replace the more traditional neurohelmet design and give the MechWarrior unprecedented spatial awareness and control over his BattleMech. The result was a far more intuitive and natural-feeling control interface, but one that proved excessively prone to electronic interference.

This last part proved to be the VRPP's downfall, especially as the system could even be disrupted by the mundane electromagnetic effects emitted by some planetary magnetic fields and even powerful lightning storms. Even though some degree of progress was made in mitigating its susceptibility to milder interference sources, the FedCom's military leadership, citing the fact that powerful EW systems were only continuing to propagate in the wake of the Clans' initial invasion, permanently shelved the project.

Virtual Reality Piloting Pod Rules

Rules Level: Experimental
Available to: BM
Tech Base (Ratings): Inner Sphere (E/XXFX)

Game Rules: The Virtual Reality Piloting Pod (VRPP) provides its MechWarrior with a –1 to-hit modifier to all Gunnery Skill rolls, and a –2 target modifier to all Piloting Skill rolls, but is highly susceptible to hostile ECM, which will overwhelm the unit's sensors and render the virtual reality interface completely useless.

To reflect this drawback, any time a unit equipped with a VRPP is exposed to any form of ECM from a hostile unit, or is struck by electronic effects from other sources, the unit becomes completely blind, as if it has suffered the destruction of its sensors. Conditions that can cause this "blindness" include the secondary effects of a nuclear attack, exposure to electromagnetic interference (EMI) terrain effects (see p. 55, *TO*), or a successful attack against the unit by an EMP mine, taser weapon, or TSEMP.

While blinded, the MechWarrior not only loses the ability to use the 'Mech's weaponry, but will also replace the VRPP's normal –2 Piloting Skill target modifier with a +3 modifier instead. These penalties persist as long as the unit remains exposed to the disruptive effects.

If ECCM rules are in play (see pp. 100-102, *TO*), ECCM effects friendly to the VRPP-controlled unit may overcome the unit's complete "sensor-blindness" from hostile ECM and other disruptive effects as described above. The result will be imperfect, however; as long as the VRPP-controlled unit is operating in an area cleared of hostile interference by ECCM, the unit will replace its sensor-blindness effects with a +2 modifier to both Gunnery and Piloting Skills. Once again, these modifiers replace those provided by the VRPP on its own.

Furthermore, as the VRPP is based around a torso-mounted cockpit, it protects the MechWarrior against pilot damage from head hits, but makes the warrior more prone to suffering pilot damage from excess heat in the event of life support damage. (If a unit with a VRPP system overheats by 1 to 14 points with a damaged life support system, the MechWarrior will suffer 1 pilot hit as a result; for overheating levels of 15 points or more, this damage increases to 2 pilot hits; this replaces the normal MechWarrior damage from overheating effects.) A MechWarrior using a torso-mounted cockpit with a VRPP also cannot eject.

Unlike a standard torso-mounted cockpit system, the sensors for a torso-mounted cockpit built for VRPP control may only sustain 2 critical hits before the unit becomes functionally blind and unable to use its weaponry.

Construction Rules: The VRPP is an alternative form of the torso-mounted cockpit from *Tactical Operations* (see pp. 300-301, *TO*), but weighs only 3 tons (rather than the 4 tons of a normal torso-mounted cockpit). Also unlike the standard torso-mounted cockpit, a VRPP-modified cockpit places 2 Sensor critical slots in the 'Mech's head, and places 1 Life Support critical slot each in each of its 3 torso hit locations. The cockpit critical slot is then placed in the center torso.

The VRPP-modified torso-mounted cockpit may be protected with component armor (at a cost of 1 ton of component armor, as with a standard cockpit), but cannot be combined with cockpit command modules or any other cockpit types (including small cockpits). A BattleMech equipped with a VRPP-modified torso-mounted cockpit also may not employ the Cramped Cockpit or Rumble Seat Design Quirks.

ADVANCED PROTOTYPE SYSTEMS (AGE OF WAR)

Introduced: Variable
Extinct: Variable

The Age of War saw the maturation of technology from the "primitive" weapons and systems available at the birth of the BattleMech to those that we now consider "standard" or "baseline" technologies. While the general level of technology plateaued briefly during the Age of War, it never truly stopped climbing. As the Age of War gave way to the Star League era, scores of new developments had already been made while many more were on the cusp of occurring. The Star League Defense Forces in particular debuted more than a dozen prototype combat systems during the Reunification War that would ultimately develop into full-fledged deployable systems. Meanwhile, the Periphery nations long maintained a two-pronged approach to closing the ever-widening technology gap between themselves and the Inner Sphere, relying upon a combination of traditional low-tech solutions coupled with technologies stolen or copied from Inner Sphere sources to outfit their combat forces.

These prototype systems lacked many of the refinements of the final production versions (as they appear in the *TechManual* and *Tactical Operations*) and/or suffered one or more side effects.

For the purposes of *BattleTech* games, all of the following weapons and equipment are classified as Experimental, and are not legal for tournament play.

GENERAL ADVANCED PROTOTYPE SYSTEMS RULES

Rules Level: Experimental
Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS
Tech Base (Ratings): Inner Sphere (E/FXXX [All except Rocket Launchers]; B/DFXX [Rocket Launchers])

The rules for using and mounting the various Age of War- and Early Star League-era prototype items featured here follow those of their production-grade Inner Sphere version as featured in *TechManual*, *Total Warfare*, and *Tactical Operations*. Additional details are provided for each item class below.

Note: Because these items represent the prototype-phase versions of equipment that later went into standard production, in place of extinction dates, these items feature "Standard Production" dates. This date indicates the point where the technology matured into its final form as reflected by the item's normal rules. After this standard production date, the prototype versions featured here were gradually phased out of service, with most fully retired after a decade.

ARROW IV (ARROW-P)

Introduced: 2593 (Terran Hegemony)
Standard Production: 2600 (Terran Hegemony)

Tube artillery, airborne bombers and orbital strikes were the primary fire support options available to the Star League forces throughout much of the Reunification War, though oftentimes that support was either too inaccurate or too late in coming to satisfy the needs of the frontline combat forces. Turning to a page in history, the SLDF directed the development of a missile artillery weapon that could provide extremely accurate localized fire support missions, utilizing either a battlefield designator (the TAG) or conventional artillery targeting methods. Though the final production models did not debut until after the end of the Reunification War, those prototype systems that did see combat action were well received by their users—on both sides.

Arrow IV (Prototype) Rules

Game Rules: The prototype Arrow IV (Arrow-P for short) uses the same rules as the Inner Sphere Arrow IV launcher (see p. 284, *TO*).

Construction Rules: A unit may mount one or more prototype Arrow IV launchers in accordance with the unit's rules for carrying artillery weapons. The prototype Arrow IV occupies 1 more critical slot and weighs 1 more ton than the production version. Each ton of prototype Arrow IV ammunition provides only 4 rounds.

ARTEMIS IV FCS (ARTEMIS-P)

Introduced: 2592 (Terran Hegemony)
Standard Production: 2598 (Terran Hegemony)

The Artemis IV Fire Control System, designed as an alternate to the NARC missile beacon, mated several sensors with a laser designator and tight-beam microwave transmitter to accurately guide Artemis-

equipped missiles onto their target. During its years of testing, additional software tweaks and hardware upgrades made for an even more accurate production model (while also allowing for easy upgrades to extant prototype systems).

Artemis IV FCS (Prototype) Rules
Game Rules: The prototype Artemis IV fire control system (Artemis-P) works in the same fashion as the Inner Sphere Artemis IV fire control system, but only applies a +1 modifier to the Cluster Hits Table roll, rather than the +2 that the production-grade Artemis IV features.

Furthermore, after entering standard production, the Artemis-P was one of the few prototype items that could be upgraded in the field (rather than replaced by the production version). To reflect this, players using the Repairs and Replacement rules (see pp. 181-185, *SO*), a prototype Artemis IV can be upgraded to the standard production-version Artemis IV by making a successful repair roll on the Artemis-P with an additional +1 target modifier. For the purposes of this upgrade, this repair attempt can only be made after the standard production date noted above, on an Artemis-P system that has *not* been damaged in combat. (Otherwise, the upgrade is treated as a component replacement.)

Construction Rules: Prototype Artemis IV fire-control systems use the same rules as their modern Inner Sphere versions, occupying the same weight and critical space, and adhering to the same requirement that all Artemis-capable launchers on the unit must be augmented with Artemis.

Note: When determining the aerospace attack values of a unit employing prototype Artemis IV, cross-reference the damage using a Cluster Hits roll of 8 for the appropriate launcher, rather than the usual result of 7.

BEAGLE ACTIVE PROBE (BAP-P)

Introduced: 2560 (Terran Hegemony)
Standard Production: 2576 (Terran Hegemony)

Code-named "BEAGLE" by the original defense contractor that developed it, the Star League's active probe combines both passive and active sensor systems into one suite capable of detecting just about any modern combat unit. Though later advances partially nullified the abilities of the "Beagle probe", it was a welcome addition to Reunification War reconnaissance units and continued to be used throughout the Star League era.

Beagle Probe (Prototype) Rules
Game Rules: The prototype Beagle active probe (BAP-P for short) uses the same rules as the Inner Sphere Beagle active probe (see p. 129, *TW*).

Construction Rules: A unit may mount one or more prototype Beagle active probes in accordance with the unit's rules for carrying active probes. The prototype Beagle occupies 3 critical slots and weighs 2 tons.

CASE (CASE-P)

Introduced: 2452 (Terran Hegemony)
Standard Production: 2476 (Terran Hegemony)

In the late 25th century, HAF 'Mechs and other combat vehicles were suddenly becoming less and less susceptible to destruction from catastrophic internal explosions. It took decades before the secret—Cellular Ammunition Storage Equipment—made its way through the Inner Sphere, and many more years before nations outside of the Hegemony had finally produced their own serviceable copies.

CASE (Prototype) Rules
Game Rules: When a unit suffers an internal explosion in location protected by prototype CASE (CASE-P for short), roll 1D6. On a result of 1 or 2, the CASE system fails to vent the explosion in time and the explosion is resolved as if the unit does not have CASE.

Construction Rules: A unit may mount one or more prototype CASE systems in accordance with all rules for mounting Inner Sphere CASE.

DOUBLE HEAT SINKS (DHS-P)

Introduced: 2559 (Terran Hegemony)
Standard Production: 2567 (Terran Hegemony)

Constructed with advanced materials and further supplied with specially engineered cooling fluids, the double heat sink revolutionized the design of both BattleMechs and aerospace fighters in the 26th century and beyond.

Double Heat Sink (Prototype) Rules
Game Rules: These function as Inner Sphere double heat sinks per the standard heat sink rules with the following exceptions. Prototype Double Heat Sinks cannot be mounted "in" an engine, but they may be combined with single heat sinks on the same unit. Players therefore need to carefully record which heat sinks are standard and which are prototype double-strength sinks.

Construction Rules: Prototype double heat sinks (DHS-Ps) occupy the same weight and critical slot space as their production-grade Inner Sphere versions, but cannot be mounted "inside" an engine. (This means that all of the "critical-free" heat sinks provided by the 'Mech's engine, per the rules found on p. 53 of *TechManual*, must either be standard heat sinks, or must be fully allocated on the unit's Critical Hit Table to be replaced with prototype double heat sinks.)

On units that can mount double heat sinks, DHS-Ps can be combined with standard heat sinks, but the different sinks must be clearly marked on the record sheet.

ENDO STEEL (ES-P)

Introduced: 2471 (Terran Hegemony)
Standard Production: 2487 (Terran Hegemony)

The Terran Hegemony developed endo steel internal structure for its BattleMechs in the late twenty-fifth century, and jealously guarded the advancement until it inevitably proliferated throughout the rest of the Inner Sphere. The secrets of endo steel ultimately found their way into the Periphery, though by the beginning of the Reunification War very few combat units outside of the Terran Hegemony had yet been refitted with endo steel frames.

Endo Steel Structure (Prototype) Rules
Game Rules: Prototype endo steel internal structure (ES-P) functions in the same manner as Inner Sphere endo steel. Critical hits to prototype endo steel structure slots are thus rerolled as normal.

Construction Rules: Except for its added bulk (ES-P structure occupies 2 more critical slots than the production-standard Inner Sphere version), units built using prototype endo steel use the same construction rules as those using its production-grade equivalent.

EXTRALIGHT FUSION ENGINE (XL-P)

Introduced: 2556 (Terran Hegemony)
Standard Production: 2579 (Terran Hegemony)

The first prototype Hegemony-made extralight fusion engines were already operating in select royal regiments at the onset of the Reunification War. By the middle of the 2580s, thousands of SLDF BattleMechs, vehicles and fighters had been equipped with these vital, weight-saving power plants.

Extralight Fusion Engine (Prototype) Rules

Game Rules: Prototype XL engines function as their Inner Sphere production-grade versions, except that such engines generate an additional +1 heat per turn for heat-tracking units, as long as the unit is not shutdown. This extra heat applies regardless of what actions the unit takes in combat, so even if a unit remains stationary and fires no weapons, it will still generate 1 heat point due to the prototype XL engine.

In addition, each critical hit to an XL-P engine generates 5 + (1D6 ÷ 2) heat points per turn (rounded down), rather than the normal +5 heat. (Roll his extra heat only once per critical hit; so for a die roll of 3 on such a critical hit will generate 6 points of heat per turn for that critical effect; 5 + [3 ÷ 2] = 6.5, round down to 6.)

As always, a unit's engine is destroyed once it has suffered 3 or more critical hits.

Construction Rules: Prototype XL engines are mounted per the standard rules for Inner Sphere XL fusion engines.

FERRO-FIBROUS ARMOR (FF-P)

Introduced: 2557 (Terran Hegemony)
Standard Production: 2571 (Terran Hegemony)

Ferro-fibrous armor was the very first military advancement that First Lord Ian Cameron shared with the newly formed Star League. Despite this, few League nations had developed serviceable versions of their own by the end of the Reunification War.

Ferro-Fibrous Armor (Prototype) Rules

Game Rules: Prototype ferro-fibrous (FF-P) armor uses the same gameplay rules as production-grade Inner Sphere ferro-fibrous armor. All critical hits to ferro-fibrous armor slots are rerolled as normal.

Construction Rules: Except for its additional bulk, prototype ferro-fibrous armor is mounted in the same fashion as its production-grade Inner Sphere version. For 'Mech units, prototype ferro-fibrous armor occupies 2 additional critical slots.

For combat vehicles and fighters, prototype ferro-fibrous armor (prototype ferro-aluminum on fighters) takes up 3 slots. Fighters apply 1 ferro-aluminum slot each to the unit's wings and aft sections.

GAUSS RIFLE (GR-P)

Introduced: 2587 (Terran Hegemony)
Standard Production: 2590 (Terran Hegemony)

Though research into making rail guns lightweight and energy efficient enough to mount on modern battlefield units had long preoccupied Terran scientists, a series of breakthroughs in both materials design and power transfer brought the concept of the Gauss rifle to reality. Its superior range and damage capacity outclassed all previous kinetic-electromagnet weapon designs, and made the *Highlander* the iconic terror that it was.

Gauss Rifle (Prototype) Rules

Game Rules: Prototype Gauss rifles (GR-Ps) function as standard Inner Sphere Gauss rifles in all respects, but on any to-hit roll of 2, the weapon will suffer a critical ammo-feed failure, rendering it unable to fire for the remainder of the scenario (similar to the Ultra autocannon weapon failure).

Construction Rules: Prototype Gauss rifles occupy 1 more critical slot than the eventual production version. Aside from that difference, they may be mounted in accordance with the same rules that govern the standard Inner Sphere Gauss rifle, including the ability to divide the weapon among adjacent hit locations.

GUARDIAN ECM (ECM-P)

Introduced: 2595 (Terran Hegemony)
Standard Production: 2597 (Terran Hegemony)

The "Guardian" ECM suite was an outgrowth of the constantly changing face of electronic warfare in the late twenty-sixth century. While comm systems and targeting modules provided for basic EW needs, a more capable system was needed on the battlefield that could jam enemy sensors while remaining compact enough to deploy on typical 'Mechs and armored vehicles.

Developed in the last few years of the Reunification War, by war's end designers had totally reengineered their complex ECM suites to allow for easy software and modular hardware upgrades.

Guardian ECM (Prototype) Rules

Game Rules: Prototype Guardian ECM (ECM-P) suites function as production-grade Inner Sphere Guardian ECM suites in gameplay.

Construction Rules: A unit may mount one or more prototype Guardian ECM suite in accordance with the unit's rules for carrying ECM systems. The prototype Guardian occupies 3 critical slots and weighs 2 tons.

LB 10-X (LB 10-X-P)

Introduced: 2590 (Terran Hegemony)
Standard Production: 2595 (Terran Hegemony)

Developed to fill the need for a dual-purpose weapon capable of both powerful direct fire as well as anti-air fire, the LB 10-X utilizes two different ammunition types: traditional armor-piercing shells as well as flechette shells that proved as equally capable in anti-air roles as in anti-armor and anti-personnel roles.

The SLDF debuted its LB-X autocannon in time to participate in the final battles in both the Rim Worlds Republic and the Taurian Concordat. Through captures, those two realms managed to field a handful of prototypes by the end of the war.

LB 10-X Autocannon (Prototype) Rules

Game Rules: The prototype LB 10-X autocannon (LB 10-X-P) uses the same rules as its production-grade Inner Sphere version, except that the weapon will jam for the remainder of the scenario on any unmodified to-hit roll of 2 (regardless of the ammunition type used). Furthermore, when firing cluster munitions, the prototype LB 10-X AC must apply a –1 roll modifier on the Cluster Hits Table upon a successful attack. A roll result of less than 2 on this roll is treated as a 2.

Construction Rules: Aside from occupying 1 additional critical slot, the prototype LB 10-X autocannon may be mounted on any unit in accordance with its normal rules for mounting such weapons. Ammunition for prototype LB 10-X autocannons may only be installed in full-ton lots.

Note: When determining the aerospace attack values of a unit employing prototype LB 10-X autocannons, remember to cross-reference the damage using a Cluster Hits roll of 6 for the LB-X, rather than the usual result of 7.

NARC MISSILE BEACON (NARC-P)

Introduced: 2580 (Terran Hegemony)
Standard Production: 2587 (Terran Hegemony)

The product of decades of one-upmanship between guided missiles and conventional ECM gear, the Narc Missile Beacon system combines a single-tube missile launcher and a rocket-launched magnetic grapple beacon designed to draw specially equipped seeker missiles to it.

Although the Narc beacon only achieved limited popularity with Star League MechWarriors and tank crews, it did carve out a niche for itself while also leading directly to the development of the Artemis IV FCS.

Narc Missile Beacon (Prototype) Rules
Game Rules: The prototype Narc missile beacon (NARC-P) functions in the same manner as its production-grade Inner Sphere version, except that attached Narc beacons provide only a +1 modifier on the Cluster Hits Table, rather than the normal +2.

Construction Rules: A unit may mount one or more prototype Narc missile beacon launchers in accordance with the unit's rules for carrying standard weapons. However, each ton of prototype Narc ammunition provides only 5 rounds.

PULSE LASERS (PL-P)

Introduced: 2595 (Terran Hegemony)
Standard Production: 2609 (Terran Hegemony)

Pulse lasers progressed from theory to prototype in relatively short order during the final years of the Reunification War, but it would take Terran engineers another decade and a half to develop final designs that were both stable and accurate enough for full-scale production.

Pulse Lasers (Prototype) Rules
Game Rules: Prototype pulse lasers of all sizes function as their production-grade Inner Sphere counterparts, except that they receive only a –1 to-hit modifier to attack, rather than the usual –2. Furthermore, prototype large and medium pulse lasers generate an extra +1D6 heat per attack (rolled every time each weapon is fired), while prototype small pulse lasers generate an additional 1D3 heat (1D6 ÷ 2, rounded up) per shot. This random heat is in addition to that normally generated by these weapons.

Construction Rules: A unit may mount one or more of all prototype pulse laser types in accordance with its normal rules for mounting such weapons.

Vehicles and other units that must mount heat sinks to offset energy weapons must mount enough heat sinks to cover the maximum number of extra heat points these weapons may generate when fired (+6 heat for large and medium pulse lasers; +3 for small pulse lasers). Aerospace units must also assess the heat generated by these weapons as if the maximum result is rolled.

REMOTE SENSORS (RS-P)

Introduced: 2586 (Terran Hegemony)
Standard Production: 2590 (Terran Hegemony)

Though remote sensors have been around since before the days of human space travel, the evolution of modern sensors has been a natural progression of battlefield technology, matching the progress of basic sensor and processing technologies over the centuries.

Remote Sensors (Prototype) Rules
Game Rules: Prototype remote sensors follow the same rules as standard remote sensors (see p. 375, *TO*), but during the End Phase of each turn the controlling player must roll 1D6 for each prototype sensor that has been deployed. On a result of 1, the sensor becomes inoperative for the following turn. (During subsequent End Phases, a sensor will has become inoperative in this fashion will reactivate if its 1D6 roll yields 2 or higher.)

Construction Rules: Prototype remote sensors use the same construction rules as their production-grade equivalents.

ROCKET LAUNCHERS (RL-P)

Introduced: Early Spaceflight
Extinct: 2823 (Clans only)
Standard Production: 3064 (Marian Hegemony)

Rocket launchers were among the simplest technologies the militaries—and especially the militias and irregular troops—of the Periphery utilized in their battles against the Star League. Long utilized by militaries throughout the ages, the rocket launcher utilizes a simple concept: fire a mass of unguided projectiles at a target and hope as many as possible hit. Simple, cheap and effective, they gave the Periphery insurgents a series of weapons that they could at least produce in quantity.

Interestingly enough, this weapon system would persist in its Age of War form for centuries, and even turned up in numbers again in the Clan homeworlds among the fragmented powers of the Pentagon worlds before their reconquest by the Clans. By the time of the Clan Invasion, however, they had gone completely obsolete—only to return, in an upgraded form, when the Marian Hegemony reintroduced the weapons in 3064.

Rocket Launcher (Prototype) Rules
Game Rules: Prototype rocket launchers function as production-grade rocket launchers of equivalent designation (RL-10, RL-15 and RL-20), but apply a –1 roll modifier when resolving damage on the Cluster Hits Table. (If this modified result is less than 2, treat the effect as a roll result of 2.)

Construction Rules: A unit may mount one or more prototype rocket launchers in accordance with its normal rules for mounting such weapons. This includes the ability for fighters to carry primitive rocket launchers as external ordnance (see p. 246, *TW*).

Note: When determining the aerospace attack values of a unit employing prototype rocket launchers, cross-reference the damage using a Cluster Hits roll of 6 for the appropriate launcher, rather than the usual result of 7.

TAG (TAG-P)

Introduced: 2593 (Terran Hegemony)
Standard Production: 2600 (Terran Hegemony)

Target Acquisition Gear, or TAG, was developed in conjunction with the Arrow IV missile artillery system. While this gyro-stabilized target-designator system was ready years before the Arrow IV reached the field, it languished in prototype status for years before it rolled out alongside the first complete Arrow IV launchers.

TAG (Prototype) Rules
Game Rules: Prototype TAG (TAG-P) functions in the same manner as the production-grade Inner Sphere version in gameplay.

Construction Rules: Aside from the increased mass of this item (prototype TAG weighs 1.5 tons), a unit may mount one or more prototype TAG systems in accordance with its normal rules for mounting such items.

AUGMENTED WARRIORS (MULTIPLE ERAS)

BattleTech is a humans-only universe; in the centuries since mankind has expanded into space, it has encountered few alien beings that could be said to possess intelligence beyond that of most terrestrial animals. Though a few alien creatures have been discovered that verge on a proto-human level of sapience, and rumors of sentient alien races persists throughout the setting, the only beings who wage war throughout the *BattleTech* universe are human beings.

The game rules presented to date presume that the pilots and troopers employed on the tabletop are of the normal human baselines, with even the eugenically enhanced abilities of Clan warriors translated to little more than a modifier to combat skills. However, for some fringe groups—such as the Belters who dwell in the Terran solar system, and the Word of Blake's elite Manei Domini—"baseline" is just a starting point. The following rules enable players to make use of "augmented" warriors found in these fringe groups.

GENERAL AUGMENTED WARRIOR RULES

Rules Level: Experimental
Available to: Variable (see rules)
Tech Base (Ratings): Variable (See rules)

The following rules cover augmenting unit pilots, vehicle crews, and infantry forces via direct genetic manipulation, surgical modifications, or the use of cybernetics and prostheses. For the sake of simplicity, unless the rules for a given augmentation specifically state otherwise, the following general rules apply to all modifications, regardless of their type.

All-or-None Modifications: Any time an augmentation type is selected for a unit comprised or controlled by multiple individuals (such as an infantry squad or platoon, or a vehicle's crew), *all* members of that unit must receive the same augmentations to gain its benefits.

Cost Modifications: Furthermore, to underscore the extremely limited nature of augmented warriors, extreme cost modifiers for these unit types will be applied. Because virtually all augmentations do not modify the weight or space of the warrior to a degree significant enough for game play purposes, the cost modifiers for all augmentations are instead assessed in terms of the unit's expense in resources. While the method of accounting chosen for the player's campaign might vary, be it in monetary units like C-bills, or an abstract value like Warchest Points, any cost multipliers for a warrior's augmentation will apply in the same ratio. Thus, if a given augmentation's cost doubles the C-bill value of the unit it modifies, it will also double the unit's other resource values as well.

Faction and Era Restrictions: In addition, in the cases where the augmentations are linked to a specific in-universe faction, use of such augmentations by forces not aligned with the augmentation's "native" faction must be limited to only one quarter of the force in play. This applies even if the force attempting to use the augmented warriors is allied with the augmentations' native faction. For example, in a Jihad-era game, a force that includes elements from the Word of Blake faction and the Circinus Federation—a minor Periphery state allied with the Word—could field an entire company of cybernetics-augmented Manei Domini warriors as the Word of Blake portion, but one one in every four of their allied Circinian units may use augmented warriors.

These same rules apply to any modifications that are not listed as being available in the era in which the scenario is set, but which at least existed in a *previous* era. No augmentations may be used in any era prior to the one in which they are introduced.

BELTER AUGMENTATIONS

Era: Any after the Age of War (2570+)
Factions: Terran Hegemony, ComStar, Word of Blake, or Republic of the Sphere
Unit Types: Variable

The term "Belters" refers to the isolationist communities that mainly inhabit the asteroid belt and Oort cloud within the Terran system. Having survived in tiny, low-gravity, artificial-atmosphere communities since the early, pre-hyperspace days of human space travel, these people have developed—via a combination of genetic modifications and implant technologies—a few augmentations specifically designed to enhance their warriors' combat skills against possible intruders.

General Belter Game Rules

Regardless of the augmentation package selected, all Belter warriors are well-versed in low-gravity combat, including spacecraft piloting and gunnery. To reflect this, Belter aerospace units receive a –1 to-hit modifier to all Gunnery Skill checks, and a –2 target number modifier to Piloting Skill checks, as long as combat takes place in space, vacuum environments, or low-gravity conditions (under 0.7 G).

These general benefits are all lost if the Belter warriors operate within a planetary atmosphere or gravity conditions of 0.7 G and higher.

General Belter Construction Rules

Belter warrior augmentations reflect a combination of genetic and prosthetic modifications, backed up by training regimens that build on the unique lifestyle of Belter societies. As a result, constructing a Belter simply requires that the Belter unit's controlling player select a maximum of two augmentation packages from those described below.

Belter Infantry Augmentation Package

Belter soldiers, paramilitary police officers and government security personnel are often augmented with speed, strength and durability in mind. Using a combination of genetic therapies and synthetic enhancements, these infantry troopers are exceptionally resilient in combat.

Additional Game Rules: Belter Infantry Augmentations apply a +1 damage divisor to the infantry unit, which stacks with any infantry armor the unit is using (see pp. 317-318, *TO*). Belter Infantry Augmentations also enable the infantry unit to ignore any encumbrance effects (indicated by any damage divisors ending in an "E") for wearing environment suits or space suits of any kind.

Note that this augmentation package does *not* reduce the damage multiplier applied for operating in hostile environments.

Belter Fighter Pilot Augmentation Package

Belter fighter pilots are good even without enhancements, but this standard augmentation package—which reinforces visual acuity, circulatory systems, bones and joints—makes them truly exceptional.

Additional Game Rules: A fighter pilot with this augmentation receives an additional –1 target number modifier for Piloting skill checks, and adds a +2 modifier to the fighter's initiative (if the Advanced Initiative rule is in play per p. 63, *SO*).

If Advanced Movement rules are in play (see pp. 64-66, *SO*), augmented Belter fighter pilots also reduce the Thrust Point costs for all special maneuvers performed while in space combat (including yawing, end-overs, lateral movements and deceleration movements)

by 1, to a minimum cost of 1 Thrust Point. Finally, any turn effects caused by random movement are reduced by 1 hexside (to a minimum of 0).

Small craft units may also benefit from this benefit, but only if all members of the unit'screw receive the same augmentation.

Belter Vacuum-Resistance Augmentation Package

With a battery of tissue reinforcements and a host of sophisticated life-supporting implants such as oxygen-storing tissues, nitrogen-scavenging marrow, and transparent inner eyelids, Belters can be better protected against vacuum exposure. Though environmental protection still aids in temperature regulation and comfortable functionality, these augmentations minimize the imminent dangers posed by depressurization.

Additional Game Rules: Belter infantry with this augmentation may ignore the damage doubling effects caused by operating in vacuum and other hostile environments.

CLAN ENHANCED IMAGING NEURAL IMPLANT

Era: Any after the Clan Invasion (3050+)
Factions: Clans only
Unit Types: Battle Armor, ProtoMechs, 'Mechs

The Clans' unique Enhanced Imagining (EI) neural implant technology reached its maturity just before the start of the invasion of the Inner Sphere. Comprised of two key components—a control interface built into the warrior's machine, and the warrior's own neural implants—the system enables greater control and situational awareness for the warrior by making him sense and control his machine more as if it were a natural extension of his own body.

EI implants, which outwardly resemble colorful but abstract techno-tattoos, are only truly effective when used with unit types that feature a walking-style motive system (preferably in bipedal, humanoid configurations), and so is only used with battle armor, ProtoMechs, and BattleMechs. While affording exceptional levels of control, however, these implants are especially sensitive to feedback. Due to their direct connection to the pilot's nervous system, this feedback can cause additional damage to the warrior in combat, and has also been known to rapidly deteriorate mental health over years of sustained use. Few warriors who receive EI neural implants survive for longer than a decade afterward as a result, but among the Clans, this sacrifice in the name of martial glory is considered only natural.

Enhanced Imaging Game Rules

To achieve the full effects of enhanced imaging technology, the unit piloted by the warrior must be equipped with an EI interface (also known as an EI display system). This item adds no appreciable weight to the unit (as a few other control systems are removed in the process). A unit equipped with an EI interface may be piloted by a warrior with or without the EI implants, but EI implants cannot be used effectively without the interface.

ProtoMechs and units with a Clan Machina Domini interface rely on EI technology for operation, and thus always feature an EI-based control system. Such units cannot be operated by warriors without EI implants. (See *Inner Sphere ProtoMech Interface*, p. 102, for an exception.)

When a battle armor or 'Mech unit with an EI interface is operated by a warrior without active EI neural implants, the unit functions per its normal rules without modification.

When a unit with an EI interface *is* operated by a warrior with active EI implants, the following rules apply:

- All Piloting Skill rolls required for the EI-equipped unit receives a –1 target number modifier. This includes checks made for physical attacks, as well as anti-'Mech attacks by EI-equipped battle armor.
- All to-hit modifiers imposed on an EI-equipped unit making weapon attacks through woods, jungle, or smoke hexes are reduced by 1 point (to a minimum modifier of +1) per hex.
- All combat modifiers for darkness are ignored by the EI-equipped unit.
- 'Mech units equipped with EI may make aimed shots as if equipped with a targeting computer (see p. 143, *TW*), but must apply an additional +2 to-hit modifier when making an aimed shot attack. If the EI-equipped unit possesses a functioning targeting computer as well, this additional +2 modifier is replaced by a –1 to-hit modifier instead.
- Any time an EI-equipped 'Mech unit suffers damage to its internal structure, its controlling player must roll 2D6 against a target number of 7. If this roll fails, the warrior will suffer 1 point of pilot damage, and must make a consciousness check accordingly.
- A critical hit to an EI-equipped 'Mech's sensors will disable the enhanced imaging system, negating these benefits in addition to applying the normal effects for damaged sensors.
- A 'Mech's EI interface can be shut down during the End Phase of any game turn. A shut down EI interface will deactivate the system's benefits, but will also protect the pilot from the negative effects of EI use in combat. (ProtoMech EI interfaces cannot be shut down, nor can Clan Machina Domini interfaces.)
- As long as the EI-equipped unit has not suffered sensor damage, it will receive the additional benefits of an active probe with a 1-hex detection range, even if the EI interface is shut down, or being operated by a pilot who lacks EI neural implants. This includes the special optional abilities described in *Tactical Operations* (see p. 99, *TO*). This special ability is susceptible to interference from hostile ECM as normal. If the unit already possesses an active probe of any type, this ability grants no additional effects.
- For full rules on the Clan Machina Domini system and its effects, see *Machina Domini Interface* (pp. 116).

Enhanced Imaging Construction Rules

The EI interface (also known as an EI display system) may be installed in the cockpit of any BattleMech or battle armor unit built using a Clan technology base at no cost in weight or space, but will slightly increase the monetary cost of those units (see *Costs*, pp. 184-189). EI interfaces are installed automatically in all ProtoMech cockpits, and thus do not change the existing costs, weight, or space of those systems.

Only MechWarriors and battle armor infantry troopers can be augmented with EI neural implants. These implants are only available to Clan affiliations, at an extra monetary cost that represents the resources spent on the augmentation process. Clan ProtoMech warriors, who must receive EI neural implants in order to function, do not incur any additional costs for their implantation, nor do MechWarriors who are outfitted with EI neural implants specifically to operate a Clan Machina Domini interface (see pp. 116).

To reflect the rarity of EI neural implant use (outside of ProtoMechs), even among the Clans, no more than one out of every five 'Mechs or battle armor Points in a Clan force should be augmented by EI.

CYBERNETIC AND PROSTHETIC AUGMENTATIONS

Era: Variable
Factions: Variable
Unit Types: Variable

Cybernetic augmentations significant enough to enhance the performance of pilots and infantry troops in combat are not restricted to a specific faction or era of play per se, but the expense and sophisticated technologies needed to equip such warriors has rendered them an extremely rare sight on the battlefield. In fact, it was not until the Jihad that troops augmented with cybernetics and prosthetics appeared in sufficient numbers to be considered noteworthy, with both instances—the Manei Domini and the Thuggee Phansigars—developed as much as weapons of terror as they were an effort to match the superior skills and tech of the Clans.

General Cybernetics and Prosthetics Game Rules

The cybernetic and prosthetic modifications available to the various factions and eras of *BattleTech* play are extremely varied, to the point where covering the range of combinations is best left to the pages of the role-playing rules found in *A Time of War* and the *A Time of War Companion*. For this reason, the options provided here describe only the basics in abstract format, and will only take effect when used in the augmentation's described unit type. Though any cybernetics- or prosthetics-augmented warriors may be fitted with any of these modifications, only the listed unit types will be able to effectively use them in battlefield scenarios.

All-or-None Modifications: Unless otherwise noted, for any unit making use of cybernetic or prosthetic augmentations, the rules will not apply unless all warriors in the unit are equipped with the same augmentations.)

Morale Effects: The exotic and often shocking nature of troops using cybernetic or prosthetic enhancements can readily unnerve opposing forces, especially if they are conventional infantry. If the Morale rules are in play (see pp. 211-213, *TO*), an attack by a unit augmented with cybernetics will apply an additional +1 target number modifier (+2 if the augmented unit is comprised of infantry) to their target's Morale check, reflecting the alien or superhuman appearance and performance of these augmented warriors.

Fatigue Effects: Furthermore, to reflect the additional resiliency and endurance often made possible by the use of cybernetic and prosthetic augmentations (to say nothing of the physical resiliency needed to undergo the grueling and painful surgery and recovery/acclimation process such modifications require), any unit modified by cybernetics or prosthetics can function for 3 more turns of play before any fatigue modifiers set in, if the Fatigue rules are in play (see p. 198, *TO*).

Healing and Maintenance: When using any of the maintenance and healing rules found in *Strategic Operations* on warriors augmented by cybernetics and/or prosthetics, triple all base maintenance and healing times, and apply a +4 target number modifier to all roll results for diagnosis and medical actions related to healing and treatment of such augmented personnel. This reflects the added complexities and hazards of treating warriors who have replaced significant parts of their physiology with sophisticated and hyper-expensive technology.

Electromagnetic Pulses (EMP): Although largely shielded by their own bio-matter, warriors using cybernetic implants of prosthetics are susceptible to high-intensity bursts of electromagnetic pulse (EMP) generated by the following weapons: EMP mines (see p. 365, *TO*), Tasers (see p. 345, *TO*), TSEMP weapons (see p. 90), HPGs (see pp. 330-331, TO), or nuclear weapons (see pp. 169-177).

If struck by any of those listed EMP sources, the augmented warrior must roll 2D6, applying a +1 to the roll result if he is wearing battle armor or piloting a vehicle, or +3 if he is piloting a 'Mech or aerospace unit. On a result of 6 or less, the warrior's implants and prosthetics will overload and shutdown, losing all functionality for the remainder of the scenario. Furthermore, the unit will be treated as stunned and immobile for the entire following turn.



A Free Worlds League security guard conceals his cybernetic enhancements beneath his uniform.

If the augmentations shut down in the above fashion include prosthetic leg MASC, direct-neural interface (of any type), or any of the full-body myomer implants, roll an additional 2D6 and apply the same modifiers to the roll as before. If this second roll is 6 or less, all warriors in that unit are killed or incapacitated by the pulse for the remainder of the scenario. On a result of 10 of higher, they are simply immobilized for the remainder of the scenario, but may perform any other actions.

General Cybernetics and Prosthetics Construction Rules

Modifying people with cybernetics and prosthetics is an extreme (and extremely expensive) proposition. Implanting cybernetics invariably means major surgery to swap out (or shove aside) natural organs in favor of sophisticated technological components, while advanced prosthetics effectively require the loss of natural limbs in trade. The process of transforming a human being to a techno-human hybrid is thus a painful and dangerous one, never to be taken lightly. It is one thing to use cybernetics and prosthetics to replace lost body parts with substitutes that approximate their original function, but it's quite another to willfully discard healthy appendages just to gain the ability to conceal pistols inside them.

In the *BattleTech* setting, technologically augmented humans are exceedingly rare, with only the most dramatic examples—the Word of Blake's Manei Domini, and their one-time allies in the Thuggee Phansigars—emerging and vanishing in the course of the Jihad. Beyond these examples, most factions in the *BattleTech* setting have kept the use of cybernetic modifications and enhanced prosthetics limited to the most elite teams of commandos and special operatives, as much due to the lack of suitable candidates as due to the obscenely high price tag that comes with creating such assets. To reflect this rarity, the following rules and limits are presented as a guide to the extent at which a given force may employ.

Clan vs. Inner Sphere: Among the Clans, the notion of using machinery to augment the human body is seen as a crutch (to the point where even their own enhanced imaging technology is limited only to the most fanatical or desperate among them). As a result, though the Clans can produce most of the cybernetics and prosthetics presented here, such technologies should almost never appear among any Clan force in numbers larger than a Star's worth of units.

Skill and Loyalty: While theoretically anyone can be augmented with the technologies here, only those forces of elite-rated skill *and* fanatic-level devotion to their realm or organization may be considered qualified for augmentation. This requirement reflects the fact that few realms or organizations with the resources to provide cybernetics and prosthetics of this level would ever likely invest so much in inferior troops of questionable loyalty.

Concentration: Aside from scouts and infiltrators (an element of gameplay beyond the scope of these rules), any augmented combat units will tend to be grouped together, rather than dispersed throughout an otherwise mundane force. In most forces, this generally might mean a lance of augmented warriors for every battalion in the field, or a company of augmented warriors per regiment—all of which should generally operate separately from the main force.

The only special exceptions to the above to date are the Word of Blake's Manei Domini "Shadow Divisions", and the Capellan Confederation's Thuggee Phansigar "Warrior Houses"—both of which appeared only during the Jihad. In both of those force mixes, all of the warriors fielded were augmented in some way.

Number of Augmentations: The number of cybernetic and prosthetic augmentations that can be placed on any given warrior is not set, but given the tremendous expense of so many modifications, it would be wasteful to place augmentations in a warrior have little to do with his specific mission role. An augmented MechWarrior, for example, would have little use for prosthetic leg MASC, or a toxin effuser implant, while an augmented infantryman would have no particular use for a vehicular neural interface.

For the sake of simplicity, players choosing to create warriors augmented with cybernetics or prosthetics should start by determining the warrior's unit type, as well as his (or his unit's) place in the chain of command for that particular force. With this information, the player may then use the Cybernetic/Prosthetic Augmentation Limits Table as a guide to finding the minimum and maximum number of cybernetic or prosthetic modifications that may be "installed" on that warrior.

The augmentations selected for the warrior should then be chosen from those listed for his unit type, with non-applicable modifications selected only if necessary to satisfy any minimum modification limits. If the modification is not available to the faction the augmented warrior comes from, but is available in the era of play, the cost for its use by the player's force is doubled. If the modification is not available in the era of play, but did exist in a previous era, its cost is also doubled. For modifications that are both unavailable to the player's faction and only exist in a previous era of play from the one in which the scenario is set, these costs modifiers stack, making the augmentation's cost quadruple that of its base value.

CYBERNETIC/PROSTHETIC AUGMENTATION LIMITS TABLE

Unit	Number of Mods (Min / Max)
Unit Type	
Infantry	1 / 4
Vehicle Crew	1 / 3
MechWarrior	1 / 3
Other	1 / 2
Rank	
Lance Commander	+0 / +1
Force Second-in-Command	+1 / +2
Force Commander	+2 / +2
Affiliation	
Word of Blake Manei Domini	+1 / +2
Thuggee Phansigar	+1 / +3
Clan	–1* / –2*
All Others	+0 / +0

*To a minimum of 1

Artificial Pain Shunt

Era: All

Factions: Any

Unit Types: Any

Less of a cybernetic augmentation and more of a form of serious brain surgery, the pain shunt frees a warrior from most forms of physical pain. The process of bypassing the brain's pain center has technically been available since long before humanity spread out into space, and is mostly favored by elite spies and similar special operatives to minimize the effects of physical torture in the event

of their capture. During the Jihad, however, pain shunts were used much more extensively by the Word of Blake's Manei Domini, as a drug-free means of offsetting the chronic headaches and negative biofeedback caused by their extensive modifications.

Pain shunts deaden virtually all tactile senses as well, which can make even the simplest of actions difficult, lest the operative break a valuable piece of hardware while simply trying to operate it. But the greatest danger of this implant is the tendency for its recipients to ignore even mortal wounds until it is too late.

Game Rules: MechWarriors, pilots and vehicle crews with a pain shunt do not suffer pilot damage caused from ammunition explosions, heat effects, or VDNI feedback damage through internal structure or critical damage. Any other pilot damage (such as that caused by direct hits to the head or falling) is recorded normally, but the pilot with a Pain Shunt does not make a Consciousness Roll.

Non-VDNI vehicle commanders, drivers and crew equipped with pain shunts suffer the effects of the following critical hits only after taking *two* such hits: Driver Hit, Commander Hit and Crew Killed. Pain-shunted vehicle crews completely ignore the Crew Stunned critical hit. (Thus, it takes two Commander Hits on a vehicle commander with a pain shunt before the combat penalties apply; it takes two Crew Killed results to kill a non-VDNI crew equipped with Pain Shunts.)

Conventional infantry and battle armor units comprised of pain-shunted warriors reduce by half any damage caused by flame-based weapons, reflecting their deadened senses and fearlessness of fire.

Finally, if the Morale rules are in play (see pp. 211-213, *TO*), pain-shunted units receive an additional –4 target number modifier to their Morale checks, to reflect their reduced sense of mortality. Pain-shunted units also ignore Forced Withdrawal rules (see p. 28, *TW*) for pilot/crew damage or loss of troops.

Construction Rules: All pilots, crewmen, or operators of a given unit must have a pain shunt for the unit to benefit from these rules. A warrior may only possess one pain shunt.

Cybernetic Communications Implants

Eras: Any after Age of War (2570+)
Factions: Any
Unit Types: BM, IM, BA, CI, CV, SV

Electronics to record, transmit, receive or carry on two-way communication via cybernetic eyes, ears or speech implants have been available to augmented covert operatives for centuries. In the battlefield, they have proven effective in coordinating actions at the infantry squad level, but the increased power and range of larger military communicators and their vehicular-mounted versions makes these implants only marginally more effective by comparison.

Game Rules: Infantry units (including battle armor) that are equipped with cyber-communications implants are able to function in a more cohesive manner in combat, providing a –1 target number modifier for Morale checks (see pp. 211-213, *TO*), indirect LRM attacks where the augmented infantry unit is acting as spotter (see p. 111, *TW*), and avoiding mines when passing through minefields (see p. 207, *TO*).

For non-infantry units using cyber-communications implants, apply a –1 to-hit modifier to any indirect LRM or artillery attack made in which the augmented unit is acting as the spotter.

Construction Rules: For the sake of battlefield unit use, only one-fourth of the members of a unit's pilots/crew/troops (rounded up) need to possess a cyber-communications implant. These warriors only require one such implant each to achieve the necessary functionality; additional implants will not improve the effects.

Cybernetic Boosted Communications Implants

Eras: Civil War and Jihad (3062-3085)
Factions: Word of Blake
Unit Types: BM, IM, BA, CI, CV, SV

Boosted forms of the various cyber-communication implants emerged among the Word of Blake's Manei during the Jihad. When combined with the flexibility of the Word's enhanced multi-modal sensory implants, these augmentations actually made it possible for even a humble infantry unit to serve as part of a C^3 network.

Game Rules: Boosted cyber-communications implants function just like the base models indicated above, but also grant the unit the ability to link up with a friendly C^3i network as long as the network is not full, even if the unit does not possess a C^3i computer of its own.

Construction Rules: As with the basic cyber-communications implants, only one-fourth of the members of a unit's pilots/crew/troops (rounded up) need to possess a boosted cyber-communications implant to gain their battlefield benefits. Only one such implant is required per warrior to achieve the necessary functionality; additional implants will not improve the effects.

Cybernetic Sensory Implants

Era: Any after Age of War (2570+)
Factions: Any
Unit Types: CI

Cybernetic optical replacements enhance the trooper's vision providing infrared, electromagnetic, telescopic, and laser sighting abilities that aid either in surveillance or for targeting small arms fire. Cybernetic audio implants, meanwhile, can provide enhanced auditory perception, either by extending the warrior's range of hearing, or even intercepting enemy communications.

The range of sensory implants that exist, in fact, also includes variable speech processors, chemical samplers, and so forth. Many of these are favored by specialized spies and covert agents, but contribute few real benefits in an active battlefield.

The Word of Blake's Manei Domini, once again, made the most extensive use of these special sensory implants; where a cyber-enhanced commando from any other realm might have possessed one covert sensory implant—usually swapping out a single eye or ear for the implant—the Word's agents and scouts often crammed multiple implants into their heads, to maximize their abilities at the cost of ever again being able to see the world through natural eyes.

Game Rules: Infantry units whose warriors are fitted with IR or EM optical implants, or with enhanced audio implants of any kind, operate as though they possess an Inner Sphere-quality active probe with a 2-hex range. As with standard active probes, this ability can be disrupted by hostile ECMs.

Infantry units whose warriors are enhanced with laser-sight or telescopic optical implants receive a –1 to-hit modifier for all weapon attacks.

Multiple sensory implants that provide the same benefit will not stack, but multiple implants that provide differing benefits (such as fitting the troopers with laser-sight optics and enhanced audio implants) will grant the unit both special abilities

Construction Rules: An infantry trooper can receive up to two different implant augmentations at a time (an abstraction that reflects either two optical replacements, or an optical and audio replacement). Each augmentation adds to the unit's per-trooper cost, accordingly.

Cybernetic Multi-Modal Sensory Implants

Era: Civil War and Jihad (3062-3085)
Factions: Word of Blake, Capellan Confederation
Unit Types: BM, IM, BA, CI, CV, SV

The Word of Blake's much more sophisticated form of the cybernetic sensory implants discussed above, multi-modal implants granted their elite Manei Domini operatives the ability to combine two sensory features in the same implants, effectively "doubling up" on their capabilities in the same cranial space. Like most Manei Domini technologies, this was shared with the Confederation via the monstrous Thuggee Phansigars, but in the wake of the Jihad, the technology lapsed once more into obscurity due to its high cost.

A particularly useful extra feature of multi-modal sensory implants, however, was their ability to mate with the Word's vehicular direct-neural interface (VDNI) technology, which made it possible for even non-infantry warriors to make use of these abilities when piloting BattleMechs, vehicles, and the like.

Game Rules: Infantry units whose warriors are fitted with multi-modal sensory implants receive both the 2-hex active probe ability and the –1 to-hit modifier for weapon attacks described under the rules for the standard cybernetic sensory implants above. While a warrior can be fitted with more than one multi-modal sensory implant, additional implants of this type offer no added benefits.

If a warrior fitted with multi-modal sensory implants also possesses a form of VDNI (standard or buffered), they can synchronize these systems with the external sensors of any battle armor, vehicle or 'Mech that uses a VDNI-compatible control system, and thus retain the same abilities as their conventional infantry counterparts, even when mounted. If the unit being operated by these warriors also possesses an integral active probe of any kind (including battle armor active probes, improved sensors, and vehicular systems such as the Beagle, Bloodhound, or Watchdog), the active probe range of these systems is increased by 1 more hex due to the implants.

Construction Rules: A warrior can receive up to two multi-modal sensory implant augmentations at a time (an abstraction that reflects either two optical replacements, or an optical and audio replacement), though doing so would be redundant for the purposes of tactical gameplay. Each augmentation adds to the unit's per-trooper cost, accordingly.

Cybernetic Enhanced Multi-Modal Sensory Implants

Era: Civil War and Jihad (3062-3085)
Factions: Word of Blake, Capellan Confederation
Unit Types: BM, IM, BA, CI, CV, SV

The rarest of the cyber-sensory implants used by Word of Blake Manei Domini and Thuggee Phansigars, enhanced multi-modal implants consolidated even more features into each device. Extremely expensive, these enhanced implants were used only by the highest-ranking or most elite operatives.

Game Rules: Enhanced multi-modal sensory implants function in the same manner as multi-modal sensory implants, but provide an additional hex of active probe range in all forms. Thus, conventional infantry units and other units without on-board probes receive active probe ability with a 3-hex range, while armored infantry and vehicular active probe systems benefiting from enhanced multi-modal sensory implants and VDNI links are improved by 2 hexes. All units whose warriors possess enhanced multi-modal sensory implants receive the same –1 to-hit modifier for weapon attacks as well.

Construction Rules: A warrior can receive up to two multi-modal sensory implant augmentations at a time (an abstraction that reflects either two optical replacements, or an optical and audio replacement), though doing so would be redundant for the purposes of tactical gameplay. Each augmentation adds to the unit's per-trooper cost, accordingly.

Cybernetic Filtration Implants

Era: Any after Age of War (2570+)
Factions: Any
Unit Types: BM, IM, BA, CI, CV, SV, AF, CF

Adapted from survival implant technologies perfected during the massive terraforming efforts of the Star League age, artificial filtration liver and lung implants enable those who possess them to withstand all but the most extreme hostile atmospheres and ingested toxins. During the Jihad, the Word of Blake often fielded operatives with such filters as part of the forces responsible for chemical weapon attacks, but many other agencies and groups throughout history—most notably those involved in research or colonial efforts on exotic worlds—use them to survive in environments inhospitable to human life.

Game Rules: Units whose warriors are equipped with filtration implants ignore any damage sustained by non-lethal chemical or gas weapons (such as tear gas), or atmospheric conditions with a Poisonous taint (see pp. 56-57, *TO*). For atmospheres with a Caustic, Radiological, or Flammable taint, these same units suffer half the damage described, rounded down.

In toxic atmospheres of any type, units equipped with filtration implants treat the effects as that of a tainted atmosphere of the same type, and treat any lethal chemical weapon attacks as an atmosphere with the Poisonous taint.

The filtration implants described here only cover the effects of inhaled/injected taints and toxins; they do not protect against vacuum, fire, or other environmental hazards.

Construction Rules: As with most implants and prosthetics, all members of any multi-person unit must possess filtration implants to receive the benefits of this device. The cost for the filtration implants apply per warrior.

Cybernetic Gas Effuser, Pheromone

Era: Civil War through Dark Age (3062-3150)
Factions: Word of Blake, Capellan Confederation, Magistracy of Canopus
Unit Types: CI

The pheromone effuser is an insidious implant originally developed for Word of Blake Manei Domini operatives whose primary missions involved close-quarters infiltration. Thuggee Phansigars soon mimicked the device, and special operatives in the Capellan and Canopian intelligence agencies carried on its use in the decades afterward. The device dispenses a psychotropic mix of chemically-enhanced pheromones via the operative's mouth or nostrils, which can be directed as easily as the operative can exhale. The scent enhances seduction and lowers the target's mental and emotional defenses. While almost never seen on the battlefield, this device can affect close-quarters actions against unprotected conventional infantry.

Game Rules: A conventional infantry unit comprised of troops using pheromone effusers can affect any conventional infantry unit operating in the same hex as long as the target infantry is not prepared for chemical warfare or hostile-environment combat (such as troops wearing environmental or vacuum-sealed suits).

This "pheromone attack" is delivered with a special Gunnery Skill check rolled separately from any other attack made by the effuser-equipped unit.

If a pheromone attack succeeds, the target infantry unit is impaired, and suffers a +1 target modifier on all actions for the remainder of the scenario, even if the effuse-equipped unit moves away. This reflects the target troops' troubled emotional state and general uncertainty. Multiple effuser attacks will not increase this modifier.

Note that even though pheromone effusers are technically point-blank weapons on the tactical scale, they are also area-effect weapons due to their dispersed nature as a gaseous weapon. Thus, no range modifier applies when executing a pheromone effuser attack.

Construction Rules: As with other infantry modifications, all members of the infantry unit must receive a pheromone effuser implant to employ this ability.

Cybernetic Gas Effuser, Toxin

Era: Civil War through Dark Age (3062-3150)
Factions: Word of Blake, Capellan Confederation, Magistracy of Canopus
Unit Types: CI

The toxin effuser takes the basic approach of the pheromone effuser, but makes it far more deadly by enabling the operative to exhale poisonous chemicals instead of emotion-clouding chemicals. Also developed originally for the Manei Domini, this implant was adopted mainly by augmented Capellan and Canopian agents in the aftermath of the Jihad.

Game Rules: The toxin effuser uses the same rules as the pheromone effuser, but instead of applying a persistent skill modifier, toxin effusers deliver 0.25 points of damage per attacking trooper to the targeted infantry unit on a successful attack. Once again, these effects are negated if the target is prepared for hostile environment combat or chemical warfare.

Note that even though toxin effusers are technically point-blank weapons on the tactical scale, they are also area-effect weapons due to their dispersed nature as a gaseous weapon. Thus, no range modifier applies when executing a toxin effuser attack.

Toxin effusers have no effect on non-conventional infantry units.

Construction Rules: Once again, all members of the infantry unit must receive a toxin effuser implant to employ this ability.

Cybernetic Myomer Implants, Dermal Armor

Era: Clan Invasion through Jihad (3050-3085)
Factions: Word of Blake, Capellan Confederation, Magistracy of Canopus
Unit Types: All

While the ability to swap out human musculature for artificial myomers was perfected in the Star League era as a means to repair serious injuries, and was even used in extremely limited capacity to improve the body's resiliency against trauma from anything from blunt strikes to light weapons fire, it was not until the time of the Clan Invasion that truly modern armor-enhanced myomer implants became practically available to covert operatives. Leading the way in this regard—if only because the Word of Blake's Manei Domini operatives had yet to reveal themselves—were special ops agents from the Capellan Confederation and Magistracy of Canopus.

Myomer full-body implants tailored specifically for combat eventually made their way to special field operatives in certain Inner Sphere intelligence agencies. Though hard to maintain when damaged, the advantages of dermal myomer armor gave special operatives remarkable resistance to injury combined with a boost in physical strength. To many, these benefits were more than worth the excruciating pain of the implantation process, the constant headaches that come from their ongoing use, and the heavy scarring and physical deformations that made such implants extremely difficult to conceal.

Game Rules: When applied to conventional infantry units, full-body dermal armor myomer implants add +1 to the unit's damage divisor. (Thus, infantry units equipped with dermal armor myomer that do not wear any other armor types have an effective damage divisor of 2.)

For battle armored infantry, dermal myomer armor implants provide 1 extra point of armor to represent the trooper inside the battlesuit. This bonus armor does not protect against hostile environments if the suit's actual armor is breached, however.

When applied to vehicular units, 'Mechs, and fighters, warriors equipped with full-body dermal armor ignore any pilot damage from falls, Crew Stunned results, or hits to the BattleMech's head, aerospace unit's crew, or any crew hits other than Crew Killed. Heat-induced pilot damage, neurohelmet and VDNI feedback (such as from ammunition explosions or internal damage while using a VDNI implant), Crew Killed results, and cockpit destruction still apply to these units as normal.

Construction Rules: A cybernetics-augmented warrior may mount only one dermal armor myomer implant, adding its costs to that of the augmented warrior. Of the full-body myomer implants featured in these rules, dermal armor may be combined with triple-strength myomer, but not with dermal camouflage.

As with most such augmentations, infantry units and other multi-person crews require all of their members to be equipped with the same full-body implants to receive the benefits. Also, when constructing a conventional infantry unit equipped with dermal armor myomer implants, reduce the crew requirements for all support weapons by 1 (2, if the unit is also equipped with the triple-strength myomer implant), and eliminate the encumbering effects (if any) for such weapons. The minimum crew any infantry weapon may be reduced to is 1.

Cybernetic Myomer Implants, Dermal Camouflage Armor

Era: Jihad (3068-3085)
Factions: Capellan Confederation
Unit Types: CI (foot or jump infantry only)

An extreme variation on dermal armor that also incorporates electronic "sneak suit" technology, dermal camouflage was developed as a full-body myomer-based implant that overlaid its user's skin with sheets of photosensitive electronic webbing—akin to a permanent head-to-toe bodysuit that also provides basic protection from the elements (and human modesty). Using sensors arrayed along the operative's body, dermal camouflage created a mimetic armor effect, blending the operative into the colors of his surroundings.

The limitation, of course, was that this augmentation cannot be used effectively while carrying bulky items (which cannot be so camouflaged), or when wearing any exterior clothing or armor for additional protection. Nevertheless, it saw its most extensive use by Capellan commandos and Thuggee Phansigars during the Jihad.

Game Rules: When applied to conventional infantry units, full-body dermal camouflage implants add nothing to the unit's damage divisor, but (unlike triple-strength myomer implants) does provide enough armor protection to avoid a 0.5 damage divisor. This is particularly useful, since the stealth modifiers of these implants will not work when wearing any other armor, or when using any form of motive type other than foot or jump. (Thus, infantry units equipped with dermal camouflage and no other armor types have an effective damage divisor of 1.)

The stealth effects for dermal camouflage implants are similar to those of mimetic battle armor, applying a to-hit modifier for all attacks made against the camouflaged infantry unit based on how far it moved in the current turn. This to-hit modifier is +3 if the unit remained stationary, +2 if the unit moved only 1 hex, and +1 if it moved 2 hexes. If the camouflaged infantry unit moved faster than 3 hexes in the current turn, no to-hit modifier applies for the mimetic effect.

When applied to any other units, including battle armor or conventional infantry using motorized or mechanized movement types, full-body dermal camouflage implants have no stealth effect. The armor does, however, protect vehicular, fighter, and 'Mech pilots and crews against damage from falls, and Crew Stunned results, but do not affect damage from other sources or critical hits.

Construction Rules: A cybernetics-augmented warrior may mount only one dermal camouflage full-body implant, adding the cost to that of the warrior. Dermal camouflage implants are incompatible with dermal armor implants, but can be combined with triple-strength myomer implants or prosthetic leg MASC.

As with most such augmentations, infantry units and other multi-person crews require all of their members to be equipped with the same full-body implants to receive the benefits. Unlike the other myomer implant types, dermal camouflage does not boost the trooper's strength enough to reduce the crew needs for any carried support weapons.

Cybernetic Myomer Implants, Triple-Strength

Era: Clan Invasion through Jihad (3050-3085)
Factions: Word of Blake, Capellan Confederation, Magistracy of Canopus
Unit Types: All

A "deeper" form of human musculature replacement than the dermal armor implants described above, full-body triple-strength myomer implants became available to covert operatives in the Capellan Confederation as an outgrowth of research into the 'Mech-grade version. As with dermal armor, this technology was used sparingly, by the most elite black ops operatives in the Capellan Confederation and Magistracy of Canopus, before the Jihad saw its much more widespread use by Word of Blake Manei Domini and their Thuggee Phanisgar counterparts.

Like dermal armor, triple-strength myomers were hard to maintain when damaged, and caused their users chronic pain, but they offered incredible strength and injury-resistance that was hard to ignore. Capable of even enhancing the abilities of battle armored infantry in close-quarters combat, warriors augmented with triple-strength myomer became a terror in any melee.

Game Rules: When applied to conventional infantry units, full-body triple-strength myomer implants add nothing to the unit's damage divisor, and have a divisor of 0.5 if no other personal armor is present. Additional personal armor must thus be worn by such troops as normal to achieve any protective effect. (Infantry units equipped with triple-strength myomer implants *and* dermal myomer armor receive the +1 damage divisor for the dermal armor as a result, plus any damage divisors for whatever other personal armor the troopers might be wearing over that; if none, the combination of dermal armor and triple strength myomer implants becomes 1.5.) When making attacks against any unit in the same hex, conventional infantry units augmented by triple-strength myomer implants add +0.14 points of damage per trooper to reflect their enhanced close-combat strength.

In addition to this, when constructing a conventional infantry unit equipped with triple-strength armor myomer implants, reduce the crew requirements for all support weapons by 1 (2, if the unit is also equipped with the dermal armor myomer implant), and eliminate the encumbering effects (if any) for such weapons. The minimum crew any infantry weapon may be reduced to is 1.

For battle armored infantry, triple-strength myomer armor implants provide no additional armor to represent the trooper inside the battlesuit, but they do add 1 point of damage per trooper for all attacks made against targets in the infantry unit's own hex. This bonus even applies to damage inflicted against armored targets, or when engaging in anti-'Mech attacks such as Leg Attacks and Swarm.

When applied to vehicular units, triple-strength myomer implants protect the pilots and crews against damage from falls, and Crew Stunned results, but do not affect damage from other sources or critical hits.

Construction Rules: A cybernetics-augmented warrior may mount only one triple-strength myomer full-body implant, adding the cost to that of the warrior. Triple-strength myomer implants are incompatible with prosthetic leg MASC but can be combined with dermal camouflage implants or dermal armor implants.

As with most such augmentations, infantry units and other multi-person crews require all of their members to be equipped with the same full-body implants to receive the benefits. Also, when constructing a conventional infantry unit equipped with dermal armor myomer implants, reduce the crew requirements for all support weapons by 1 (2, if the unit is also equipped with the triple-strength myomer implant), and eliminate the encumbering effects (if any) for such weapons. The minimum crew any infantry weapon may be reduced to is 1.

Cybernetic Triple-Core Processor Implant

Era: Jihad (3068-3085)
Factions: Word of Blake
Unit Types: All

The triple-core processor implant was unique to the Word of Blake, and reserved exclusively for unit commanders, particularly those mounted in BattleMechs or other armored units. This is not to say the technology was actually restricted to any particular unit type; the Word simply saw these devices as too valuable to place in their more fragile battlefield assets.

Effectively tailored for tactical battlefield administration, the TCP could synchronize with other computers, and provided a massive database of tactical, technical, and academic information that the user could call up with a thought. It was specifically designed for compatibility with direct neural interfaces, thus enabling even more enhanced control over 'Mechs, vehicles, and other units with such interfaces.

Game Rules: The TCP implant is one of the only cybernetic augmentations that does not have to be applied to all troopers in an infantry unit or all members of a vehicle/aerospace unit's crew. Only the unit's commander requires the TCP to gain its functionality.

A TCP-implanted warrior provides a +2 Initiative modifier to his force's side if he is present in the battlefield and is interfaced with a unit via a VDNI or Buffered VDNI control system. An additional +1 Initiative modifier applies if the unit also features a Cockpit Command Module, a C^3 (or C^3i) system, or more than 3 tons of communications equipment. Reduce this modifier by 1 Initiative if the TCP-equipped warrior's unit is shutdown, or under the influence of hostile ECM or electronics-impairing environmental effects such as electromagnetic interference (EMI) or secondary nuclear weapons effects.

If the TCP-equipped unit is equipped with an ECM suite of any kind, the unit's ECM bubble also acts as a counter-ECM that negates enemy interference (which means that an ECM-equipped unit piloted by a TCP-equipped warrior with a VDNI control system can ignore the initiative-reducing effect of hostile ECM).

The Initiative modifier provided by the use of a TCP-implanted warrior applies only once to his force, regardless of the number of TCP-implanted warriors that are present, but the modifier may stack with any provided by other sources.

Regardless of the initiative modifier provided, all MechWarriors, vehicle commanders, and fighter pilots with a TCP implant and a VDNI control system may execute aimed shots as if the unit is equipped with a targeting computer. An additional –1 modifier applies to this aimed shot ability if the unit already possesses a targeting computer of its own. Finally, TCP-implanted MechWarriors and fighter pilots automatically succeed at all shutdown-avoidance checks for extreme heat, except for those described as "automatic shutdown".

Construction Rules: As indicated in the game rules, only the commander or pilot of a given unit requires the triple-core processor implant to gain its initiative benefits. Only one such implant is required per warrior to achieve the necessary functionality. A warrior may possess only one TCP implant.

Cybernetic Vehicular Direct Neural Interface

Era: Clan Invasion through Jihad (3050-3085)
Factions: Word of Blake, Federated Suns, Capellan Confederation
Unit Types: BM, IM, BA, CV, SV, AF, CF

Based on a technology first prototyped by the New Avalon Institute of Science (before one of its leading scientists went rogue), the vehicular direct neural interface (VDNI) enables pilots, battle armor troops, MechWarriors, and vehicle drivers to literally "plug into" their machines. Though the system works in principle like Clan EI neural implants, improved circuit breakers and a chemical agent regularly ingested by users of this technology allows these warriors to stave off the worst short-term effects of this technology. Meanwhile, the heavily modified cockpit and control interface used in the vehicle itself translates the pilot's "natural" impulses into the unique motive capabilities of the vehicle type, achieving greater fluidity of control to the point where the line between man and machine becomes blurred.

Game Rules: Regardless of the unit type in question, warriors using VDNI implants receive a –1 modifier for all Gunnery and Piloting to-hit rolls, to reflect their enhanced level of motor control and improved reaction times. The tradeoff for this is the possibility of damage through internal feedback in the event of a penetrating hit, as described below.

For 'Mechs and vehicles, any time the unit's internal structure suffers damage for any reason, the unit's controlling player must roll 2D6. On a result of 8 or higher, the VDNI-implanted warrior suffers 1 point of damage on the pilot's condition monitor (unless the warrior has a pain shunt; see p. 77), making consciousness checks as per the normal rules for pilot hits. Because even VDNI-equipped vehicle units use this method, the unit's controlling player should construct a similar pilot condition monitor in the unit's Notes section to keep track of this damage. In addition to this, vehicle-based VDNI warriors also treat all of the following critical hits as a single hit to the pilot's condition monitor: Commander Hit, Gunner Hit, and Crew Stunned. (The Crew Killed critical hit on a VDNI-controlled vehicle still kills the pilot outright, however.)

For fighters operated by VDNI-equipped pilots, any damage that delivers a critical hit will require an additional 2D6 roll to determine if the pilot takes feedback damage. Once again, this check delivers a single hit to the pilot's condition monitor on a roll result of 8+, prompting a consciousness check as normal.

Battle armor troopers using VDNI do not have to make feedback damage checks in tactical gameplay.

A standard VDNI (or Buffered VDNI) is required to make use of the Machina Domini interface (see pp. 116).

Construction Rules: An augmented warrior may possess only one VDNI implant of any type (standard, buffered, or prototype). Battle armor units must modify all warriors in the unit to receive the game play benefits of this system; vehicle units, fighters, and 'Mechs modified for VDNI operation are automatically reduced to only one required crewman, who serves all of the unit's combat roles.

Furthermore, to gain the benefits of this implant, the control systems of the warrior's battlesuit, vehicle, fighter, or 'Mech must be heavily modified as well. This control system modification does not change the mass or space occupied by the unit's original design, but will apply an additional cost, and—in the case of any vehicles, 'Mechs, or fighters that require more than one crewman—will reduce the unit's required crew to 1. (Unlike the Clan EI interface, a unit modified for operation by a VDNI-augmented warrior cannot be piloted without such an implant.)

Cybernetic Buffered VDNI

Era: Jihad (3068-3085)
Factions: Word of Blake
Unit Types: BM, IM, BA, CV, SV, AF, CF

This enhanced form of VDNI emerged a few years after the start of the Jihad, representing the fruits of ongoing research completed by Manei Domini engineers. Buffered VDNI granted pilots, battle armor troops, MechWarriors and vehicle drivers the same direct control over their machines, but featured improved fail-safes against neurological feedback to produce an even more potent version of the same technology with fewer side effects.

Game Rules: Units operated by warriors using buffered VDNI receive only a –1 to-hit modifier for Gunnery Skill checks. They do not receive a similar modifier for Piloting due to a slight "neuro-lag" produced by the requisite buffers, but if the unit in question features a Small Cockpit, the buffered-VNDI pilot ignores its associated +1 Piloting target modifier. (Indeed, buffered VDNI cockpit designs are actually far more compact than conventional control systems, a feature that enables compact control systems that allow for more weapon room on 'Mechs and fighters.)

MechWarriors and vehicle pilots using buffered VDNI do not check for pilot feedback damage from simple internal structure damage, but must do so only when an actual critical hit occurs—regardless of the component struck. Tracking and resolving the effects of these pilot hits otherwise follows the same rules as described in the basic VDNI above.

Fighters and battle armor operated via buffered VDNI do not have to check for feedback damage at all.

A standard VDNI (or Buffered VDNI) is required to make use of the Machina Domini interface (see pp. 116).

Construction Rules: The construction rules for buffered VDNI implants—and the requisite modifications to the pilot's battlesuit, vehicle, fighter, or 'Mech—follow the same rules as described above for the basic VDNI system.

Prototype Direct Neural Interface

Era: Clan Invasion (3050-3061)
Factions: Federated Commonwealth
Unit Types: BM

The original direct neural interface technology—and the one the Word of Blake based its perfected vehicular DNI upon—was first pioneered by an NAIS scientist named Burke Kale, who proposed it in 3043 as a replacement for neurohelmets. The direct interface that eventually emerged from his work was fraught with dangerous side-effects, including severe addiction to both the tech and the specialty drugs designed to mitigate the worst of its negative neurofeedback.

Given that the technology drove Kale himself insane—with horrifying results that also exposed the project to outside factions—and given that it was proven to lead to permanent nerve damage, insanity, or even death as early as its first use, the Federated Commonwealth abandoned this research by 3055.

Game Rules: Units operated by warriors using the prototype direct neural interface (DNI) receive a –2 to-hit modifier for Gunnery Skill checks, and a –3 modifier for Piloting, making this the most effective of the direct neural interface implants ever created.

Unfortunately, the feedback of this connection is extremely sensitive. MechWarriors using prototype DNI must make a 2D6 roll to check for pilot feedback damage *any* time their 'Mech suffers damage, even if the hit does not penetrate armor. The target number to avoid pilot feedback damage from use of a prototype DNI is 6 if the hit strikes armor, increasing to 8 if the damage strikes internal structure or causes a critical hit of any kind.

The prototype VDNI cannot be used to operate a Machina Domini interface, nor is it compatible with the Inner Sphere ProtoMech interface.

Construction Rules: The construction rules for prototype DNI implants—and the requisite modifications to the pilot's 'Mech—follow the same rules as described above for the basic VDNI system.

Explosive Suicide Implants

Era: Any
Factions: Any
Unit Types: All

Implanted in many cases as an extreme failsafe device to avoid capture or bring potential enemies down in a defiant last stand, suicide charges implanted within the body have been available (and occasionally used) throughout the centuries, but only really peaked among the Manei Domini and Thuggee Phansigars during the dark days of the Jihad. In fact, it was reported that *all* Domini operatives were fitted with such devices, where they could even be remotely detonated by partners or handlers via satellite and HPG signals. Even more monstrous tales told of subjects being unwillingly implanted with similar charges and sent into battle as cannon fodder.

Generally intended to destroy the operative sufficiently enough to not only kill the operative, but also any personal equipment that might be traced or captured by enemy agencies, most battlefield suicide charges are also designed to act as area effect weapons as well, making it possible to take out enemy infantry and security forces in the process.

Game Rules: Any unit made up of or controlled by warriors equipped with suicide implants can activate these devices during the Attack Phase of any turn. Conventional infantry equipped with suicide implants will also deliver an automatic "attack" against all opposing units in the same hex for every trooper they lose during the same attack.

Because the suicide implants represent area-effect weapons, there is no to-hit number for an attack by suicide implants. For conventional infantry (or dismounted warriors with suicide implants), the damage inflicted by a detonating suicide charge is equal to 0.57 times the number of warriors who self-destruct in the same turn (after which those warriors are marked off, eliminating the entire unit if none remain). This damage affects all other targets (and terrain) in the unit's own hex, be they friend or foe.

In the case of suicide implants detonated inside other units or structures, the following occurs when they are activated:

- **Conventional Infantry/Dismounted Personnel inside a Transport Bay:** The suicide attack delivers damage to the bay in which the transported unit is located, treated as a critical hit to that transport bay within the transport unit. The damage value of the exploding infantry is then assessed against the appropriate internal structure location of the transport unit (or the rear structure/armor of the unit, if no structure is present).
- **Battle Armor Infantry inside its Armor:** The suicide attack automatically destroys the trooper's battlesuit, but does not affect any other targets in the area.
- **MechWarriors and Fighter Pilots in their Cockpits:** The suicide implant destroys the unit's cockpit systems along with the warrior himself. Apply 1 point of internal structure to the 'Mech's head (or 1 point of armor damage to the nose of the fighter) and make roll for a critical hit in that location. Treat as complete cockpit destruction for salvage purposes. No other targets in the area are affected.
- **Vehicle Crew inside their Vehicle:** The suicide implant automatically causes a Crew Killed result, and the vehicle suffers a single point of internal structure damage to all facings. Roll for critical hits to all locations normally. No other targets in the area are affected.
- **Suicide Charges inside Other Aerospace Units:** For every 10 suicide charges set off by the same unit (rounding normally), apply 1 of Structural Integrity damage to the aerospace unit, rolling for any critical effects normally.
- **Suicide Charges inside Structures:** For every 2 suicide charges set off inside a structure, subtract 1 point from the structure's CF.
- **Suicide Charges inside Other Units:** For every 2 suicide charges set off inside any other unit, apply 1 point of damage to the unit's internal structure in an appropriate location. If no location is specified, presume this to affect the unit's rear facing structure. If the unit has no internal structure, apply the damage to armor instead. Roll any applicable critical hits.

Construction Rules: An augmented warrior can only be fitted with one suicide implant.

Prosthetic Leg MASC

Era: Jihad (3068-3085)
Factions: Word of Blake, Capellan Confederation
Unit Types: CI (Foot infantry only)

Miniaturized from the 'Mech-scale version, prosthetic leg myomer accelerator signal circuitry (PL-MASC) swapped the trooper's real legs with speed-enhanced alternatives. Favored by scouts and uncommon among shock troops, this unique modification was only effective for foot infantry units; it would not affect the speed of mounted or battle armored infantry.

ENHANCED PROSTHETIC EQUIPMENT TABLE

Enhancement Type	Effects
Ranged Weapons	
Laser	+0.11 max weapon damage per trooper
Ballistic	+0.01 max weapon damage per trooper
Needler	+0.04 max weapon damage per trooper
Shotgun	+0.05 max weapon damage per trooper
Sonic Stunner	+0.05 max weapon damage per trooper*
Submachine Gun	+0.05 max weapon damage per trooper
Melee Weapons†	
Blade	+0.02 max weapon damage per trooper*
Shocker	+0.04 max weapon damage per trooper*
Vibroblade	+0.14 max weapon damage per trooper
Rumal/Garrote	+0.14 max weapon damage per trooper*
Non-Weapons	
Grappler Line	–2 TN to anti-'Mech attacks
Climbing Claws	–1 TN to anti-'Mech attacks; +0.02 max weapon damage per trooper*

*Damage vs other conventional infantry only
†Apply a +2 to-hit modifier when attacking

Game Rules: Prosthetic leg MASC gives foot infantry units (and only foot infantry units) an additional +1 Ground MP per turn, so a standard foot infantry unit with PL-MASC may move up to 2 Ground MP per turn, while another unit reduced by encumbering items to "move or fire" mobility will still posses 1 Ground MP per turn and is free to make attacks in the same turn. Attacks against infantry units equipped with PL-MASC suffer a +1 to-hit modifier to account for these troopers' improved ability to dodge and weave in combat.

Construction Rules: As with other infantry-based augmentations, all members of an infantry unit must be equipped with PL-MASC to gain the benefits of this system. Only one PL-MASC augmentation may be "installed" per trooper.

Prosthetic Limbs, Enhanced

Era: Any
Factions: Any
Unit Types: CI

Enhanced prosthetic limbs reflect modified replacement arms or legs equipped with weapons or other useful equipment, and can only be used effectively on the battlefield by augmented non-battle armor infantry units.

Game Rules: The potential damage or effects of this augmentation applies in addition to the weapons and equipment the unit is constructed with, as indicated in the Enhanced Prosthetic Equipment Table. The limited range and power of these items restricts any attacks made by them to targets in the augmented infantry unit's own hex only.

Note that all items listed as melee weapons will apply a +2 to-hit modifier to make any attacks, reflecting the effort to close in to apply damage.

Construction Rules: Each prosthetic limb augmentation may be applied up to 2 times per trooper, which—for the sake of simplicity—must be of the same equipment type (e.g. two laser enhancements per trooper, or two submachine gun enhancements per trooper, but not 1 laser and 1 submachine gun per trooper). Applying an augmentation twice per trooper also doubles the augmentation's cost.

Prosthetic Limbs, Improved Enhanced

Era: Star League (2570-2780), Jihad (3068-3085)
Factions: Terran Hegemony, Word of Blake, Capellan Confederation, Magistracy of Canopus
Unit Types: CI

Improved enhanced prosthetic limbs reflect more extremely modified replacement arms or legs, each designed to feature multiple weapons or items, rather than one apiece. The added expense and sophistication of these augmentations limited their use only to the most elite troops of the original Star League, the Word of Blake Manei Domini, the Capellan Thuggee Phansigars, and elite commando teams from the Magistracy of Canopus' Ebon Magistrate.

Game Rules: Improved enhanced prosthetics work in the same manner as the standard prosthetic enhancements, except each unit featuring these may have a *minimum* of two enhanced prosthetics at the same time. These augmentations may not necessarily be of the same type, but any damage and bonus effects will stack. Thus, an infantry unit augmented with improved enhanced prosthetic limbs might feature both lasers and climbing claws as part of the unit's prosthetics.

Regardless of the number of melee weapons placed on an improved enhanced prosthetic limb, the maximum to-hit modifier applied for such weapons is +2.

Construction Rules: Each set of improved prosthetic limb augmentations may be applied up to 2 times per trooper, for a maximum of 4 items "installed" per trooper (2 pairs of items per trooper). The costs for each augmentation apply per trooper.

Prosthetic Limbs, Extraneous (Enhanced) Limbs

Era: Jihad (3068-3085)
Factions: Capellan Confederation
Unit Types: CI

Word of Blake technology enabled the Thuggee Phansigars to explore monstrous options even their own one-time allies had scarcely considered, leading to exotic prosthetic modifications made for the battlefield. Alongside the tail and wings, the Thuggee cyborgs also introduced extraneous prosthetic limbs in an effort to invoke the imagery of the Hindu death goddess they worshipped. Naturally, these extra limbs also incorporated weapons and other items similar to the standard enhanced prosthetics, though their utility was ultimately limited by the limits of the human nervous system.

Game Rules: Extraneous prosthetics work in the same manner as the standard prosthetic enhancements, except they add up to two more limbs to the warrior (be they arms or legs) than a human being is normally born with. These extra weaponized limbs are always added in pairs, provide the warrior with an additional two enhanced prosthetic items that can be used in battle. Thus, a warrior who has two standard prosthetic arms with a weapon in each (or two improved prosthetic arms with two weapons in each), could add two *more* weapons to this combination via a pair of extraneous arms.

As these additional limbs are mounted in pairs, the items mounted in them must be of the same type, but need not match the items found

in any other enhanced prosthetics the warrior might be using. Any damage and bonus effects these items provide will stack.

As always, if melee weapons are placed on an extraneous prosthetic limb, the maximum to-hit modifier applied for such weapons is +2.

Extraneous limbs cannot be used by any other unit type—including battle armor—but are removable, so that warriors fitted with this enhancement may operate such units by simply detaching their extra limbs first.

Construction Rules: Extraneous prosthetic limbs are always mounted in pairs, the cost of which is counted on a per-trooper basis, with a maximum of two pairs of extraneous limbs permitted per warrior (one pair, if the warrior is also using either glide wings or flight wings). Extraneous prosthetic limbs may mount only one item per limb (thus providing two items of identical type per limb-set added).

Prosthetic Tail, Enhanced

Era: Jihad (3068-3085)
Factions: Capellan Confederation
Unit Types: CI

Once an expensive (but virtually useless) cosmetic modification designed for elaborate "costume parties" during the days of the first Star League, the combat version of the prosthetic tail appeared in the Jihad as a special enhancement unique to the Manei Domini-inspired Thuggee Phansigars. Featuring increased reach, armor, triple-strength myomers and retractable blades, these tails were made to both enhance the close-quarters combat potential of the Phansigars' shock troops, and to serve as a psychological weapon.

Game Rules: Prosthetic tails are only effective with conventional infantry units, where they add 0.21 damage points per trooper against any target in the unit's same hex. As this is a melee attack, a +2 to-hit modifier applies to make this attack, reflecting the effort to close in to apply this damage.

Prosthetic tails cannot be used by any other unit type—including battle armor—but are removable, so that warriors fitted with this prosthetic may operate such units by simply detaching their tails first.

Construction Rules: Only 1 enhanced prosthetic tail may be installed per warrior. As with all augmentations, the cost of the prosthetic is added to that of the warrior himself.

Prosthetic Wings, Glider

Era: Jihad (3068-3085)
Factions: Capellan Confederation
Unit Types: CI

Another elaborate cosmetic prosthetic adapted for combat by the Thuggee Phansigars, glider wings consisted of a collapsible framework grafted onto the warrior's back and made of flexible yet sturdy material. At full extension, these wings—often formed to resemble bird or bat wings—were used to assist in free-fall operations or even provide unpowered, short-range flight when air currents are good. However, as the wings were developed for "hands-free" operation (unlike a hang glider or parafoil), the control systems effectively interfered with the operative's normal motor control in the same way that extraneous limb prosthetics did. While gliding, this typically meant that the operative's legs (or arms) had to "shut off," making landings a tricky affair.

Game Rules: Infantry units equipped with glider wings may dismount from VTOL units (and DropShips hovering over the ground map) as a jump infantry platoon (see p. 225, *TW*), so long as they are not operating in vacuum or very thin atmospheres. This gliding ability also protects such units against damage from falls, whether from their own actions (walking off terrain 2 or more levels high, including buildings) or by displacement (see p. 151, *TW*).

Glider wings cannot be used by any other unit type—including battle armor—but are removable, so that warriors fitted with this enhancement may operate such units by simply detaching their wings first.

Construction Rules: An infantry unit augmented with wings may only choose one set of glider wings per trooper, but cannot install these wings in conjunction with powered flight wings. If the trooper is also using extraneous prosthetic limbs, the glider wings will limit the warrior's maximum number of extraneous limbs to only one "pair".

Prosthetic Wings, Powered Flight

Era: Jihad (3068-3085)
Factions: Capellan Confederation
Unit Types: CI

An even more radical variation on the glider wings discussed earlier, the powered flight wings prosthetic system combined a much more elaborate wing design—complete with the ability to flap and angle for better wind management—with a series of chemical jets and reinforced cybernetic "launch legs." The result was a combination of gliding and vectored thrust that enabled its user to literally fly for short durations.

Game Rules: In addition to receiving all of the benefits of glider wings (see above), conventional infantry units equipped with powered flight wings also receive 2 MPs of VTOL movement as long as they are not operating in a vacuum.

Powered flight wings cannot be used by any other unit type—including battle armor—but are removable, so that warriors fitted with this enhancement may operate such units by simply detaching their wings first.

Construction Rules: An infantry unit augmented with wings may only choose one set of powered flight wings per trooper, but cannot install these wings in conjunction with glider wings. If the trooper is also using extraneous prosthetic limbs, the flight wings will limit the warrior's maximum number of extraneous limbs to only one "pair".

Centurion Weapon System (Star League)

R&D Start Date: Circa 2760 (Star League)
Prototype Design and Production: Circa 2762 (Star League)

The Centurion Weapon System was devised in the late twenty-eighth century as a non-lethal means of disabling the advanced Star League military technologies that had proliferated throughout the Inner Sphere and Periphery. Practical testing and combat simulations quickly showed that even a modicum of electronics hardening and combat maneuvering would still render a target virtually invulnerable to this technology, but research continued nonetheless, and some systems even reached operational capability.

Essentially an energy weapon intended to produce a localized EMP on impact, the Centurion proved effective only against the oldest or most distressed equipment still in the field, and its use was eventually abandoned. During the Jihad, research into the Centurion and—in several rumored cases—copies of the prototype emerged as a side effect of the so-called "RetroTech craze". While none of these efforts led to full-scale production at the time, they did eventually inspire the development of the more effective TSEMP weapons that emerged decades later.

CENTURION WEAPON SYSTEM GAME RULES

Rules Level: Experimental
Available to: BM, IM, CV, SV, AF, CF, SC
Tech Base (Ratings): Inner Sphere (E/FFFX)

Rules: The Centurion uses a directed EMP to overload the electronic systems on a target unit, and delivers attacks in the same manner as a standard laser attack (though it cannot make use of a targeting computer). However, the weapon's effective range bands vary based on whether or not the target is susceptible or resistant to its effects, as shown in the Centurion Weapon System Range Table. Susceptible targets may be affected at much greater ranges than those that are classified as resistant.

A unit is considered susceptible to the Centurion if any one or more of the following conditions apply:

- The unit uses Primitive technology or is built using the Primitive Units and RetroTech rules (see pp. 120-131), or is built as a FrankenMech (see pp. 189-190, *TO*).
- The unit is a Support Vehicle without the Armored or Environmental Sealing chassis modifications.
- The unit has the EM Interference, Poor Life Support, Poor Sealing, Poor Workmanship, or Prototype Design Quirks (see pp. 193-199, *SO*).
- The unit is using Commercial or Industrial Armor, or has lost all armor in more than one location.
- The unit has suffered at least one sensor critical hit.
- The unit is operating with any form of partial repair effect (see pp. 182-185, *SO*).
- The unit is physically older than 150 years. (This detail should be determined in advance by the players.)

CENTURION WEAPON SYSTEM RANGE TABLE

Target is…	Range (Min/Sht/Med/Long)
Susceptible to CWS	0/6/12/18
Resistant to CWS	0/1/2/3

Infantry units (including battle armor), and aerospace units exceeding 200 tons in total weight, are automatically immune to the effects of the Centurion Weapon System. All other unit types not considered susceptible to the Centurion Weapon System are considered resistant to its effects.

Upon a successful hit, the player controlling the target unit must immediately make a shutdown roll as if the target's heat level is 14 points higher than its current level. If the roll is successful, the unit continues to operate normally. If the roll fails, the unit shuts down at the end of the attack phase in which the hit occurred. The "heat" generated by a Centurion attack is not affected by the normal limits on heat from external sources, and is not actually applied to the unit's heat scale; it merely represents the surge caused by the Centurion's EMP.

If the unit struck by a Centurion Weapon System does not use a heat scale (i.e. the target is a vehicle or a battle armor unit), ignore the heat scale rule and simply roll 2D6 against a target number of 4 to avoid shutdown.

If the weapon successfully hits a unit that is already shut down in the current turn (for whatever reason) the unit remains shut down throughout the following turn.

CENTURION WEAPON SYSTEM CONSTRUCTION RULES

A unit may mount any number of Centurion weapons in accordance with its construction rules. As an energy weapon, the Centurion requires heat sinks and power amplifiers as appropriate when placed on a vehicles or units powered by non-fusion engines.

DARK AGE EQUIPMENT (DARK AGE)

Introduced: Variable (See Rules)

Despite the general decline in military build-up that followed the Jihad, a number of new technologies were introduced for use on the battlefield. While many of these were new—and often extra-specialized—armor and weapons, others included the non-lethal TSEMP weapon, HarJel-based battlefield armor-repair system, and an upgraded, self-refreshing coolant system dubbed the radical heat sink.

Note: Dark Age technology innovations also included a few altogether new unit types, like the Clan QuadVees or the superheavy tripod 'Mechs often referred to as "Colossals". These distinctive new units will be covered separately in this chapter.

ANTI-PENETRATIVE ABLATION (ABA) ARMOR

Introduced: 3114 (Draconis Combine)

Often shortened to "ablative" armor (despite not at all resembling the anti-laser personal armor that uses the same term), anti-penetrative ablation armor is specifically designed to thwart the effects of armor-penetrating munitions and tandem-charge missiles. This is accomplished by enhancing otherwise-standard armor plates with additional layers of ribbed or perforated steel. This feature warps incoming penetrator rounds and explosives before they even reach the internal structure, but does nothing against lasers, particle weapons or raw kinetic rounds. This armor has seen limited deployment, mainly because its added weight barely offsets its benefits against special munitions.

Anti-Penetrative Ablation (ABA) Armor Rules
Rules Level: Advanced
Available to: BM, IM, CV, SM, AF, CF
Tech Base (Ratings): Inner Sphere (E/XXXE)
Game Rules: As long as the location struck still has at least 1 point of armor remaining, ABA Armor applies an additional –2 roll modifier to the critical hit check for all attacks made by weapons with armor-piercing abilities, including armor-piercing autocannon ammo, armor-piercing mortars, tandem-charge missiles, and tasers of all kinds. This modifier also applies to the special armor-defeating critical checks made for a hit

location roll of 2 (whether or not the Floating Critical rule is in play). In all other respects, ABA armor functions as normal. Critical hits to ABA armor slots have no effect.

Construction Rules: ABA armor provides 12 points of protection per ton of armor. It occupies 6 critical slots on 'Mech units, 1 on vehicles, and 1 on fighters (assigned to the fighter's aft location). ABA armor may be mounted on Omni-units, but may not be pod-mounted.



Draconis Combine BattleMechs make a defiant last stand to protect a shattered city block.

BALLISTIC-REINFORCED ARMOR

Introduced: 3131 (Draconis Combine)

Commonly referred to simply as "reinforced" armor, ballistic-reinforced armor was born as an attempt to combine and refine the features of Jihad-era hardened and reactive armors. The result was a less bulky, lighter-weight version of hardened armor, with an added layer of non-myomer cable mesh that helps trap and distort the effects of direct-fire ballistic shells and explosives.

Ballistic-Reinforced Armor Rules
Rules Level: Advanced
Available to: BM, IM, CV, SV, AF, CF
Tech Base (Ratings): Inner Sphere (E/XXXE)
Game Rules: Against ballistic and missile weapons, ballistic-reinforced armor reduces the damage effects by half (rounded down, to a minimum of 1). Damage from other sources (including collisions, falls, physical attacks, and energy weapons) is unaffected.

Construction Rules: Ballistic-reinforced armor provides 12 points of protection per ton of armor. It occupies 10 critical slots on 'Mech units, 1 on vehicles, and 2 for fighters (assigned 1 each to the fighter's wing locations). Ballistic-reinforced armor may be mounted on Omni-units, but may not be pod-mounted.

HEAT-DISSIPATING ARMOR

Introduced: 3123 (Capellan Confederation), 3125 (Clan Hell's Horses)

Derived from the Clans' fire-resistant armor tech, heat-dissipating armor staves off the system-taxing effects of incendiary weapons and fire against BattleMechs, but can only do so as long as the armor remains relatively intact. While otherwise effective against standard weapons as well, an unfortunate trade-off of this armor—which incorporates additional layers of insulation and modified sealants to achieve its thermal effectiveness—is that it provides less overall protection per ton than most other contemporary armor types.

Though the Capellan Confederation first put this new armor type into production, the Clans of the Inner Sphere followed suit. Interestingly enough, the Clan version is merely a copy of the Capellan formula, likely produced after the Hell's Horses Clan procured some samples with aid of Sea Fox merchants.

Heat-Dissipating Armor Rules
Rules Level: Advanced
Available to: BM, IM
Tech Base (Ratings): Inner Sphere/Clan (E/XXXE)
Game Rules: As long as the location struck still has at least 1 point of armor remaining, heat-dissipating armor reduces the external heat effects caused by flamers, plasma weapons, infernos, and other external sources (including fire) by half. Round this reduced heat effect down to the nearest point, to a minimum of 0 heat.

Construction Rules: Heat-dissipating armor provides 10 points of protection per ton of armor, and occupies 6 critical slots on 'Mech units, regardless of the technology base used. Heat-dissipating armor may be mounted on OmniMechs, but may not be pod-mounted.

IMPACT-RESISTANT ARMOR

Introduced: 3103 (Lyran Commonwealth)

As new armor types go, impact-resistant armor is arguably among the strangest. Developed originally for use in the arenas of Solaris VII and other gladiatorial venues, this armor reduces the effectiveness of physical attack damage caused primarily by 'Mech-grade melee weapons like hatchets and swords.

To accomplish this, its underlayment uses a far more flexible sealant formula and interlocking rings that are designed to yield under pressure and allow the armor "give" beneath broad-impact strikes. In addition, a thick, flexible shell—similar to combat vehicle tire and track treads—is layered over the armor along the broader surfaces. While this all renders the armor more effective against physical attacks, it also makes it more susceptible to breaches in hostile environments, or when struck by special armor-defeating munitions.

ADVANCED ARMOR TABLE

Advanced Armor Type	Points per Ton	BM	IM*	Space CV	Space SV*	Space CF	Space AF	Construction Notes
Anti-Penetrative Ablation	12	6	6	1	1	1	1	Fighter Slots: 1 (aft)
Ballistic-Reinforced	12	10	10	1	1	2	2	Fighter Slots: 1 (per wing)
Heat-Dissipating	10	6	6	N/A	N/A	N/A	N/A	None
Impact-Resistant	14	10	10	N/A	N/A	N/A	N/A	None

*Support Vehicles must have the Armored Chassis Mod and a Minimum Chassis Tech rating of D to install Advanced Armor; IndustrialMechs may only mount these armor types under Experimental Mixed-Tech rules.

PATCHWORK ARMOR ADDENDUM

Armor Type	Slots per Location*	Tons per Point
Anti-Penetrative Ablation	1 / 1	0.0833
Ballistic-Reinforced	2 / 1	0.0833
Heat-Dissipating	1 / N/A	0.1000
Impact Resistant	2 / N/A	0.0714

*Number left of slash applies to 'Mechs and support vehicles; number right of slash applies to fighters and combat vehicles.

Impact-Resistant Armor Rules
Rules Level: Advanced
Available to: BM, IM
Tech Base (Ratings): Inner Sphere (E/XXXE)
Game Rules: As long as the location struck still has at least 1 point of armor remaining, impact-resistant armor reduces the damage effects from collisions, falls, and physical attacks of all types (including punches, kicks, charges, Death from Above, and the like) by 1 point for every 3 points delivered (or fraction thereof), to a minimum of 1 damage point. The armor has no effect against damage from other sources, and—due to its deliberately flexible under-layers—applies a +1 modifier to any rolls made when checking for hull breach in hostile environments, including underwater and vacuum.

Furthermore, if a location protected by armor is struck by weapons with armor-piercing capabilities—including armor-piercing autocannon ammo, armor-piercing mortars, tandem-charge missiles, and tasers of all kinds—all rolls for critical hits required for such munitions will receive an additional +1 modifier. This reflects the armor's added susceptibility to such attacks.

Construction Rules: Impact-resistant armor provides 14 points of protection per ton of armor, and occupies 10 critical slots. Impact-resistant armor may be mounted on OmniMechs, but may not be pod-mounted.

HARJEL REPAIR SYSTEMS

Introduced: 3136 (Clan Sea Fox [HarJel II]), 3139 (Clan Sea Fox [HarJel III])

Based on the original HarJel hull-sealing technology developed in the Homeworlds, and utilizing a similar compound discovered in the Twycross system eighty years ago, Clan Sea Fox improved upon this technology by combining it with a revolutionary form of hyper-fast hardening compound that could be pumped through tubes laced just beneath the armor plates of any 'Mech-sized unit. Though expensive in the extreme, and requiring extensive modifications that include effectively "re-skinning" the 'Mech designed to use it, HarJel II (and III) provides greater protection than the early BattleMech HarJel systems developed in the 3060s by not only sealing against hull breaches, but even providing a degree of temporarily "regrown" armor strong enough to resist weapons fire.

HarJel Repair System Rules
Rules Level: Advanced
Available to: BM
Tech Base (Ratings): Clan (F/XXXF)

Game Rules: HarJel repair systems are available in two forms, known as HarJel II and HarJel III. Both remain operational as long as the location they are mounted in retains at least 1 point of armor protection and the HarJel repair system in that location has not itself suffered a critical hit. HarJel repair systems provide a +2 target number modifier to all rolls made when checking the unit's hull integrity in hostile environments or underwater (see p. 121, *TW*). In addition to this, each turn a location protected by a HarJel repair system suffers armor damage, the unit will recover 2 points of armor protection in that location (4 for HarJel III) during the following End Phase. While they can repair more armor in this fashion than was actually damaged by the attack during that turn, the number of armor points restored to any given location may never exceed that location's starting armor value. For torso locations, the replaced armor points must be split as evenly as possible between front and rear facings if both facings are damaged (if not, any excess HarJel repair points will go to the facing that still has damage).

HarJel repair systems cannot restore internal structure, nor can they restore damage to internal components.

A critical hit to either HarJel repair system destroys the component completely and forces the controlling player to make an additional check for additional critical hits as if the location suffered an ammunition explosion (though no checks are required for pilot damage). Destroyed HarJel slots cannot be repaired; they must be replaced. A unit equipped with HarJel repair system automatically receives the Difficult to Maintain Design Quirk (see p. 198, *SO*).

Construction Rules: HarJel is only compatible with units that employ standard, heavy industrial, light ferro-fibrous, standard ferro-fibrous,

and heavy ferro-fibrous armor. HarJel repair systems can only be mounted on BattleMechs. OmniMechs that use HarJel repair systems must always treat them as fixed items, as this equipment may not be pod-mounted.

Each HarJel repair system is mounted separately, and protects only one body location; each protected location may only mount one HarJel repair system.

Units may not combine different HarJel repair systems. Thus, if a unit mounts HarJel II in one location, all other HarJel repair systems mounted on the same unit must be HarJel II.

RADICAL HEAT SINKS

Introduced: 3122 (Federated Suns)

More properly known as the reclaimed coolant flush injector, the so-called "radical heat sink" system is, in effect, a logical upgrade to the coolant pod technology prototyped by the Federated Commonwealth in 3049. Where the original pods proved to be one-shot devices, this system enables a 'Mech or fighter to make more frequent flushes in combat.

The repeatability is not without some risk, however; while the flush lines have been reinforced and better insulated to enable its functions, there exists a significant chance of rupture over time, especially if the warrior relies too heavily on the system to keep heat levels under control during an intense firefight. For this reason, many pilots and MechWarriors are cautioned to treat the "radical heat sink" system as if it has a more limited recharge supply, stressing that it should be used only in cases of extreme emergency.

Radical Heat Sink Rules

Rules Level: Advanced
Available to: BM, IM, AF
Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: The radical heat sink system works like the coolant pod (see p. 304, *TO*), except that it can be activated more than once during a scenario. Unfortunately, repeated use of this system—especially in rapid succession—raises the chances for a catastrophic failure.

A radical heat sink system may be triggered only once per turn—at the start of the unit's Heat Phase—and increases the cooling capacity of the unit's functioning heat sinks by 1 point each in that turn (regardless of heat sink type). Each time the radical heat sink system is used, the unit's controlling player must roll 2D6 and compare it to the Radical Heat Sink Failure Table, based on the number of consecutive turns the device has been used at that point. If this roll equals or exceeds the number indicated in the Avoid Failure On column, the device continues to work normally. If the roll fails, apply 1 critical hit to the radical heat sink system, starting with the upper-most undamaged slot.

RADICAL HEAT SINK FAILURE TABLE

Number of Turns Used*	Avoid Failure On
0	2
1	3
2	5
3	7
4	10
5	11
6+	Auto-Fail

*Consecutive turns only; each turn not used reduces the failure avoidance check by 1 level (to a minimum roll of 2).

For each turn the unit does not use its radical heat sink system, the failure chance reduced by one level, to a minimum failure roll of 2 or less. (Astute players will notice that this failure chance is the same as that of the MASC system.)

Unlike the coolant pod, the radical heat sink system will not explode if it suffers a critical hit in combat. Instead, a damaged device will leak coolant from the unit's entire heat exchange system for the remainder of the scenario. To reflect this effect, increase the heat costs for all movement actions by +1 every time a unit with a damaged radical heat sink system moves (even fighters will add +1 heat for any turn in which they expend Thrust). Furthermore, if a unit with a damaged radical heat sink system fires any weapons, apply an additional +1 heat to the total weapon heat generated in that turn. (Moving and firing weapons thus adds +2 total heat to the unit that does so with a damaged radical heat sink system.)

Construction Rules: Only BattleMechs, IndustrialMechs, and aerospace fighters may mount a radical heat sink device, which must be placed in a torso location. A unit may mount only one radical heat sink system at a time, and may not mount coolant pods on the same unit. The radical heat sink system may be pod-mounted.

RE-ENGINEERED LASERS

Introduced: 3130 (Federated Suns)

The "re-engineered" laser weapon was developed in an attempt to mate the high-power effects of Clan heavy lasers with the enhanced accuracy and high-firing rate of a pulse laser. Numerous revisions to balance the heat, damage, and range factors that made such a design impractical, finally resulting in a weapon scarcely more effective than standard-model lasers, but for one curious feature: the ability to completely defeat the beneficial effects of anti-laser specialty armors. This effect is largely due to a high-frequency/short-pulse compromise system that emerged in the laser's redesign, which delivers a powerful twin burst to roughly the same impact point that, while not potent enough to produce a great deal more damage than standard hits, has the benefit of boring away through several of the newer armor types introduced since the Jihad—including laser-reflective, ferro-lamellor, and even hardened armor—while still delivering enough explosive force to make up for the damage lost in the effort.

Re-engineered Laser Rules

Rules Level: Advanced
Available to: BM, IM, PM, CV, SV, AF, CF, SC, DS, JS, SS, WS, MS
Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: Even though they are technically pulse lasers, re-engineered lasers only apply a –1 to-hit modifier to weapon attacks, as their pulses are too brief and close together to gain the full targeting modifier of such weapons. Re-engineered lasers ignore the damage-reducing effects of laser-reflective armor, ferro lamellor armor, and even hardened armor. (In all of these cases—even hardened armor—this means that the armor is damaged as if it is standard armor when hit by a re-engineered laser, with the number of armor points lost equal to the re-engineered laser's damage value.)

Construction Rules: Re-engineered lasers may be mounted in accordance with the appropriate unit's standard construction rules for mounting weapons.

REMOTE DRONE COMMAND CONSOLE

Introduced: 3140 (Republic of the Sphere)

This specially modified form of the Cockpit Command Console enables units with limited seating space—particularly BattleMechs and fighters—to operate a remote drone via the second pilot in the unit's cockpit area. Though a simple enough evolution of technologies that have existed since the days of the Star League, the fact that conventional, vehicle-based drone carrier control systems already existed precluded any real need for such a system. It was thus not until quite recently that remote drone operation was integrated into a "dual cockpit" system, with the first prototypes introduced by Lyran engineers in recent Solaris arena duels as a gimmick, before showing up in RAF usage.

Remote Drone Command Console Rules

Rules Level: Advanced
Available to: BM, IM, AF, CF
Tech Base (Ratings): Inner Sphere (E/XXXF)
Game Rules: A unit using a Remote Drone Command Console (RDCC) adds a MechWarrior damage condition monitor to its record sheet, to reflect the drone operator occupying the command console. During any End Phase, this "secondary warrior" may swap positions with the unit's pilot, effectively becoming the unit's pilot while the other warrior takes on the secondary position.

For 'Mech and fighter units, the secondary warrior suffers no damage from ammunition explosions, though heat effects and damage done to the cockpit location does affect both warriors. (For 'Mech-based consoles, both warriors must make Piloting Skill rolls to avoid damage in the event of a fall.) If the primary cockpit slot in a BattleMech or aerospace unit is destroyed, the secondary pilot automatically takes over the unit. If both cockpit slots are destroyed, the unit is considered destroyed per standard rules.

The secondary warrior uses the RDCC to remotely operate a single unit that has been fitted with a Drone (Remote) Operating System (see p. 306, *TO*). When doing so, the console functions in the same manner as a Drone (Remote) Carrier Control System (see pp. 304-305, *TO*). The operator of a RDCC can control only a single drone during a single game turn, but may switch to any other available friendly drone at the start of a subsequent turn. (For the purposes of these rules, a friendly remote drone is considered to be "available" if the drone is functional, free from interference, and not already under the control of another command console or carrier control system.)

Construction Rules: Remote Drone Command Consoles must always be placed in the same location as the primary cockpit (usually the head of a 'Mech or the body of a vehicle). A Remote Drone Command Console cannot be placed on a unit that also has either a Cockpit Command Console or a Drone (Remote) Carrier Control System.

TIGHT-STREAM ELECTRO-MAGNETIC PULSE (TSEMP) WEAPONS

Introduced: 3095 (Republic of the Sphere [TSEMP OS]), 3109 (Republic of the Sphere [TSEMP Cannon])

Tight-stream electromagnetic pulse weapons (TSEMPs for short) were derived from abandoned Word of Blake research based on the original Star League's Centurion Weapon System project. First introduced by the Republic of the Sphere as a single-shot version, a newer repeating-fire version eventually followed.

As the name implies, TSEMPs are basically targeted-EMP weapons, intended to disrupt or even shut down opposing machinery—including BattleMechs—without relying on the harpoon line/fusion surge of Jihad-era tasers. Although their use also tends to interfere with the firing unit's other advanced electronics, stealth equipment, and targeting systems, the TSEMPs' effectiveness and reusability eventually rendered taser weapons obsolete.

TSEMP Weapon Rules

Rules Level: Advanced
Available to: BM, IM, PM, CV, SV, AF, CF, SC, MS
Tech Base (Ratings): Inner Sphere (E/XXXE)
Game Rules: TSEMP weapons are only effective against targets weighing no more than 200 tons and only deliver effects against conventional infantry if they are cybernetically augmented (in which case, a successful TSEMP attack is resolved as a standard machine gun, delivering 2D6 burst damage to the unit).

Both the TSEMP Cannon and the one-shot TSEMP (TSEMP OS) deliver attacks in the same manner as standard direct-fire energy weapons, but ignore any effects from specialty defenses (such as heat-resistant and laser-reflective armors or the Blue Shield PDS).

Except as noted above when attacking cybernetically-augmented infantry, TSEMPs inflict no physical damage to a target unit. Instead, upon any successful hit, the attacker makes a second 2D6 roll to determine the effects, applying a –2 to the result if the unit is powered by steam engines, or –1 if the unit is powered by internal combustion engines. An additional –2 modifier is added if the target weighs 100 tons or more. Any modified result of less than 2 is treated as a 2.

TSEMP EFFECTS TABLE

Target Unit	No Effect (2D6 roll)*	Interference (2D6 roll)*	Shutdown (2D6 roll)*
BattleMech	2-6	7-8	9+
IndustrialMech	2-5	6-7	8+
ProtoMech	2-5	6-8	9+
Battle Armor**	2-5	6-7	8+
Combat Vehicles	2-5	6-7	8+
Support Vehicles	2-4	5-6	7+
Aerospace Fighter/Small Craft	2-6	7-8	9+
Conventional Fighter	2-5	6-7	8+
Target Mass: 100+ tons	–2 to roll	–2 to roll	–2 to roll
Target Mass: 200+ tons	NA	NA	NA
Mobile Structure	NA	NA	NA
Conventional Infantry	NA	NA	NA

*Apply a –2 to the roll result if the target is powered by a Steam engine (–1 for ICE engines)
**For simplicity, a TSEMP attack against battle armor affects the entire squad equally

The TSEMP Effects Table shows the range of results the roll result required to cause any effects by target unit type. A result of that falls under the "No Effect" range for a unit indicates that the target suffers no significant effect from the attack. A result that falls under "Interference" indicates that the target's sensors and electronics experience a surge that will apply a +2 to-hit modifier for all weapon attacks and sensor operation checks, while also treating the target unit as though it is operating within a hostile ECM field. A result that falls under the "Shutdown" column indicates that the unit experiences a shutdown effect.

Any effects from a successful TSEMP attack will last until the End Phase of the turn after the target unit was hit, after which the target will resume operating normally. An effect of "NA" means the specified target cannot be affected by a TSEMP attack.

In addition to affecting its target, the unit firing a TSEMP will automatically suffer the effects of a TSEMP-delivered Interference effect on itself (as described above). Furthermore, because the TSEMP Cannon requires time to recharge, the weapon cannot be fired in consecutive turns.

Multiple TSEMP weapon attacks against the same target in the same turn add a +1 modifier to the Effects roll against that target (to a maximum stacking modifier of +4). Each Effects roll resolves separately, so the first TSEMP hit resolves with no stacking modifier, while the second receives a +1 stacking modifier, the third receives a +2, and so forth. This stacking effect only applies to the Effects roll, however; multiple Interference effect results will not stack.

Critical hits to a TSEMP Cannon (or a TSEMP OS that has not yet been fired) will result in a 10-point internal explosion due to the intense power surge that is released. This is treated in the same way as a Gauss weapon explosion. Like Gauss weapons, TSEMP explosions cannot be triggered by excess heat.

Construction Rules: TSEMP weapons may be mounted in accordance with the appropriate unit's standard construction rules for mounting weapons. TSEMP cannons can only be mounted and used by units powered by fusion or fission engine types. The TSEMP One-Shot may be mounted on units powered by non-fusion engines, but will require heat sinks and power amplifiers as per the normal rules for mounting an energy weapon on such units.

DARK AGE RISC EQUIPMENT (DARK AGE)

Introduced: Variable (See Rules)

The Republic Institute of Strategic Combat (RISC) was a short-lived think tank that developed a range of experimental weapon and equipment systems throughout the 3130s. Some of these developments—often based on already-existing equipment—reached prototype status and found their way to the field as such, but many remained on the drawing board.

Though some of these advanced technologies proved impressive in their limited applications, many also suffered from catastrophic failure rates. As a result, only one piece of RISC technology—the advanced point-defense system—was eventually adopted by Republic industries and reached production status by the end of the Dark Age era. The rest were abandoned by the mid-3140s.

RISC ADVANCED POINT DEFENSE SYSTEM

Introduced: 3134 (Republic of the Sphere [Battle Armor]), 3137(Republic of the Sphere [Standard])

The advanced point defense system (APDS) was developed as an improved anti-missile system, boasting increased accuracy and a broader field of fire than possible with previous ballistic and energy-based models. Using enhanced target triangulation, this defensive weapon could engage any missile attack that passed within ninety meters of its position. Unfortunately, the APDS lacked the ability to function effectively in aerospace applications, and proved itself prone to rapid ammo-depletion as a consequence of its greater range and sensitivity.

Despite these flaws, the APDS project was spared a premature cancellation when Rhodes Foundry Ltd. managed to introduce an effective small-scale version for use on battle armor. First deployed on their "Aegis" suits (a customized variant on StarCorps' Angerona model), the reduced-size APDS made it possible for battle armor troops to help protect larger units against missile fire.

Advanced Point Defense System Rules

Rules Level: Advanced
Available to: BA, BM, IM, CV, SV, MS
Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: The APDS functions as a standard anti-missile system in game play (see pp. 129-130, *TW*), with the following exceptions:

- The APDS is ineffective when used by aerospace units (including airborne Support Vehicles and mobile structures).
- As long as it is active, an APDS may engage any missile weapon attack directed against a friendly unit within the APDS' range and firing arc.
- If engaging a missile attack made against its own unit (or against a friendly unit in its own hex), the APDS applies a –4 modifier to missile attack's roll on the Cluster Hits Table (Streak launchers are presumed to have made a base roll of 11 for the purposes of this rule.) This modifier increases by 1 for every hex away from the APDS-equipped unit that the system attempts to defend. Thus, if defending an adjacent friendly unit, the APDS applies a –3 Cluster Hits modifier; a –2 modifier if defending a friendly unit 2 hexes away; and a –1 modifier when defending a friendly unit 3 hexes away. The APDS cannot engage missile flights farther than 3 hexes away. When in doubt, the hex nearest to the unit being defended by an APDS is used to identify the appropriate Cluster Hits Table modifier.
- If the modified Cluster Hits Table roll result is less than 2, the missile flight is completely destroyed by the APDS.
- If the missile weapon normally fires only a single missile in a shot (such as a Narc Missile Beacon), roll 1D6: on a result of 1-3 the missile is destroyed, on a result of 4-6 the missile strikes the target. Modify the result by +1 if the defending a unit up to 2 hexes away or by +2 if defending a unit 3 hexes away.
- Battle armor squads equipped with an APDS use this system as a group, but reduce the range 0 Cluster Hits effect to –3 if only 2 or 3 troopers are active in the squad; and –2 if the squad has only 1 active trooper remaining. (A squad of 4 or more troopers receives the normal –4 Cluster Hits effect at range 0.) All other effects for range remain as indicated above.
- Each APDS may only engage 1 missile attack per turn, regardless of how many APDS items the unit mounts in the same arc. (Battlesuit squads with APDS equipment are always counted as a single APDS for the purposes of these rules, and thus can only engage one missile flight per squad.) It is therefore up to the player controlling any unit with multiple APDS mounts to identify which APDS is engaging which missile flight.
- The defensive abilities of an APDS may be combined with that of a different anti-missile system type (be it standard, Clan, or laser-based). In this case, a single missile flight may only be targeted by 1 APDS and 1 AMS in the same turn. In this case, the Cluster Hits roll is modified by the effective modifiers of both systems together, imposing a modifier as severe as –8 against the attack. Once more, an effective Cluster Hits roll reduction to less than 2 will indicate the complete destruction of the entire missile flight.
- Each time a standard APDS is used, it consumes 1 shot of ammo and generates heat in accordance with the item's standard rules. (As with all ballistic weapons, battlesuit APDS units do not track ammunition in normal gameplay.)
- As a ballistic weapon, the APDS generates no heat when fired by non-heat tracking units.

Construction Rules: Units may mount more than one standard APDS, but must follow the core construction rules for the unit regarding ammunition placement and such. Though classed as a heavy weapon, the APDS is automated, and does not require gunners on any unit type. It does, however, require advanced fire control systems to be mounted on support vehicles, IndustrialMechs, and mobile structures.

The battle armor version of the APDS may only be mounted on battle armor units, weighs 350 kilograms, and requires 2 item slots on the suit's chassis. The battlesuit APDS may be installed in modular mounts. Each additional magazine of battlesuit APDS ammo weighs 15 kilograms and provides 6 rounds of fire.

Airborne support vehicles (including airship, fixed-wing, and satellite support vehicles) and airborne mobile structures may not mount the APDS.

RISC EMERGENCY COOLANT SYSTEM

R&D Start Date: 3135 (Republic of the Sphere)
Prototype Design and Production: 3136 (Republic of the Sphere)

The Federated Suns' "Radical Heat Sink" system was already more than ten years old when the Republic of the Sphere began its research into improvements in the technology aimed at lessening its overall mass and bulk. Combined with other heat-management technologies, such as the heat sink override kit and super-cooled myomers, this improved coolant system could theoretically aid any 'Mech in maintaining its battlefield prowess even under intense fire—a crisis often faced by RAF units in the wake of the HPG network failure.

While the ultimate outcome of these projects could have collectively made it possible to devote more tonnage than ever before, the prototypes that emerged for each one left much to be desired. The emergency coolant system, for example, proved more prone to catastrophic rupture than the radical heat sink system, with the added hazard of damaging the unit's engine as well. The decision to wire the ECS up in such a way that it could not be deliberately overused mitigated the effects somewhat, but not enough for the system to ever pass approval for mass production.

Emergency Coolant System Rules

Rules Level: Experimental
Available to: BM, IM
Tech Base (Ratings): Inner Sphere (F/XXXF)
Game Rules: The emergency coolant system automatically triggers in the End Phase of any turn where the unit's heat level 14 points or higher. At heat levels of 13 points or less, the system simply will not engage, even though it is "always on" for the purposes of resolving critical damage.

Each time an emergency coolant system is triggered, the unit's controlling player must roll 2D6 and compare it to the emergency coolant system Failure Table, based on the number of consecutive turns the device has been activated at that point. If this roll equals or exceeds the number indicated in the Avoid Failure On column, the device continues to work normally, and will reduce the unit's current heat level by 6 points plus the roll's margin of success.

If the roll fails, the emergency coolant system will suffer a catastrophic blow-out, which not only destroys the system itself, but inflicts an automatic critical hit to the first critical slot of the engine in the coolant system's location. (If there are no engine critical slots available in the system's location, the critical engine hit "transfers" to the next-most inward section of the unit's body and inflicts a critical engine hit there instead.) On top of this, the unit will leak coolant so badly that the heat costs for all movement actions will be increased by +1 heat point for any movement actions other than standing still, and an additional +1 heat point must be applied to the total heat generated if the unit fires any weapons during the Combat Phase.

A blow-out caused by a failed system failure roll is not treated as an internal ammo explosion for pilot damage purposes, and inflicts no additional structural damage.

For each turn the unit does not use its emergency coolant system, the failure chance is reduced by one level, to a minimum failure chance of 3 or less.

If the emergency coolant system suffers a critical hit, it will explode for 5 points of internal structure damage, resolved as a standard ammo explosion, with critical damage checks made in accordance with standard rules. Additionally, the 'Mech will suffer from the same coolant leak effect for movement and weapons fire as detailed above. Because a critical hit releases the system's pressure more directly, the automatic engine critical does not occur in this case.

EMERGENCY COOLANT SYSTEM FAILURE TABLE

Number of Turns Used*	Avoid Failure On
1	3+
2	5+
3	7+
4	10+
5	Auto-Fail

*Consecutive turns only; each turn not used reduces the failure avoidance check by 1 level (to a minimum roll of 3).

Construction Rules: Only BattleMechs and IndustrialMechs may mount an emergency coolant system (ECS). Such units may only mount 1 ECS at a time, and must place the system in a location that also contains engine critical slots. The ECS cannot be combined with a radical heat sink system or coolant pods on the same unit, but may be combined with a heat sink override kit, super-cooled myomers, and all of the heat sink types available to 'Mechs.

The emergency coolant system may not be pod-mounted, but can be part of an OmniMech's base chassis.

RISC HEAT SINK OVERRIDE KIT

R&D Start Date: 3133 (Republic of the Sphere)
Prototype Design and Production: 3134 (Republic of the Sphere)

RISC's heat sink override kit was a somewhat dubious side project at best. Little more than a modification of the engine temperature sensors, backed up by a software patch, the override kit impairs the normal emergency shutdown process, slowing it down by a combination of false data reporting and mechanical inhibitors in the engine itself. Overall, this makes it easier for pilots to abort a heat-induced shutdown without overtly removing all safety protocols entirely, but accomplishes little else to boost the 'Mech's performance. In fact, field tests of the system have demonstrated a chance for catastrophic engine damage as a result of an ill-timed override, a condition that can cripple the unit at a critical moment, when simply better heat management would have averted such a disaster.

Heat Sink Override Kit Rules

Rules Level: Experimental
Available to: BM, IM
Tech Base (Ratings): Inner Sphere (D/XXXF)
Game Rules: The heat sink override kit applies a –2 target modifier to the MechWarrior's roll to avoid a shutdown from extreme heat levels. The kit only applies to shutdown avoidance checks, however, and has no effect on ammunition explosion checks, pilot damage from extreme heat, and the like.

In addition, on an unmodified shutdown-avoidance roll of 2, the heat sink override will catastrophically malfunction, causing damage to the unit's engine. Resolve this effect as a critical hit check to the 'Mech's center torso, applying 1 additional critical hit to the roll result. (Thus, a roll result of 7 or less will still cause 1 critical hit, while a roll result of 12 will inflict 4 critical hits, rather than 3.) All critical hits that result from an override kit malfunction are applied to the 'Mech's engine, starting with the top-most undamaged engine slot and continuing downward. If all of the 'Mech's center torso engine slots are marked off in this manner, the engine is considered destroyed and cannot be repaired. Excess engine critical hits from an override failure are not applied elsewhere, and have no further effect.

Construction Rules: The heat sink override kit can only be installed on a 'Mech, and occupies no weight or critical slots. Nevertheless, an override kit must be noted among the unit's weapon list on the record sheet.

RISC HYPER LASER

R&D Start Date: 3133 (Republic of the Sphere)
Prototype Design and Production: 3134 (Republic of the Sphere)

The hyper laser may have been the ultimate development in heavy laser technology. Despite being derived from Clan-made improved heavy lasers, the hyper laser prototypes were constructed entirely by RISC engineers.

Pushing the physical limits of modern laser shielding and plasma lasing chemistry, the hyper laser promised both incredible range and destructive power, but the prototypes demonstrated immense physical and thermal stress that made the weapon especially prone to explosive malfunctions. In at least one Republic "false flag" operation, this catastrophic flaw turned the tide of battle against a *Mad Cat Mk IV* that had been specially fitted with hyper lasers, and likely contributed to the project's eventual cancellation.

Hyper Laser Rules

Rules Level: Experimental
Available to: BM, IM, CV, SV, CF, AF, SC, DS, JS, WS, MS
Tech Base (Ratings): Inner Sphere (F/XXXF)
Game Rules: The hyper laser functions as a standard laser weapon in game play. In addition, much like improved heavy lasers, the hyper laser will explode if it suffers a critical hit. An exploding hyper laser will deliver 10 points of damage to the unit's structure and immediately destroys all of the weapon's critical slots.

Worse still, any unmodified attack roll result of 2 or 3 by a hyper laser will result in the same effects as a critical hit against the weapon, and will deliver no damage to the target (even if the roll would ordinarily result in a hit).

Construction Rules: Hyper lasers may be mounted in accordance with the appropriate unit's standard construction rules for mounting energy weapons. Due to the considerable power requirements of the weapon, a fusion or fission engine is required for any unit that is to carry a hyper laser.

RISC LASER PULSE MODULE

R&D Start Date: 3134 (Republic of the Sphere)
Prototype Design and Production: 3137 (Republic of the Sphere)

The advanced RISC laser pulse module picked up on truncated research into X-Pulse lasers dating back to the days of the Clan Invasion. Designed to achieve the rapid-fire effect of pulse lasers through use of a special add-on module affixed to standard lasers, its goal was to retain the standard laser's inherent range, rather than sacrifice hitting distance for accuracy.

While arguably one of the most promising of RISC's endeavors, the laser pulse module never reached production status before the RISC was absorbed into various military branches and industries. The prototypes that hit the field therefore offered only a modest improvement in providing standard lasers with pulsing capability, while simultaneously producing an increased cost in heat and the potential for catastrophic failure that could destroy both the pulse module and the laser to which it was attached.

Laser Pulse Module Rules

Rules Level: Experimental
Available to: BM, IM, PM, CV, SV, CF, AF, SC, DS, JS, WS, MS
Tech Base (Ratings): Inner Sphere (F/XXXF)
Game Rules: Any standard or ER laser modified by a RISC laser pulse module may select to fire in standard mode—using its existing heat, damage, range, and attack modifiers—or pulse fire mode. The pulse fire mode retains the weapon's range and damage values, but applies an additional –2 to-hit modifier to the atack, and increases the weapon's total heat generated by 2 points (regardless of weapon size).

In addition to the above, if an undamaged laser pulse module suffers a critical hit, or if pulse module-modified laser rolls an unmodified attack result of 2 while firing in pulse mode, the weapon's pulse module will catastrophically fail. The resulting explosion is treated as a 2-point internal ammunition explosion and destroys the pulse module, but instead of rolling for additional critical hits normally, the unit will suffer 1 automatic critical hit to the first undamaged slot of the laser weapon that the module was used to modify. In all other aspects, this damage is treated as an internal ammo explosion.

If a laser weapon modified by a pulse module suffers critical damage before its attached pulse module, the pulse module will be rendered inert as well. Pulse modules that are rendered inert will not explode if they suffer a critical hit later.

Lasers modified by a laser pulse module may make use of targeting computers in either mode of fire; as per the standard targeting computer rules, lasers firing in pulse mode cannot use the targeting computer to attempt an aimed shot.

Construction Rules: Laser pulse modules may be attached to standard or ER lasers of any size, as long as they are constructed using an Inner Sphere technology base. A laser pulse module may modify only 1 laser at a time, and cannot be stacked. A laser may not be modified by more than 1 laser pulse module.

Regardless of the size and class of laser being modified, its attached laser pulse module weighs 1 ton and occupies 1 critical slot. This module must be placed in the same location as the laser it modifies. In the case of turret-mounted lasers, this also means that the module weight and space is counted in the weapon weight of the turret mechanism.

For all non-'Mech units, the laser pulse module and the laser it modifies are considered a single weapon mount (support vehicles add 1 critical slot to the weapon, to correspond to the laser pulse module, but do not treat the module as a separate component). Vehicles and other non-heat tracking units must also mount additional heat sinks to account for the extra 2 heat points generated by a modified laser's pulse mode.

If the unit also carries a targeting computer, the weight of any laser pulse modules it carries must be counted as part of the weapon when calculating the computer's size or tonnage.

RISC REPEATING TSEMP

R&D Start Date: 3131 (Republic of the Sphere)
Prototype Design and Production: 3133 (Republic of the Sphere)

One of the Republic of the Sphere's most revolutionary weapons was the tight-stream electromagnetic pulse (TSEMP) cannon, an energy-based weapon designed to disable armored targets without destroying them. This effort was as much motivated by public relations as it was an effort to conserve battlefield resources; having long billed itself as the forerunners of a new age of peace, the RAF saw the TSEMP as a rare opportunity to demonstrate this ideal even in combat.

By the early 3130s, the Institute of Strategic Combat felt that even the reusable TSEMP cannon—itself an upgrade over an earlier one-shot version—could be further enhanced with an improved firing rate. Unfortunately, the so-called Repeating TSEMP never reached the same reliability as conventional TSEMP cannons. RISC still produced a small run of prototypes, some of which managed to reach the black market. The Republic only ever fielded this equipment on ad-hoc Omni configurations.

Repeating TSEMP Rules

Rules Level: Experimental
Available to: BM, IM, PM, CV, SV, AF, CF, SC, MS
Tech Base (Ratings): Inner Sphere (E/XXXF)
Game Rules: Repeating TSEMP follows the same rules as the TSEMP cannon (see pp. 90-91), but—unlike the TSEMP cannon—the repeating TSEMP may fire every turn.

As with a TSEMP cannon, critical hits to a repeating TSEMP will result in a 10-point internal explosion due to the intense power surge released. This is treated in the same way as a Gauss weapon explosion. As with Gauss weapons, TSEMP explosions cannot be triggered by excess heat.

In addition to the above, the repeating TSEMP will also suffer the same effects as a critical hit on any unmodified attack roll of 2 made when using the weapon. A repeating TSEMP that explodes in this fashion will deliver no effects to the target, even if the roll would ordinarily hit.

Construction Rules: Repeating TSEMPs may be mounted in accordance with the unit's appropriate standard construction rules for mounting energy weapons, but only units powered by fusion or fission engine types may carry or use a repeating TSEMP.

RISC SUPER-COOLED MYOMER

R&D Start Date: 3132 (Republic of the Sphere)
Prototype Design and Production: 3132 (Republic of the Sphere)

Super-cooled myomer (SCM) was a RISC experiment that was abandoned not because of its ambitious scope, but because it represented a dead-end in the face of current technologies. Interlacing myomers with special friction-reducing fluids and secondary coolant lines, and sheathing key bundles in an extra layer of thermal insulation, the new musculature all but eliminated waste heat caused by routine movement.

The system was abandoned before the increased vulnerability of the cooling system was addressed, largely because superior heat dissipation systems already existed, and the added complexities involved in producing, installing, and maintaining super-cooled myomers rendered the concept far more troublesome to employ than it was worth.

Super-Cooled Myomer Rules

Rules Level: Experimental
Available to: BM
Tech Base (Ratings): Inner Sphere (F/XXXF)
Game Rules: A BattleMech equipped with super-cooled myomers does not generate any movement heat for walking, running, sprinting, or executing any other movement actions that use ground MPs. When using jumping or UMU MPs, the 'Mech will generate movement heat per its normal rules.

Unlike other myomer types that occupy critical slots, critical hits to super-cooled myomer slots are not rerolled, but instead are marked off as component damage. When a super-cooled myomer slot is hit (or a location containing super-cooled myomer slots is destroyed), mark off one of the unit's heat sinks, to reflect a loss of the unit's overall heat dissipation capability. Super-cooled myomers will still retain their ability to negate ground movement heat after suffering critical hits, but only as long as at least 1 of the myomer's critical slots are not destroyed.

Critical hits to other heat sinks on the unit are resolved as normal. If a unit with super-cooled myomers suffers enough critical hits—to both myomers and heat sink slots alike—to destroy more heat sinks than the unit actually features, additional critical hits to super-cooled myomer slots will have no further effect.

The use of super-cooled myomers also applies the effects of a Difficult to Maintain Design Quirk to the unit if maintenance and repair rules are in play (see pp. 193-199, *SO*).

Construction Rules: Super-cooled myomers can only be installed on BattleMechs (but not on IndustrialMechs), and may not be combined with MASC or triple-strength myomer on the same unit. The 6 critical slots occupied by super-cooled myomers must be distributed across the unit's arms, legs, and side-torsos (each location receives 1 critical slot apiece). Super-cooled myomer may not be pod-mounted, but can be used as part of an OmniMech's base chassis.

RISC VIRAL JAMMERS

R&D Start Date: 3135 (Republic of the Sphere)
Prototype Design and Production: 3136 (Republic of the Sphere [Decoy Jammer]), 3137 (Republic of the Sphere [Homing Jammer])

RISC's viral jammers might have been the ultimate weapon in electronic warfare, could they have been made more stable and reliable in the field. Effectively devised as a kind of smart "hacking" software—at least distantly related to the first Star League's Centurion weapon system—these systems produced a massive barrage of almost-randomly generated code that could interfere with hostile sensors and networking systems. The effect could overload enemy systems with indecipherable "junk data", creating a far more persistent effect than standard ECM fields alone.

The transmitter system and the purpose-built computers used to make these viral jammers work, however, proved to be volatile. With modern sensor arrays and electronics warfare equipment fairly well hardened against external interference, these jammers had to be purpose-built to defeat particular electronics system types, and burned out quickly in the effort to overpower these systems' inherent safeguards against interference.

This was particularly exacerbated by the fact that the viral jammers were literally "fire-and-forget" technology, incapable of shutting down once engaged, and so aggressive in countering foreign signals that they could potentially interfere with friendly and hostile EW systems alike. Although RISC's specialists were reportedly able to program the jammers to synchronize with friendly electronics, improper coordination protocols or a flaw in the jammers' design often saw the system cause havoc to friend and foe alike.

Viral Jammer Rules

Rules Level: Experimental
Available to: BM, IM, PM, CV, SV, MS
Tech Base (Ratings): Inner Sphere (F/XXXF)
Game Rules: Viral jammers can only be used by units on the ground map. Airborne units (including airborne support vehicles, mobile structures, or any other unit type that uses Thrust Points), cannot effectively use viral jammer units unless they are landed.

Regardless of the type used (decoy or homing), a viral jammer may be activated at the start of the unit's turn, as a free action during the unit's Movement Phase. Once activated, the jammer may not be disengaged for the remainder of the game, but will become inactive if the unit shuts down for any reason (such as overheating or destruction). A viral jammer that becomes inactive for any reason cannot be restarted during the scenario, and must be replaced.

Each turn a viral jammer is active, the controlling player must roll 2D6 during the Combat Phase to determine if the jammer continues to function normally. The target number for this roll is 3, plus the number of turns the jammer has been active by that point. Once this target number exceeds 12, the jammer will automatically fail.

Once a viral jammer fails its check, the device suffers an automatic critical hit, and is considered destroyed. As above, a viral jammer that becomes inactive as a result of this roll cannot be reactivated for the remainder of the scenario and must be replaced.

An active viral decoy jammer may disable all ECM systems (including Angel, Nova, and Watchdog suites, as well as EW equipment), within 17 hexes of the operating unit. Any stealth systems that rely on a functioning ECM will cease to work as well, but will continue to produce heat as per the normal rules until deactivated.

An active homing jammer may disable all Apollo and Artemis systems (including Artemis IV, Artemis V and ATM versions), C^3 systems of all types (including Nova and Boosted C^3), Narc beacons (including iNarc), Streak missile systems, and homing ammunition within 17 hexes of the jamming unit. (TAG will still function, but because homing ammunition will be affected, this targeting gear will be rendered useless.) Streak launchers will still be able to fire, but will function as standard launchers of the appropriate range and rack size, and therefore will fire even on a missed shot, and will require rolls on the Cluster Hits table to resolve successful attacks.

To determine if a unit's electronics succumb to an active viral jammer, first determine whether the unit has a valid line of sight to the jamming unit, and if it has electronics that might be affected by the jammer in question. If so, the controlling player must roll 2D6. If the result is 9 or higher, the target unit will avoid the effects of the jammer for the current turn. On a result of 8 or less, all of the unit's electronics—based on the jammer type employed—will be rendered inoperative for the remainder of the turn. As long as the jammer is active, this check must be made at the beginning of each subsequent turn. A unit with an active viral jammer must also make the check to avoid its effects.

Construction Rules: Viral jammers may be mounted in accordance with the appropriate unit's standard construction rules, but only one jammer of any type may be mounted on a single unit. Vehicles that mount a viral jammer require sufficient heat sinks to offset the viral jammer's heat.

EARLY CLAN IMPROVED EQUIPMENT (EARLY CLAN)

Introduced: Variable (See Rules)
Extinct: Variable (See Rules)

The Clans' ancestors carried with them great stores of knowledge that was lost to the Inner Sphere after the fall of the Star League. As the self-declared exiles evolved in their distant homeworlds, they used this information as the springboard for the development of the advanced weapons that would terrorize the Inner Sphere when they returned in 3050.

During this transitional period, the scientists of what would become the Clans developed a range of intermediate weapons that were soon superseded by the familiar weapons seen today. Most of these were simply lighter and more compact versions of the standard versions that had became so familiar over the centuries. But a few—like the Enhanced PPC reportedly deployed first by Clan Wolverine—made more significant improvements in performance that would spark the true leap to modern Clan-spec weaponry.

With most of these weapons only produced for less than twenty years, these weapons were long vanished from active service by the time the Clans came to the Inner Sphere, but occasionally, some appeared on ancient BattleMechs and vehicles that were pressed back into service centuries after they had been mothballed.

GENERAL EARLY CLAN IMPROVED WEAPONS RULES

Rules Level: Experimental
Available to: BM, IM, PM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS
Tech Base (Ratings): Clan (E/XDXX)

Although they are created using a Clan technology base, the rules for using and mounting the various Early Clan-era improved weapons largely follow those of their original Inner Sphere analogs, as found in *TechManual* and *Total Warfare*. Additional details are provided for each class of weapons below.

IMPROVED LASERS

Introduced: 2818 (Improved Large Laser), 2820 (Improved Large Pulse Laser)
Extinct: 2830 (Improved Large Laser), 2826 (Improved Large Pulse Laser)

The improved lasers used by the early Clans included the standard large laser and the large pulse laser. In both cases, engineering and machining refinements rendered these weapons smaller and more compact than their forebears, without sacrificing performance.

Improved Laser Rules

Game Rules: Both the improved large laser and the improved large pulse laser perform in the same fashion, and with the same heat, damage, range, and to-hit modifiers as those made using the Inner Sphere technology base.

Construction Rules: Both improved laser types may be mounted on any unit in accordance with the unit's standard construction rules regarding energy weapons.

IMPROVED AND ENHANCED PPCS

Introduced: 2820 (Improved PPC), 2823 (Enhanced PPC)
Extinct: 2832 (Improved PPC), 2831 (Enhanced PPC)

As with laser weapons, the improved particle weapons developed by the proto-Clans focused on lighter and more space-efficient manufacturing. But where the improved PPC simply made the standard model smaller without sacrificing power, the enhanced PPC improved on the destructive output of the Star League's extended-range version.

Improved and Enhanced PPC Rules

Game Rules: The improved PPC performs in the same fashion, and with the same heat, damage, range, and to-hit modifiers, as the standard Inner Sphere PPC, while the enhanced PPC matches the Inner Sphere ER PPC in all of the same ways except for its increased damage.

Construction Rules: Improved and Enhanced PPCs may be mounted on any unit in accordance with the unit's standard construction rules regarding energy weapons. As with other PPCs, OmniMechs mounting improved or enhanced PPCs must remove their lower arm and hand actuators in any arm location where an improved or enhanced PPC is placed.

IMPROVED AUTOCANNON

Introduced: 2818 (All)
Extinct: 2833 (All)

Early Clan ballistic weapons tech also benefited from advanced metallurgy and construction techniques that rendered these classics of warfare lighter and more compact. These weapons enjoyed only a brief service life before more significant advances to the Ultra and LB-X autocannon types rendered standard-model cannons obsolete.

Improved Autocannon Rules

Game Rules: All four improved standard autocannons perform in the same fashion, and with the same heat, damage, range, and to-hit modifiers as those made using the Inner Sphere technology base.

Construction Rules: Improved autocannons may be mounted on any unit in accordance with its standard construction rules for ballistic weapons. Vehicles and units powered by non-fusion engines do not require heat sinks or power amplifiers to use them, but all units mounting autocannons will require at least 1 ton of ammunition.

As with the standard rules, improved autocannons that occupy 8 critical slots or more may be divided among two adjacent locations on a 'Mech unit, if desired. Weapons so divided use the most restrictive firing arc of the two locations. Non-'Mech units may not divide a single weapon among multiple locations. OmniMechs must also remove lower arm or hand actuators in any arm location where an improved autocannon is being mounted.

Improved autocannons may make use of all specialized ammo, with the exception of the LB-X cluster munitions (which may be used only by LB-X AC types).

IMPROVED GAUSS RIFLE

Introduced: 2822 (Improved Gauss Rifle)
Extinct: 2837

Clan technology would scarcely improve the performance of the standard Gauss rifle beyond its Star League-era glory, but the improved version nevertheless demonstrated how Kerensky's disciples proceeded along that path.

Improved Gauss Rifle Rules

Game Rules: Gauss rifle capacitors remain charged (and thus explosive) throughout game play, even if the unit is shut down or its crew/pilot is unable to act, and an improved Gauss rifle will deliver a 20-point internal explosion if it suffers a critical hit. As with most early Clan improved weapons, the improved Gauss rifle has the same heat, damage, range values, and shots-per-ton as its Inner Sphere version.

Construction Rules: Improved Gauss rifles may be mounted on any unit per standard weapon and equipment rules for Gauss rifles. Bipedal OmniMechs that choose to mount a Gauss rifle in the arm must remove that arm's hand actuator before doing so.

IMPROVED STANDARD MISSILE LAUNCHERS

Introduced: 2817 (Improved SRMs), 2818 (Improved LRMs)
Extinct: 2828 (Improved SRMs), 2831 (Improved LRMs)

A marvel of miniaturization, the Clans reduced the weight of their LRM launchers by half and somewhat reduced their bulk. Further improvements would create the familiar Clan LRM, which even eliminated the weapon's minimum range deficiencies.

Going a different direction, however, were the improved SRMs that appeared a full year before the new LRMs. Utilizing more powerful launch mechanisms, the early Clan weapons-makers increased the SRMs' effective range by one-third, even though launchers themselves remained about the same weight and size as their original counterparts. Combining this advancement with the more accurate Streak targeting system would eventually consign the improved SRM to obscurity, but not before other manufacturing upgrades enabled the Clans to shrink their standard SRM launchers to half their original weight.

Improved Standard Missile Launcher Rules

Game Rules: Improved LRM launchers come in all the same rack sizes as their Inner Sphere equivalents, and maintain the same heat, ranges, per-missile damage, cluster tables, and volley-per-ton values as well. Improved SRM launchers, meanwhile, use the same heat, per-missile damage, cluster hits tables, and magazine sizes as their Inner Sphere counterparts—but boast the range brackets of the modern Clan Streak SRM instead.

Construction Rules: Improved missile launchers may be mounted on any unit in accordance with the unit's standard core construction rules for missile weapons. On BattleMechs, IndustrialMechs and Support Vehicles, improved missile launchers may be enhanced by Artemis IV (or V) fire-control systems, but must allocate both the launcher and the Artemis system to the same location, and must upgrade *all* applicable launchers on the unit in the same fashion. Artemis systems on such units may be given a separate critical slot as the launcher can still fire with a damaged Artemis, but this slot must be placed in the same body location as the launcher it modifies. (All other units that carry Artemis-enhanced launchers—such as combat vehicles, fighters and DropShips—install the combined launcher and Artemis system as a single weapon.)

Omni units that mount improved missile launchers capable of using Artemis must adhere to the above rules, even if the launcher is hardwired into the base configuration. For example, an OmniMech that hardwires an improved SRM launcher in its Center Torso location in such a way as to leave no extra critical slots in that area may not subsequently add Artemis-enhanced missile launchers to a later configuration, as the Center Torso SRM has no room for its own enhancement.

Improved missile launchers are compatible with all special munitions types that are available for the standard missile launcher of corresponding type and rack size.

EARLY CLAN PROTOTYPE SYSTEMS (EARLY CLAN)

In addition to improving on the existing technologies of the Star League, the nascent Clans also began to expand on many weapon systems in the years just prior to Operation KLONDIKE. During their conquest of the war-ravaged Pentagon worlds, several of these prototype weapons (identified by the suffix "-CP") saw extensive field testing. These items would eventually evolve into their final Clan-spec forms

GENERAL EARLY CLAN PROTOTYPE SYSTEMS RULES

Rules Level: Experimental
Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS
Tech Base (Ratings): Clan (E/XFXX)

The rules for using and mounting the various Early Clan-era prototype items featured here use the baseline abilities (heat, damage, range, and so forth) of their production-grade Inner Sphere versions as seen in *TechManual* and *Total Warfare*. Additional details are provided for each item class below.

Note: Because these items represent the prototype-phase versions of equipment that later went into standard production, in place of extinction dates, these items feature "Standard Production" dates. This date indicates the point where the technology matured into its final "Clan-spec" form as reflected by the item's normal rules. After this standard production date, the prototype versions featured here were gradually phased out of service, with most fully retired after just a few years.

ER LASERS (ER-CP)

Introduced: circa 2819 (Clan Jade Falcon)
Standard Production: 2824 (Clan Jade Falcon [Medium]), 2825 (Clan Jade Falcon [Small])

Advanced laser technologies were among the first to be mastered by the Clans, but during Operation KLONDIKE testing was still underway on the new systems. Experimental versions of the small- and medium-sized versions of the extended-range laser (ER-SL-CP and ER-ML-CP) were available during the return to the Pentagon.

ER Lasers (Clan Prototype) Rules

Game Rules: Both the ER small and ER medium lasers perform in the same fashion as their Inner Sphere versions.

Construction Rules: Both prototype ER laser types may be mounted on any unit in accordance with the unit's standard construction rules regarding energy weapons. Once again, these weapons use the construction values of their Inner Sphere versions as a baseline, though the Clan prototype ER medium laser weighs 1.5 tons, rather than 1.

LB-X AUTOCANNON (LB-X-CP)

Introduced: circa 2820 (Clan Coyote)
Standard Production: 2825 (Clan Coyote [5-X]), 2826 (Clan Goliath Scorpion [2-X], and Clan Hell's Horses [20-X])

Early Clan prototypes of the LB 2-X, 5-X and 20-X (the LB-X-CPs) also underwent testing during Operation KLONDIKE. Though a little less effective and a little more bulky than their modern Inner Sphere-made equivalents, all three of these autocannons paved the way for what became known as the Clan standard.

LB-X Autocannon (Clan Prototype) Rules

Game Rules: The Clan prototype LB 2-X, 5-X, and 20-X autocannons (LB 2-X-CP, 5-X-CP, and 20-X-CP) all use the same rules as their production-grade Inner Sphere versions, except that, when firing cluster munitions, these prototypes must apply a –1 roll modifier on the Cluster Hits Table upon a successful attack. A roll result of less than 2 on this roll is treated as a 2.

Construction Rules: Aside from occupying 1 more critical slot than its Inner Sphere equal, the Clan prototype LB 2-X, 5-X, and 20-X autocannons may be mounted on any unit in accordance with its normal rules for mounting such weapons. Ammunition for all Clan prototype LB-X autocannons may only be installed in full-ton lots.

As with the standard rules, LB-X autocannons that occupy 8 critical slots or more may be divided among two adjacent locations on a 'Mech unit, if desired. Weapons so divided use the most restrictive firing arc of the two locations. Non-'Mech units may not divide a single weapon among multiple locations. OmniMechs must also remove lower arm or hand actuators in any arm location where an LB-X autocannon is being mounted.

STREAK SRM (STREAK-CP)

Introduced: circa 2819 (Clan Star Adder)
Standard Production: 2826 (Clan Star Adder)

In the final years of the Star League-in-Exile, SLDF researchers and weapons manufacturers attempted to increase the size of the Streak SRM launchers to include four- and six-missile racks. While they had some limited success, the true breakthroughs would not come until the beginning of the Golden Century, when Clan scientists conquered problems with the Streak targeting and guidance systems in the larger rack sizes. Experimental versions of Streak SRM-4 and -6 racks were available in limited quantities during and immediately after Operation KLONDIKE.

Streak SRM (Clan Prototype) Rules

Game Rules: Although designated as Streak SRM launchers, the Clan prototypes were actually less ammunition-efficient, but slightly more accurate than their modern Inner Sphere equivalents. To reflect this, the Clan prototype Streak SRM-4 and Streak SRM-6 use the same heat, per-missile damage, range, and shots-per-ton as their Inner Sphere version, but resolve attacks as follows.

First, the Clan prototype Streak-4 and Streak-6 each receive a –1 to-hit modifier. Second, even if a shot from a Clan prototype Streak-4 or Streak-6 misses, the weapon will still fire and generate heat. Finally, upon a successful hit, the Clan prototype Streak-4 and Streak-6 launchers apply a +4 roll modifier on the Cluster Hits Table (treating any modified result over 12 as a 12 result).

Missile-enhancing technologies such as Artemis and Narc are incompatible with Clan prototype Streak launchers, and will have no effect on their operation when used.

Construction Rules: Clan prototype Streak missile launchers may be mounted on any unit in accordance with the unit's standard core construction rules for Streak missile weapons. They are incompatible with Artemis IV (or V) fire-control systems, and no such systems are required for Clan prototype Streak launchers if the unit uses other launchers that have them.

Clan prototype Streak missile launchers may only carry Streak missiles for the standard missile launcher of corresponding type and rack size.

Note: When mounted on aerospace units, prototype Streak launchers receive an effective attack value equal to a roll result of 11 on the appropriate weapon's Cluster Hits column.

ULTRA AUTOCANNON (UAC-CP)

Introduced: circa 2820 (Clan Sea Fox)
Standard Production: 2825 (Clan Sea Fox [AC/10], Steel Viper [AC/20]), 2827 (Clan Goliath Scorpion [AC/2])

Prototype versions of the Ultra Autocannon/2, /10, and /20 all saw limited use with the Clans during Operation KLONDIKE. As with the other weapons of this era, the final evolution of modern "Clan-spec" versions would not come until after the conquest of the Pentagon worlds and the dawn of the Golden Century.

Ultra Autocannon (Clan Prototype) Rules

Game Rules: The Clan prototype Ultra AC/2, Ultra AC/10, and Ultra AC/20 (UAC/2-CP, UAC/10-CP, and UAC/20-CP) all use the same rules as their production-grade Inner Sphere versions, except that these weapons will suffer failure when firing at double-rate on any unmodified to-hit roll of 3 or less, rather than just a 2 result. As with production-grade Ultra autocannons, Clan prototype Ultra autocannon that suffer this kind of weapon jam will remain inoperative for the remainder of the scenario, and may not be cleared "in the field".

Construction Rules: Aside from occupying 1 more critical slot than its Inner Sphere equal, the Clan prototype Ultra autocannons/2, /10, and /20 may be mounted on any unit in accordance with its normal rules for mounting such weapons. Ammunition for all Clan prototype Ultra autocannons may only be installed in full-ton lots.

As with the standard rules, Ultra autocannons that occupy 8 critical slots or more may be divided among two adjacent locations on a 'Mech unit, if desired. Weapons so divided use the most restrictive firing arc of the two locations. Non-'Mech units may not divide a single weapon among multiple locations. OmniMechs must also remove lower arm or hand actuators in any arm location where an Ultra autocannon is being mounted.

EXPANDED PROTOMECHS (WARS OF REAVING)

Introduced: 3083 (Quadruped [Clan Cloud Cobra]), 3083 (Ultraheavy [Clan Coyote]), 3084 (Glider [Clan Snow Raven])

Three new classes of ProtoMechs emerged during the Wars of Reaving: Ultraheavy ProtoMechs (Ultras), ProtoMech Quads (ProtoQuads), and Glider ProtoMechs (Gliders). Each of these offered specific advantages that further enhanced their combat potential, and all were developed first by the rebellious scientists who united in a short-lived rebellion against the warrior castes. While the fallout of this act led many Clans to abandon ProtoMechs altogether, a few not only retained the unique unit class, but also adopted many of the innovations the "Society" had introduced.

Ultraheavy ProtoMechs (Ultras)

Pushing ProtoMech design techniques to their limits, Ultraheavy ProtoMechs can reach a maximum weight of 15 tons (15,000 kilograms), overlapping the tonnage of Ultralight BattleMechs. Achieving this without using BattleMech-scale components—including gyros—meant creating a larger control system based around a modified PA(L) suit. In addition to giving the Ultra the same flexibility of control, this suit-based cockpit and control unit doubles as an escape system for ProtoMech warriors, something not possible for lighter, standard-weight ProtoMechs.



Ostensibly attempting to regain order, a swarm of Clan Blood Spirit Cecerops *ProtoMechs breach the inner wall of Kerensky's Bloodchapel.*

ProtoMech Quads (ProtoQuads)

Though conceived as early as 3065, quadruped-style ProtoMechs faced numerous minor design hurdles, not the least of which was the unique quirk of the pilot-ProtoMech interface that virtually demanded a human-style gait and mobility. When these issues were worked out—either through intensive training or use of the Society's infamous Feralize treatments—the four-legged ProtoMechs that resulted achieved faster mobility and greater payload capacity than their bipedal equivalents. ProtoQuads could even make use of turret-based weapons similar to the Inner Sphere's four-legged battlesuits, and could be built in the standard weight range as well as the Ultraheavy category.

Glider ProtoMechs (Gliders)

Uniquely designed for bipedal Ultras as a consequence of the design's specialized motive systems, Gliders are low-altitude, limited-flight ProtoMechs that rely on a combination of thrust and glide wings that effectively mimic how LAMs operate in AirMech mode. Their elaborate flight systems, which include an adapted form of ProtoMech partial wing technology, modified jump thrusters, and a specialized musculature, are specifically designed to give them greater mobility in the air. As a result, Gliders have very little ground speed. Glider ProtoMechs can be deployed in vacuum or underwater, but they are incapable of using their WiGE-style movement capabilities in either situation.

EXPANDED PROTOMECH GAME RULES

Rules Level: Advanced
Available to: PM
Tech Base (Ratings): Clan (F/XXED [Quad]; XXEE [Glider] XXDD [Ultraheavy])

All three of these unique ProtoMech types will operate using the same organization and rules of play as standard ProtoMech units (see pp. 184-187, *TW*), except as modified below:

Expanded ProtoMech Movement Rules

Non-Glider ProtoMech Movement: All non-Glider ProtoMechs—including standard, quadruped, and Ultraheavy versions—use the standard ground movement rules for ProtoMechs. If these units possess jump jets, partial wings, or underwater maneuvering units (UMUs), these items will also work in accordance with their normal rules for non-Glider ProtoMechs, with all normal terrain restrictions, modifiers, and movement effects applied.

Glider ProtoMech Ground Movement: Glider ProtoMechs that have landed may only move 1 MP (Walking) on the ground in any turn. All normal movement costs for terrain and turning apply to Glider ProtoMechs as they do for other ProtoMechs on the ground.

Glider ProtoMech WiGE Movement: Glider ProtoMechs use their thrusters and wings to "fly" in a fashion similar to a miniature Land-Air BattleMech (LAM) in its hybrid (AirMech) mode. To reflect this, they use a modified form of the WiGE rules in *Total Warfare* (see p. 55, *TW*), except that Glider ProtoMechs only require a minimum of 4 WiGE MP (and working legs) to take off, and must spend a minimum of 4 WiGE MP per turn to remain aloft. Glider ProtoMechs may also increase (or decrease) their gliding height by spending 1 WiGE MP per elevation change (akin to VTOL movement rules), and can even hover in one hex by spending 4 WiGE MP in that hex doing so. Lacking the thrust power of LAMs, however, Glider ProtoMechs may not ascend higher than 12 levels above the underlying terrain in this fashion.

Glider ProtoMech Landing Movement: To safely land, a Glider ProtoMech with functioning legs must simply return to the level of the underlying terrain and make a special Landing Check, rolling 2D6 against a target number of 4. If the roll result is less than 4, or if the Glider ProtoMech has suffered leg destruction (or leg damage resulting in a No Movement critical hit), the landing fails, and the Glider ProtoMech suffers damage equal to 2 times the total number of levels it descended during the turn its landing was attempted, allocated directly to the Glider's legs. (Excess leg damage transfers to the torso per normal rules.)

Expanded ProtoMech Firing Arcs

Non-Quadruped ProtoMechs: All non-quadruped ProtoMechs—including standard, Glider, and Ultraheavy versions—use the standard firing arc and torso rotation rules for ProtoMechs. If these units possess main gun mounts, these weapons will also function in accordance with their normal rules for non-quadruped ProtoMechs, including restrictions on firing main guns together with arm-mounted weapons, and the ability to fire into forward and side arcs together, and combining this ability with torso facing.

Quadruped ProtoMechs: Quadruped ProtoQuads use the same firing arcs that four-legged BattleMechs do, including the inability to twist their torsos. Quadruped ProtoMechs equipped with a main gun mount, however, treat any weapons placed in that location as if they are housed in a vehicle turret, complete with a full 360-degree rotation arc.

Ultraheavy Main Gun Mounts: In the case of Ultraheavy ProtoMechs of any kind, a main gun that mounts more than one weapon must use the same firing arc for these main gun weapons, based on the unit's current rotation. Thus, an Ultraheavy quadruped ProtoMech with two weapons in its main gun mount would need to fire both weapons to the rear if that was the direction its main gun was rotated to face in that turn.

Expanded ProtoMech Attack Rules

For Glider ProtoMechs on the ground, and all other ProtoMech types, the standard rules for resolving attacks based on the appropriate movement modifiers and terrain apply.

Glider ProtoMechs using WiGE movement must apply a +1 attacker to-hit modifier to any attacks they make when using WiGE Cruising MP; if using WiGE Flank MP, this attacker to-hit modifier becomes +2 instead. When attacks are made *against* a Glider ProtoMech using its WiGE MP, the Glider ProtoMech receives the standard additional +1 to-hit modifier applied for attacks against jumping or airborne targets.

For line of sight purposes, all ProtoMechs—regardless of weight and configuration—are considered to stand only 1 level tall.

Expanded ProtoMech Hit Locations

All attacks against a ProtoMech are resolved using the normal ProtoMech hit locations table, except as follows:

Glider ProtoMechs: Any successful attack against a Glider ProtoMech that strikes a "Near Miss" hit location still inflicts no armor damage to the Glider itself. However, this near miss *will* strike the Glider's more delicate wing structure or flight systems, regardless of the attacking weapon's actual damage value. This hit inflicts no actual damage to the Glider's armor, but will reduce the Glider's WiGE Cruising MP by 1 (to a minimum of 0). The Glider's WiGE Flanking MP must then be recomputed accordingly. If, through this damage, a Glider ProtoMech is reduced to less than 4 WiGE MP while in flight, the unit will become unable to remain aloft and must immediately follow the rules for crash-landing (see *Glider ProtoMech Crash Landing*, p. 100).

Quadruped ProtoMechs: Because four-legged ProtoMechs do not have arm locations, hits to the arm locations automatically strike the legs. Like bipedal ProtoMechs, ProtoQuads only have one hit location for their legs, which covers all four of them.

EXPANDED PROTOMECH TORSO WEAPON CRITICAL HIT TABLE

1D6 Roll	Weapon Critical Hits			
	Standard (Biped)	Standard (Quad)	Ultra (Biped)*	Ultra (Quad)
1	Torso Weapon A	Torso Weapon A	Torso Weapon A	Torso Weapon A
2	Torso Weapon A	Torso Weapon B	Torso Weapon A	Torso Weapon B
3	Torso Weapon B	Torso Weapon C	Torso Weapon B	Torso Weapon C
4	Torso Weapon B	Torso Weapon D	Torso Weapon B	Torso Weapon D
5	No Effect	No Effect	Torso Weapon C	Torso Weapon E
6	No Effect	No Effect	Torso Weapon C	Torso Weapon F

*Includes Glider ProtoMechs.

Expanded ProtoMech Critical Hits

For all ProtoMechs, a critical hit to the torso marked with an asterisk (*) indicates that a torso-mounted weapon (if any) may be destroyed. To determine which weapon is hit, roll 1D6 and consult the Expanded ProtoMech Torso Weapon Critical Hit Table. If the listed weapon does not exist or has already been destroyed, no additional weapon critical effects occur.

Glider ProtoMechs: In addition to the other rules for critical hits, any Jumping MP loss created by critical hits to a Glider ProtoMech's torso will instead affect the Glider ProtoMech's WiGE Cruising MP. Recompute Flanking MP accordingly any time a Glider's WiGE Cruising MP are reduced. As with near miss effects, if this damage reduces the Glider to less than 4 WiGE MP while the unit is still in flight, the unit will suffer a crash landing effect (see p. 100).

Ultraheavy Quadruped Main Guns: Ultraheavy ProtoMechs may carry up to two weapons in their main gun turrets, but a single critical hit to this location still destroys the mount completely—and with it, both weapons installed therein.

Expanded ProtoMech Physical Attacks

ProtoMechs of all kinds may execute the frenzy physical attack in accordance with the normal rules (see p. 187, *TW*), but with the following additions.

Glider ProtoMechs: If in flight, a Glider ProtoMech can only inflict a frenzy attack against a target at the same elevation as it is currently operating. However, because the Glider is airborne, reduce its normal frenzy damage value by 1 point (to a minimum of 1).

Note that if the target of the Glider ProtoMech's physical attack is a 'Mech unit, the Glider ProtoMech's elevation, relative to the target, must be taken into consideration when resolving the appropriate hit locations that may be struck by its frenzy. A Glider ProtoMech operating at the same height as a 'Mech's upper body will thus deliver damage using the appropriate Punch Hit Locations Table, while a Glider ProtoMech operating at the same height as a 'Mech's lower body will deliver its frenzy damage using the appropriate Kick Hit Locations Table.

Quadruped ProtoMechs: The quadruped ProtoMech's frenzy attack delivers the same damage as a normal ProtoMech frenzy.

Ulraheavy ProtoMechs: The base damage for an Ultraheavy ProtoMech's Frenzy attack is 3 points. Despite their greater weight, Ultras still lack the ability to effectively carry and wield clubs the way 'Mechs can.

ProtoMech Melee Weapons: Any melee weapons the ProtoMech mounts will modify this value according to the standard rules for such equipment.

Glider ProtoMech Crash-Landing

If critical damage or near miss effects reduce a Glider ProtoMech to less than 4 WiGE Flank MP while airborne, the Glider ProtoMech cannot remain aloft and drops to the level of the underlying terrain. At this point, the pilot must make an emergency landing check against a target number of 8. If this check fails (or if the Glider ProtoMech has suffered leg destruction and/or a No Movement critical hit), the Glider ProtoMech will suffer 2 damage points for every level of height it has fallen. Apply this crashing damage randomly in 5-point clusters.

Ultraheavy ProtoMech Ejection System

The pilot of an Ultraheavy ProtoMech (biped, quadruped, or Glider) may use the same ejection rules as a 'Mech (see pp. 196-197, *TO*). Because the cockpit location is in the torso, the ejection modifiers based on damage to the 'Mech's head structure instead apply based on the damage done to the ProtoMech's torso structure.

If an Ultraheavy ProtoMech suffers its third critical hit to the torso (Proto Destroyed) location, or suffers a complete loss of all torso structure, the pilot will auto-eject using the same rules as a 'Mech that has suffered the destruction of its head location (see p. 197, *TO*).

An ejected Ultraheavy ProtoMech pilot follows the same rules as an ejected MechWarrior. Because there is no room in the Ultraheavy ProtoMech's cockpit for hostile environment gear, ProtoMech warriors who eject into hazardous environments—such as vacuum, underwater, toxic atmospheres, and so forth—will suffer their full effects.

EXPANDED PROTOMECH CONSTRUCTION RULES

The following additional rules modify those presented for constructing ProtoMechs using *TechManual* (see pp. 80-89, *TM*).

Maximum ProtoMech Weight

The maximum weight for a ProtoMech is now 15 tons (15,000 kilograms). ProtoMechs are still built in 1-ton (1,000-kilogram) increments. ProtoMechs weighing 10 to 15 tons are classified as Ultraheavy ProtoMechs (or Ultras).

Chassis Type Restrictions

ProtoMechs of all weights (including Ultraheavy ProtoMechs) may be constructed using either the bipedal or quadruped (quad) chassis types. Glider ProtoMechs may only be constructed using the bipedal Ultraheavy ProtoMech chassis type.

ProtoMech Structure and Armor Table

The Expanded ProtoMech Structure and Armor Table shows the weight for each ProtoMech's internal structure (by ProtoMech tonnage), as well as the number of internal structure boxes per location, and the maximum armor limits of each location.

As with standard ProtoMechs, Ultraheavy ProtoMechs, ProtoMech Quads, and Glider ProtoMechs may install a Main Gun at their option. Even though the ProtoMech Quad Main Gun functions as a turret, it does not require any additional tonnage devoted to its turret mechanisms.

ProtoMech Weight and Space Limits (by Location)

The slot and weight limits for each Advanced ProtoMech type are shown on the Expanded ProtoMech Location Restrictions Table.

EXPANDED PROTOMECH STRUCTURE AND ARMOR TABLE

ProtoMech Tonnage	Structure Weight	Internal Structure Boxes (Max. Armor) Head	Torso	Arms* (Left/Right)	Legs* (Both)	Legs* (Quad, All)	Main Gun**	Armor Factor (Without/ With Main Gun)
2	200 kg	1 (3)	2 (4)	1 (2)	2 (4)	4 (8)	1 (3)	15/18
3	300 kg	1 (3)	3 (6)	1 (4)	2 (4)	4 (12)	1 (3)	17/20
4	400 kg	1 (4)	4 (8)	1 (4)	3 (6)	5 (14)	1 (3)	22/25
5	500 kg	1 (4)	5 (10)	1 (4)	3 (6)	5 (14)	1 (3)	24/27
6	600 kg	2 (5)	6 (12)	2 (4)	4 (8)	8 (16)	1 (3)	33/36
7	700 kg	2 (5)	7 (14)	2 (4)	4 (8)	8 (16)	1 (3)	35/38
8	800 kg	2 (6)	8 (16)	2 (4)	5 (10)	9 (18)	1 (3)	40/43
9	900 kg	2 (6)	9 (18)	2 (4)	5 (10)	9 (18)	1 (3)	42/45
10	1,000 kg	3 (7)	10 (20)	3 (6)	6 (12)	12 (24)	2 (6)	51/57
11	1,100 kg	3 (7)	11 (22)	3 (6)	6 (12)	12 (24)	2 (6)	53/59
12	1,200 kg	3 (8)	12 (24)	3 (6)	7 (14)	13 (26)	2 (6)	58/64
13	1,300 kg	3 (8)	13 (26)	3 (6)	7 (14)	13 (26)	2 (6)	60/66
14	1,400 kg	4 (9)	14 (28)	4 (6)	8 (16)	14 (28)	2 (6)	65/71
15	1,500 kg	4 (9)	15 (30)	4 (6)	8 (16)	14 (28)	2 (6)	67/73

*Quad (four-legged) ProtoMechs do not have arms; to find the Internal Structure and Max. Armor Boxes for a Quad ProtoMech, use only the Legs (Quad, All) column in place of the standard Arms and Legs columns.

**The Main Gun is an optional ProtoMech component, which provides no internal structure boxes (or armor) when not installed.

EXPANDED PROTOMECH LOCATION RESTRICTIONS TABLE

Protomech Location	Maximum Items (Combined Weight)* Standard (Biped)	Standard (Quad)	Ultra (Biped)**	Ultra (Quad)
Head	0 / 0 kg	0 / 0 kg	0 / 0 kg	0 / 0 kg
Torso	2 / 2,000 kg	4 / 5,000 kg	3 / 4,000 kg	6 / 8,000 kg
Arms, Each	1 / 500 kg	N/A	1 / 1,000 kg	N/A
Legs	0 / 0 kg	0 / 0 kg	0 / 0 kg	0 / 0 kg
Main Gun	1 / Unlimited	1 / Unlimited	1 / Unlimited	2 / Unlimited

*Ammunition is not counted toward combined weight or item slots; missile launchers comprised of multiple same-type missile tubes are counted as one weapon for purposes of determining item limits.

**Includes Glider ProtoMechs

ProtoMech Engine Rating and Mobility Formulas

When finding the desired Engine Ratings of a ProtoMech, determine the ProtoMech's desired Running MP. For Glider ProtoMechs (which have a maximum Walking and Running MP of 1, regardless of Engine Rating), use the desired WiGE Flanking MP. As with 'Mechs and vehicles, the Running/Flanking MP of a ProtoMech is equal to 1.5 times its Walking/Cruising MP.

For bipedal, non-gliding ProtoMechs (including bipedal Ultraheavy ProtoMechs), the ProtoMech Engine Rating formula remains unchanged. Quadruped and Glider ProtoMechs receive an efficiency bonus due to their unique designs, enabling them to get more MP out of a given Engine Rating. To reflect this, subtract 2 from the desired Running/WiGE Flanking MP for ProtoMech Quads and Glider ProtoMechs. (Glider ProtoMechs must also receive a minimum WiGE Flanking MP of 4; ProtoQuads must have a minimum Running MP of 3.)

No ProtoMech may receive an Engine Rating of 0 or less.

As with standard ProtoMech construction rules, Engine Ratings of 39 or less weigh 25 kilograms per point of Engine Rating. ProtoMech Engine Ratings of 40 or more must round up to the nearest 5 points, and then use the weight for the appropriate standard fusion engine shown in the Master Engine Table (see p. 49, *TM*).

ProtoMech Jump Jets and Other Mobility Enhancements

Under these rules, all ProtoMech types except for Glider ProtoMechs may install jump jets (standard and extended), ProtoMech UMUs, ProtoMech partial wings, or the ProtoMech myomer booster system per those systems' standard rules. (**Note:** Jump jets and UMUs for Ultraheavy ProtoMechs weigh 150 kg per Jumping MP).

Because of their incorporated thrusters, lifting surfaces and specialized musculature, Glider ProtoMechs may not mount any special motive enhancements, including jump jets, partial wings, UMUs or myomer boosters.

ProtoMech Control Systems

For all ProtoMechs under 10 tons, the standard 500-kilogram control system must be used. ProtoMechs over 9 tons must assign 750 kilograms to their cockpit systems, to reflect the enhanced power armor-style control and ejection system these units use.

Expanded ProtoMech Engine Rating and Mobility Formulas
Running/WiGE Flanking MP = Desired Walking/WiGE Cruising MP x 1.5 (round up)
Biped Non-Glider ProtoMech Engine Rating = ProtoMech Tonnage x Running MP ProtoMech
Quad Engine Rating = ProtoMech Quad Tonnage x (Running MP – 2)
Glider ProtoMech Engine Rating = Glider ProtoMech Tonnage x (WiGE Flanking MP – 2)*

*Glider ProtoMechs always receive a Walking and Running MP of 1 for ground movement, regardless of Engine Rating. Remember that a Glider ProtoMech requires a minimum of 4 WiGE MP to take off.

EXPANDED PROTOMECH JUMP JET WEIGHT TABLE

ProtoMech Weight	Jump Jet Weight
2 to 5 tons	50 kg/Jumping MP
6 to 9 tons	100 kg/Jumping MP
10 to 15 tons	150 kg/Jumping MP

INNER SPHERE PROTOMECH INTERFACE (JIHAD)

R&D Start Date: circa 3063 (Word of Blake)
Prototype Design and Production: circa 3071 (Word of Blake)

Only deployed in extremely limited circumstances—and possibly a prototype form of what became the Machina Domini system—the Word of Blake's prototype ProtoMech interface used Manei Domini technology to operate captured Clan ProtoMechs. Essentially based around a modified cockpit module that works in place of the Clan version, it combined the Word's standard vehicular direct neural interface (VDNI) implant technology with a self-contained life support system meant for specialized warriors.

With little space to spare (because the Clan ProtoMechs were built for small-framed aerospace pilot washouts), the Word of Blake ProtoMech operators could only be Manei Domini who were also quadruple amputees—effectively reducing the pilot to an armless, legless torso and head that would be wired directly into the machine.

INNER SPHERE PROTOMECH INTERFACE GAME RULES

Rules Level: Experimental
Available to: PM
Tech Base (Ratings): Inner Sphere (E/XXFX)

The Word of Blake's ProtoMech interface enables the use of ProtoMechs in the same fashion as Clan warriors with EI neural implants, but requires that the pilot be fitted with a standard (non-buffered) VDNI implant. The implanted pilot may not possess any limbs—prosthetic or otherwise—but may be equipped with other cybernetic modifications including dermal armor and cybernetic eye, ear, and other internal organ replacements.

In gameplay, a ProtoMech operated via an Inner Sphere ProtoMech interface will function in the same manner as a standard ProtoMech. The interface lacks any form of ejection or escape systems.

INNER SPHERE PROTOMECH INTERFACE CONSTRUCTION RULES

When fitted with an Inner Sphere ProtoMech interface, the ProtoMech is considered a Mixed Technology unit. The interface cockpit weighs as much as a standard ProtoMech cockpit, and occupies no space on the ProtoMech's record sheet.

INNER SPHERE RECOVERED PROTOTYPES (LATE SUCCESSION WARS)

The discovery of the famous Helm Memory Core (also known as the Gray Death Memory Core) in 3028 sparked a resurgence of research and development in Star League-era technologies that had been lost since the early Succession Wars. By the time of the War of 3039, many of these technologies had re-entered limited production, though many still lacked the refinements of their final Star League-era specifications.

GENERAL INNER SPHERE RECOVERED PROTOTYPES RULES

Rules Level: Experimental
Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS
Tech Base (Ratings): Inner Sphere (E/XFXX)

The rules for using and mounting the various Late Succession Wars-era prototype items featured here use the baseline abilities (heat, damage, range, and so forth) of their production-grade Inner Sphere versions as seen in *TechManual* and *Total Warfare*. Additional details are provided for each item class below.

Note: Because these items represent the prototype-phase versions of equipment that later went into standard production, in place of extinction dates, these items feature "Standard Production" dates. This date indicates the point where the technology matured into its final form as reflected by the item's normal rules. After this standard production date, the prototype versions featured here were gradually phased out of service, with most fully retired after a decade.

DOUBLE HEAT SINKS (FREEZERS)

Introduced: 3022 (Federated Suns)
Standard Production: 3040 (Federated Suns)

Unlike many technologies fielded during the War of 3039, the rediscovered Star League-era double heat sinks were not extracted from the Helm Memory Core. Instead, Davion scientists first debuted an experimental double heat sink during the battle for Hoff, in 3022. During the Fourth Succession War the St. Ives Compact fielded several BJ-3X *Blackjack*s that showcased double heat sinks—an alleged case of simultaneous development, but one that more likely came about as a result of espionage.

It was not until after the War of 3039 ended that the NAIS, working on information from the Helm Memory Core, solved the final issues that enabled mass production of Star League-grade double heat sinks to begin.

Double Heat Sink (Recovered Prototype) Rules

The gameplay and construction rules for recovered prototype double heat sinks (freezers) are identical to those described under their Age of War-era prototype form under *Double Heat Sinks (DHS-P)* (see p. 71).

ENDO STEEL (ES-P)

Introduced: 3035 (Draconis Combine, Lyran Commonwealth)
Standard Production: 3040 (Draconis Combine)

While many realms were working to crack the secrets of Star League-era endo steel internal structure for their BattleMechs, the Draconis Combine was among the first to field working prototypes in time for the War of 3039. It was not until after the war's end, however, that they were able to produce the lightweight structure to its original Star League-era specifications.

Endo Steel Structure (Prototype) Rules

The gameplay and construction rules for recovered endo steel internal structure are identical to those described under their Age of War-era prototype form under *Endo Steel (ES-P)* (see p. 71).

ER AND PULSE LASERS (ER-LL-P AND MPL-P)

Introduced: 3030 (Federated Suns [ER Large Laser]), 3031 (Draconis Combine [Medium Pulse Laser])
Standard Production: 3037 (Draconis Combine [ER Large Laser and Medium Pulse Laser])

Advanced laser technologies were among the first to be mastered by the combatants involved in the War of 3039, but testing was still underway even during that conflict. The AFFS and LCAF both deployed experimental versions of the ER Large Laser (ER-LL-P) and Medium Pulse Laser (MPL-P) before then, but both armies would be surprised to learn that their Combine enemies had already managed to field their own fully-developed versions before the first shots of the war were fired. (This historical note is hotly debated, even today, as many suspect the Combine-made lasers were actually provided by ComStar via a secret deal with then-*Kanrei* Theodore Kurita.)

ER and Pulse Laser (Recovered Prototype) Rules

Game Rules: The recovered prototype ER large laser functions as its production-grade Inner Sphere counterpart, except that it suffers a +1 to-hit modifier to attack, and generates an additional 1D6 heat when fired.

The recovered prototype medium pulse laser also functions as its production-grade Inner Sphere version, but generates an extra +1D6 heat when fired.

This random heat generated by both weapons is rolled each time the weapon is fired, and applies in addition to the heat the weapons normally generate.

Construction Rules: A unit may mount one or more of both of these prototype lasers, in accordance with its normal rules for mounting such weapons.

Vehicles and other units that must mount heat sinks to offset energy weapons must mount enough heat sinks to cover the maximum number of extra heat points these weapons may generate when fired (+6 heat for both). Aerospace units must also assess the heat generated by these weapons as if the maximum result is rolled.

FERRO-FIBROUS ARMOR (FF-P)

Introduced: 3034 (Lyran Commonwealth)
Standard Production: 3040 (Draconis Combine)

As with Star League-era endo steel, the race to recover Star League-quality ferro-fibrous armor was close between the Draconis Combine and its enemies. The Lyran Commonwealth managed to produce the first prototypes of this technology before for the War of 3039, and shared it with its allies in the Federated Suns. But after the war's end, it was the Combine that first managed to put ferro-fibrous armor into general production.

Ferro-Fibrous Armor (Prototype) Rules

The gameplay and construction rules for recovered ferro-fibrous armor are identical to those described under their Age of War-era prototype form under *Ferro-Fibrous (FF-P)* (see p. 72).

GAUSS RIFLE (GAUSS-X)

Introduced: 3038 (Federated Suns, Lyran Commonwealth)
Standard Production: 3040 (Free Worlds League, Lyran Commonwealth, Draconis Combine)

While several realms raced to recreate one of the Star League's most effective anti-'Mech weapons, it was the Federated Suns and Lyran Commonwealth who fielded the first prototypes of the standard Gauss rifle (codenamed Gauss-X) in the last months of the war.

Gauss Rifle (Recovered Prototype) Rules

The gameplay and construction rules for the recovered prototype Gauss rifle are identical to those described under their Age of War-era prototype form under *Gauss Rifle (GR-P)* (see p. 72).

LB 10-X (LB-X-P)

Introduced: 3030 (Federated Suns)
Standard Production: 3035 (Federated Suns)

Alongside the Ultra autocannon/5, the recovered LB 10-X actually reached its final form before the onset of the War of 3039, but by then, several early prototypes had already been circulated throughout the AFFS and LCAF forces. As a result, many of these early, less-reliable versions saw action in combat years after they had already been rendered obsolete.

LB 10-X Autocannon (Recovered Prototype) Rules

The gameplay and construction rules for the recovered prototype LB 10-X autocannon are identical to those described under their Age of War-era prototype form under *LB 10-X (LB 10-X-P)* (see p. 72).

TRIPLE-STRENGTH MYOMER (TSM-X)

Introduced: 3028 (Capellan Confederation)
Standard Production: 3050 (Capellan Confederation)

Unlike most of the weapons and equipment that debuted in the late Succession Wars period, triple-strength myomers were not a recovery of ancient Star League lostech, but a wholly new invention. Developed during the Fourth Succession War, this enhancement for BattleMechs was deemed a failure by its original designers in the Federated Suns, and "leaked" to the Capellan Confederation as part of an elaborate spy game between the two realms.

While the ploy worked for House Davion initially, the Confederation would never give up on perfecting triple-strength myomers, a project that achieved success just in time for the Clan Invasion. Nevertheless, by that time, the CCAF had fielded many BattleMechs augmented by the older, prototype form of this musculature, and even the Federated Commonwealth states had begun producing IndustrialMechs that used the chemically unstable formula for their own use.

Triple-Strength Myomer (Prototype) Rules

Game Rules: Unlike standard triple-strength myomers, prototype triple-strength myomers do not require the unit to operate at any given heat level, nor do they modify the unit's movement rate at any heat level. The myomers are thus always active, unless the unit is shutdown. A unit with active prototype triple-strength myomers receives no additional MPs, but doubles its damage delivered by a successful punch, kick, or club attack, as well as any physical weapon attacks that may be modified by normal triple-strength myomer. A 'Mech augmented by prototype triple-strength myomer also doubles its normal lifting ability (see p. 261, *TW*).

The chemically unstable nature of these myomers, however, makes for difficult maintenance and a critical susceptibility to catalysts that were weaponized even before the first prototype TSM units walked out of Capellan hangars (see *Specialty Munitions: Anti-TSM Missiles*, p. 104).

When performing general maintenance on a unit with prototype triple-strength myomers (see pp. 169-175, *SO*), apply a +1 target number modifier to any maintenance rolls required. If repairing a unit augmented by prototype triple-strength myomers (see pp. 175-185, *SO*), double all repair/replacement times, and apply a +2 target number modifier for all repairs and replacements that involve the following components or conditions: internal structure, actuators, limb reattachment, or destroyed locations.

Construction Rules: Prototype triple-strength myomers use the same construction rules as their standard version.

ULTRA AUTOCANNON (UAC/P)

Introduced: 3029 (Federated Suns)
Standard Production: 3035 (Federated Suns)

While the Federated Suns had managed to perfect the Ultra autocannon/5 before the start of the War of 3039, prototype versions of this weapon were still in circulation and saw limited use with elite AFFS and LCAF forces throughout the conflict.

Ultra Autocannon (Recovered Prototype) Rules

Game Rules: The recovered prototype Ultra autocannon/5 uses the same rules as its production-grade Inner Sphere versions, except that these weapons will suffer failure when firing at double-rate on any unmodified to-hit roll of 4 or less, rather than just a 2 result. Even when fired normally, an unmodified attack roll of 2 will also jam the weapon. As with production-grade Ultra autocannons, recovered prototype Ultra autocannons that suffer this kind of weapon jam will remain inoperative for the remainder of the scenario, and may not be cleared "in the field".

Construction Rules: Aside from occupying 1 more critical slot than its production-standard version, the prototype Ultra autocannon/5 may be mounted on any unit in accordance with its normal rules for mounting such weapons. Ammunition for recovered prototype Ultra autocannons may only be installed in full-ton lots.

SPECIALTY MUNITIONS: ANTI-TSM ("GREEN SMOKE") MISSILES

Introduced: 3027 (Federated Suns)

According to the much-dramatized tales of the Fourth Succession War, anti-triple-strength myomer (Anti-TSM) missiles were originally developed as part of an elaborate ruse House Davion employed against the Capellan Confederation. Allowing the Capellans to capture an experimental myomer-boosting technology that NAIS engineers deemed too unstable for combat use, the anti-TSM missiles deployed a green chemical smoke that exploited known weaknesses in the myomer bundles to devastating effect. Because the post-war Confederation nevertheless persisted in fielding limited amounts of TSM-augmented BattleMechs and pursued its own research into perfecting the technology, anti-TSM munitions remained available—albeit in limited numbers—for decades after the war.

By 3050, the Confederation had resolved the issues that made their enhanced-myomer 'Mechs vulnerable to anti-TSM missiles, and the munitions lapsed out of production. Still, enough prototype-grade TSM remained in the CCAF arsenal to prompt many realms to maintain a stockpile of anti-TSM munitions. This proved fortuitous—especially for the Confederation itself—when triple-strength myomer was adapted to infantry-scale use by cybernetically augmented agents like the Word of Blake's Manei Domini.

Anti-TSM "Green Smoke" Missile Rules

Rules Level: Experimental
Available to: Any unit equipped with standard LRM, SRM, or MML launchers
Tech Base (Ratings): Inner Sphere (E/XXFF)
Game Rules: Anti-TSM missiles are incompatible with Streak, Artemis, and Narc systems, and can only be used by standard SRM and LRM launchers. Because these missiles lack the targeting capabilities of standard warheads (which had to be swapped out in favor of the gas canisters), reduce the number of warheads that strike a target on any given volley by half (rounding down to a minimum of 1 missile hit).

Wherever a volley of anti-TSM warheads strikes, it fills the hex with a green smoke that rises 2 levels above the underlying terrain and imposes to-hit modifiers as Heavy Smoke (see *Smoke*, pp. 47-48, *TO*). If a volley of anti-TSM rounds misses its target, roll 1D6 to determine a scatter direction and place the resulting green smoke 1 hex away from the targeted unit in that direction. The green smoke persists for 3 turns before it dissipates.

If the target of the attack is equipped with prototype TSM (see p. 104), or industrial TSM created before 3050 (see p. 143, *TW*), apply an additional 6 points of damage to any unarmored locations struck by an anti-TSM warhead or which are exposed to anti-TSM smoke (such as by entering or passing through a hex filled with green smoke). In addition, any time the target unit suffers a critical hit, increase the number of critical hits to that location by 1. Resolve each critical hit that results, even if the modified result indicates 3 critical hits or more, and transfer critical normally if no other slots are available in the affected location; anti-TSM missiles cannot cause a limb/head blown off effect except through damage.

If the target of an anti-TSM missile attack is a conventional infantry unit augmented with triple-strength myomer implants (see p. 81), resolve the attack as a standard missile attack, but apply an additional 2D6 burst damage to the unit to reflect the effects of the green gas. Reduce this extra damage to 1D6 if the unit is merely entering or passing through a hex filled with anti-TSM green smoke, or if it is attacked while equipped with environmental protection of some kind (such as environmental suits, space suits, marine combat environment suits, or any other form of infantry armor rated for vacuum and/or toxic environments; see pp. 317-318, *TO*).

If the target is not a unit equipped with prototype TSM, industrial TSM created before 3050, or conventional infantry equipped with triple-strength myomer implants, treat the green gas as heavy smoke, and resolve damage from the warheads that hit as an attack by an equivalent number of standard missiles.

Construction Rules: Anti-TSM missiles are compatible only with standard LRM and SRM missile launchers, and may only be carried in full-ton lots. A ton of anti-TSM missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes.

SPECIALTY MUNITIONS: LISTEN-KILL MISSILES

Introduced: 3037 (Federated Suns, Lyran Commonwealth)
Extinct: 3040

Listen-kill (L-K) missiles were developed for use with standard short- and long-range missile launchers as one of the earliest efforts to achieve an electronics advantage in the late Succession Wars period. While they provided an initial advantage to the allied Davion and Steiner forces, they proved easily thwarted even before the full recovery of Star League-era ECM suites and the like. By the end of the War of 3039, the L-K missile system was deemed unable to compete with the pace of modern technology and further development was discontinued.

Listen-Kill Missile Rules

Rules Level: Experimental
Available to: Any unit equipped with standard LRM, SRM, or MML launchers
Tech Base (Ratings): Inner Sphere (D/XXFX)
Game Rules: L-K missiles are incompatible with Streak, Artemis, and Narc systems, and can only be used by standard SRM and LRM launchers. When fielded in any scenario set before 3040, they provide a –1 modifier to the attacker's to-hit roll, but lose this ability when fired into or through ECM fields of any kind. If fielded after 3039, L-K missiles function like standard SRMs and LRMs of the appropriate size launcher.

Construction Rules: Listen-Kill missiles are compatible only with standard LRM and SRM missile launchers, and may only be carried in full-ton lots. A ton of L-K missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes.

SPACE STATION K-F ADAPTER

Introduced: 2350 (Terran Hegemony)
Standard Production: 2375 (Terran Hegemony)
Extinct: 2850 (Inner Sphere)
ReIntroduced: 3048 (Federated Suns)

The advent of the KF-boom for DropShips finally removed the weight limits imposed by internally-carried DropShuttles for interstellar voyages, and—in conjunction with the modern docking collars—paved the way for larger DropShips. This same technology, in the form of the space station KF adapter, also enabled an equally rapid deployment of space stations across the Inner Sphere. Though stations larger than a DropShip still had to be shipped in parts for local assembly, those weighing 100,000 tons and less could be transported to their destinations whole.

The Terran Hegemony used this modified KF boom technology to rapidly deploy battlesats and advanced listening posts along its borders. Though the technology fell into disuse during the Succession Wars (largely due to a dearth of station construction in that time), the Federated Suns revived it when they began to produce their *Capitol*-class system defense stations.

Space Station K-F Adapter Rules

Rules Level: Advanced
Available to: SS
Tech Base (Ratings): Both (C/DFDD)
Game Rules: A space station equipped with a K-F adapter may attach to the docking collar of a JumpShip or WarShip using the same procedure as a DropShip (see pp. 66-68, *SO*), except that the normal docking and undocking times are doubled, and neither the vessel nor the station may expend any Thrust while doing so.

Space stations may only dock with the collars on the JumpShip or WarShips' broadside locations (which must be noted prior to game play). While docked, the space station is fully shut down, and may not fire weapons, use sensors, or perform any special communications actions. Attacks from the carrying unit or against the docked space station are carried out as per the Attacks from Docked Units and Attacking a Docked Unit rules (see p. 67, *SO*).

Construction Rules: K-F adapters may be installed on any space station of 100,000 tons or less. The adapter itself is integrated into the station's hull, and takes up no mass or space on the station's record sheet, but will increase the station's C-bill cost.

LAND-AIR BATTLEMECHS (MULTIPLE ERAS)

Introduced: 2680 (Terran Hegemony [Bimodal]), 2688 (Terran Hegemony [Standard])
Extinct: 2688/3050 (Inner Sphere [Bimodal/Standard]), —/2825 (Clans [Bimodal/Standard])

The Land-Air BattleMech (or Land-Air 'Mech—abbreviated as LAM) began with the radical request of SLDF Admiral David Peterson, then-commander of the SLDF, for Terran Hegemony manufacturers to create a series of BattleMechs that could both fly and function as light ground units. Allied AeroSpace, Inc. won the first bid and soon debuted its *Shadow Hawk* bimodal LAM, but only a handful of these early convertible BattleMechs were built before competitors perfected the standard three-mode LAM that survived into the Succession Wars.

Although LAMs went on to form a prominent component of all SLDF divisions, they were more expensive to maintain than conventional BattleMechs, and required extensive cross-training to use effectively. Combined with limited upgradability and a high rate of attrition, few remained after the Liberation of Terra. Once the Successor States had annihilated their navies in the early Succession Wars, a growing emphasis on ground-based combat relegated the LAM to a battlefield curiosity that few commanders could effectively employ or afford to risk. By the Fourth Succession War, the best academy for LAM pilots took fully three times as long as the worst State MechWarrior academies to churn out qualified pilots. Worse, the depredations of the Succession Wars reduced LAM manufacturing to a bare trickle by the time of the Clan invasion, leaving fewer of these machines available to graduates each year. Pilots failing to earn LAM assignments found themselves mediocre MechWarriors or aerojocks compared to their peers and frequently died in combat without ever piloting a real LAM in battle.

When Clan Nova Cat destroyed the last LAM parts factory on Irece it marked the end for the struggling LAM. Though some Clans (notably the Jade Falcons) experimented with a dual-cockpit version for their own forces, and the Word of Blake's short-lived Spectral LAMs demonstrated a renewed interest in the concept, the hybrid machines never returned to widespread use.

BIMODAL LAMS

Rules Level: Experimental
Available to: BM
Tech Base (Ratings): Inner Sphere (E/EFXX)

The Bimodal LAM actually represents the first attempt at BattleMech-to-fighter conversion technology. Only one of these LAM types—the *Shadow Hawk* LAM—ever entered production, and only a few walked off the assembly line before competing manufacturers perfected the three-mode LAMs that would become the standard that survived into the Succession Wars.

STANDARD LAMS

Rules Level: Experimental
Available to: BM
Tech Base (Ratings): Inner Sphere (E/DEFX)

What became the standard LAM design emerged less than a decade after the LAM project began, when LexaTech Industries delivered the first fully functional LAM based upon the *Stinger* BattleMech, followed shortly by the Harvard Company's *Wasp* LAM. Outclassed by this innovation, Allied AeroSpace swiftly abandoned their bimodal *Shadow Hawk* LAM in favor of the *Phoenix Hawk* LAM.

GENERAL LAM GAME RULES

Bimodal LAMs have only two modes of operation: BattleMech mode and Fighter Mode, while Standard LAMs operate in three modes: BattleMech, Fighter, and a special "AirMech" Mode that is a hybrid of both.

The following game rules describe how each mode functions in phase of game play. Damage and heat for all LAMs are tracked using the LAM Record Sheet. Unless otherwise noted, all of the normal rules for each mode will apply to all operations the LAM performs in that mode, regardless of whether the unit is a Bimodal or Standard LAM.

LAM Pilot Skills

Because they are designed to operate as both aerospace fighters and as BattleMechs, LAMs require a more intensive cross-training regimen for their pilots. In gameplay, this means that a LAM pilot requires two sets of Gunnery and Piloting Skills, rather than one. The first set of these skills applies to the LAM's BattleMech functions, while the second set applies to its aerospace functions.

In gameplay, the Gunnery or Piloting Skill required in any given situation will depend on what mode the LAM is currently operating in, and—in the case of LAMs in AirMech Mode—what movement mode is being used. Unless the rules for a situation describe otherwise, substitutions are not allowed. If a roll requires the MechWarrior to use his BattleMech Gunnery Skill, the warrior cannot use his Aerospace Gunnery Skill instead (and vice versa).

The LAM Skill Table identifies what skills apply based on the LAM's current configuration and movement modes. In any turn where the LAM is converting from one configuration to another, the skills applicable to the previous (starting) configuration apply.

LAM SKILL TABLE

Configuration and Movement Mode	Piloting	Gunnery
Aerospace Fighter	Aerospace	Aerospace
AirMech Expending BattleMech MP	BattleMech	BattleMech
AirMech Expending AirMech MP	Aerospace	BattleMech
BattleMech	BattleMech	BattleMech

When generating random experience and skill ratings for LAMs (see p. 273, *TW*), apply a +3 modifier to the random experience roll, and apply a –2 modifier to the random skill roll. Roll for all four skills (BattleMech piloting, BattleMech gunnery, aerospace piloting, and aerospace gunnery) separately. The adjusted rolls cannot be less than zero or exceed the values on the tables.

LAM CONVERSION

Conversion is the process of switching from one of three LAM Modes to another: BattleMech Mode, AirMech Mode and Fighter Mode (in this context, the term "Fighter Mode" always refers to an aerospace fighter). The process is dictated by the mode the LAM is in, and the map the LAM is on (i.e. ground, low-altitude, high-altitude, or space).

Some standard rules apply regardless of these factors (additional rules for conversion, based on mode and map, follow this general list):

- Conversion is always announced at the start of the LAM's movement and is complete at the end of the LAM's movement for that turn's Movement Phase.
- A LAM maintains its facing when converting.
- During the turn of conversion the LAM maintains its previous movement type, but at half the normal movement rates (rounded down).
- Except when airborne and converting to and from Fighter Mode, a LAM does not have to move during the turn in which it changes modes.
- Converting LAMs may make attacks with a +3 to-hit modifier during the turn they are converting—they use the skills according to the mode they have converted from that turn.
- LAMs may change modes in back-to-back turns. For example, a LAM in BattleMech Mode could convert to AirMech Mode during the Movement Phase of turn 1, and convert again from AirMech to Fighter Mode in the Movement Phase of turn 2.
- LAMs can only carry mechanized battle armor in BattleMech Mode. If the LAM converts to any other mode while transporting battle armor (or while being swarmed by hostile battle armor), the battle armor unit is automatically forced off in the process and suffers damage equivalent to a Level 2 fall. Furthermore, a LAM that fails to deploy any transported battle armor (or otherwise remove a swarming battle armor unit) before changing modes must roll on the Determining Critical Hits Table (see p. 124, *TW*) and apply the appropriate number of critical hits to a random hit location, determined on the Front/Back Table.
- A LAM that changes modes while being swarmed by conventional infantry will automatically apply 1D6 damage to the infantry unit, plus the effects of a Level 2 fall as the infantry is forced off. In addition, the converting LAM must roll once on the Determining Critical Hits Table (see p. 124, *TW*) with a –2 modifier added to the roll's result. Apply any critical hits that occur to a random hit location on the LAM, determined on the Front/Back Table.

Bimodal LAMs

Bimodal LAMs lack a middle AirMech Mode, and thus cannot convert to or from that mode, or use any movement rules applicable only to AirMech Mode. Bimodal LAMs on the ground cannot convert to Fighter Mode if they have expended any Walking, Running, or Jumping MP in the same Movement Phase.

Critical Hits: If any of the following critical hits have occurred, a Bimodal LAM may not convert: Shoulder, Upper Arm, Lower Arm, Hip, Upper Leg or Lower Leg Actuators, or Gyro. (**Exception:** The first hit to a heavy-duty gyro will not disable conversion, but the second and subsequent ones will.)



After a lighting-fast strike, a Phoenix Hawk LAM Mk I *of the Fifth Syrtis Fusiliers stands over the blasted remains of his company's opposition.*

Standard LAMs

When operating on the ground or low-altitude maps, these units may change from BattleMech or Fighter Mode to AirMech, or from AirMech to BattleMech or Fighter Modes (but not directly from BattleMech Mode to Fighter Mode and vice versa) in a single turn.

A Standard LAM on the high-altitude or space map may convert to any mode in a single turn.

Damage to a LAM never forces it to change modes, but does affect conversion as follows:

Shoulder, Upper Arm and Lower Arm Actuator Critical Hits: These critical hits will disable any conversion to or from BattleMech Mode, but the LAM may still convert between Fighter and AirMech Modes.

Hip, Upper Leg Actuator and Lower Leg Actuator Critical Hits: These critical hits will disable conversion to or from Fighter Mode, but the LAM may still convert between BattleMech and AirMech Modes.

Gyro Critical Hits: May not convert between any modes. (**Exception:** As with Bimodal LAMs, the first hit to heavy-duty gyro will not disable conversion, but the second and subsequent ones will.)

Ground Conversion

These rules apply when a LAM ends its Movement Phase at 0 elevations above the underlying terrain and does not expend aerospace Thrust in the current turn.

LAMs may not convert while underwater, or even while partially submerged.

If, for any reason, a converting LAM ends its movement in a hex that is prohibited terrain for its new movement Mode, it is reduced to 0 MP (but not considered immobile) until it converts to a mode for which the terrain is not prohibited.

Airborne Conversion

Both Bimodal and Standard LAMs may convert while airborne. A LAM is airborne for conversion purposes if it is on the space map in a hex affected by gravity, on the high-altitude map, or on the low-altitude map. Dropping LAMs may not convert until jettisoning their drop cocoon (if applicable).

Converting to AirMech Mode (Standard LAMs only): A LAM that converts to AirMech Mode while airborne above Altitude 3 on the low-altitude map is treated as a BattleMech making a drop (see p. 22, *SO*) and begins falling in the Aerospace Movement Phase of the following turn. The fall rate on the high-altitude/space map is 1 hex per turn. If a LAM enters the space/atmosphere interface hex row from a space hex in any mode other than Fighter (or a BattleMech in a cocoon), it is destroyed immediately. The fall rate on the low altitude map is 3 Altitude rows per turn, modified as normal for atmospheric density (see p. 22, *SO*).

An AirMech that drops to Altitude 3 or lower may stop its descent by expending 10 AirMech MP. Multiply the AirMech's Altitude by 10 and place it at that elevation above the underlying terrain on the ground map. The LAM may then continue moving normally using its remaining AirMech MP.

A Fighter Mode LAM that converts to AirMech Mode and ends its movement at Altitude 3 or less does not begin dropping, but is placed at its altitude times 10 in elevations above the underlying terrain.

A BattleMech Mode LAM that converts to AirMech Mode while dropping continues to drop, but may stop its fall by expending 10 AirMech MP once it reaches Altitude 3 or lower.

Converting to Fighter Mode: If a LAM converts to Fighter Mode while it is airborne, it continues to drop as normal, but may begin expending Thrust as a fighter during the Aerospace Movement Phase of the following turn—as long as its conversion occurs before it falls to an Altitude of 0. A converting LAM that

falls to Altitude 0 at the end of its Movement Phase crashes as an aerospace fighter (see p. 81, *TW*).

AirMech Mode LAMs expending AirMech MP must reach 8 or more elevations above the underlying terrain by the end of their movement to convert to Fighter Mode while remaining airborne. At this point, they are placed at Altitude 1 (NOE) in the corresponding hex on the low-altitude map, and may begin the next Movement Phase in Fighter Mode. (If the *Aerospace Units on Ground Mapsheets* rule—see p. 91, *TW*—is in use, these units may continue expending AirMech MP to remain aloft.) AirMech Mode LAMs that operate below 8 Elevation on the ground map must land (or rise to Elevation 8+) to convert to Fighter Mode.

AirMech Mode LAMs expending Walking or Running MP that convert to Fighter Mode are treated as a grounded fighter at the end of movement.

Converting to BattleMech Mode: LAMs that convert to BattleMech Mode while airborne are treated as a BattleMech making an atmospheric drop (see *Converting to AirMech Mode*, above).

AirMech Mode LAMs that convert to BattleMech Mode while using AirMech MP must land at the end of their movement.

> *For example, a* Phoenix Hawk *LAM converts from Fighter to AirMech Mode, and ends its movement at Altitude 5. In the following turn, it begins to fall, and would normally drop 3 Altitude to Altitude 2. Upon reaching Altitude 3, however, the pilot elects to expend 10 AirMech Cruise MP to stop the fall. The LAM is then placed at 30 Elevation (Altitude 3 x 10 = 30) above the underlying terrain, and may expend its remaining 5 AirMech Cruise MPs normally.*

Space Conversion

Both Bimodal and Standard LAMs may convert while in space. A LAM is in space if it is on the space map *and* outside a planet's gravity well. No special rules apply for space conversion.

MOVEMENT PHASE

LAMs use the following movement rules in game play, based on their present configuration mode.

BattleMech Mode

A LAM in BattleMech Mode uses standard BattleMech ground movement rules; in space, the *Space Drops for Ground Units in Zero-G Operations* rules (see p. 24, *SO*) apply, but the LAM expends fuel from its aerospace fighter allotment, not from its jump jet reaction mass (each Thrust point spent consumes one point of fuel).

LAMs may carry external cargo, but only while in BattleMech Mode. LAMs in BattleMech Mode must drop any external cargo prior to converting to another mode. LAMs may pick up and carry objects as per the 'Mech Lifting Capabilities rules (see p. 261, *TW*), but only while in BattleMech or AirMech Mode. A LAM must drop any objects carried in its hands in a previous phase prior to converting to Fighter Mode.

Fighter Mode

A LAM in Fighter Mode receives a Safe Thrust equal to its Jumping MP, and a Maximum Thrust equal to its Safe Thrust times 1.5 (rounded up). In this mode, the LAM maneuvers as a standard aerospace fighter, requires Control Rolls for high-G maneuvers (see p. 78, *TW*), receives free facing turns as an aerospace fighter in atmosphere (see pp. 84 and 92, *TW*), and makes random movement avoidance rolls due to heat (see p. 161, *TW*). In addition, the LAM is treated as having VSTOL capabilities when attempting special maneuvers, landing and lifting off (see pp. 85, 87, *TW*).

A LAM's structural integrity is equal to the number of internal structure points it has in its center torso. A LAM that suffers structural integrity damage from high-thrust maneuvers applies this damage directly to its center torso internal structure, regardless of any remaining armor in that location, and rolls for critical hits to that location as a BattleMech.

LAMs in Fighter Mode expend fuel in the same fashion as an aerospace fighter.

Because the side torsos convert to the bulk of a LAM's flight surfaces in Fighter Mode, the loss of either (or both) side torso locations will render a LAM unable to fly inside of an atmosphere.

AirMech Mode (Standard LAMs Only)

In AirMech Mode, the LAM has four movement modes available: Walking, Running, AirMech Cruise, and AirMech Flank. An AirMech may use Walking or Running MP as if it were a normal BattleMech subject to the limitations below. A LAM in AirMech Mode may use only one movement mode per turn.

Walking MP: An AirMech's Walking MP is calculated by multiplying its BattleMech Mode Walking MP by 0.33 and rounding up.

Running MP: Multiply an AirMech's Walking MP by 1.5 and round up to calculate its AirMech Running MP.

AirMech Cruise/Flank: The AirMech Cruise and AirMech Flank movement modes are considered a modified form of WiGE-style movement. A LAM's AirMech Cruise MP is equal to its BattleMech Mode Jumping MP times 3. A LAM's AirMech Flank MP is equal to its AirMech Cruise MP times 1.5 (rounded up). AirMech movement generates heat equal to the number of MP expended divided by 3, and rounded normally.

A LAM that loses a side torso (via internal structure destruction) cannot expend AirMech MP in the atmosphere. When using AirMech Mode movement (Cruise or Flank), the LAM moves like a WiGE (see p. 55, *TW*), and is subject to all of the same restrictions as normal WiGE movement except as modified below, including maintaining 1 Elevation above the underlying terrain (see *Gaining Elevation*, for an exception), and sideslipping (see *Going In*, p. 113, for additional effects). A LAM must also pay 5 MP for take-off required of WiGE vehicles, and must move a minimum of 5 hexes each turn to remain aloft (see *Hovering*, below, for an exception). A LAM spends no MP to land under AirMech movement, and 'Mech terrain restrictions apply; i.e. an AirMech may land in a light woods hex while expending AirMech Cruise MP.

The following modifications also apply to the LAM AirMech's normal WiGE movement:

- **Hovering:** A LAM using AirMech movement may hover by spending 5 AirMech MP to do so. Because of this ability, an AirMech need not move 5 hexes in order to remain airborne, like a normal WiGE. The AirMech may move 0-4 hexes in this fashion while remaining airborne, spending the normal WiGE MP costs—as long as it then spends an additional 5 MP to hover. A hovering AirMech is never considered an immobile target.
- **Gaining Elevation:** Whereas a WiGE vehicle may only gain elevation by "climbing" terrain, a LAM using AirMech movement may increase its elevation by spending 1 additional MP per elevation change as a VTOL, and may continue to do so up to a maximum elevation of 25 above the underlying terrain. As with normal WiGE movement, any AirMech moving at more than 1 elevation above its underlying terrain must spend 2 AirMech MPs per hex of movement to do so. The LAM need not descend to 1 elevation above the underlying terrain at the end of its movement. (Descending elevations is free for AirMechs, but any AirMech that descends below 1 elevation over the underlying terrain must attempt to land or crash; see *Landing* below.)

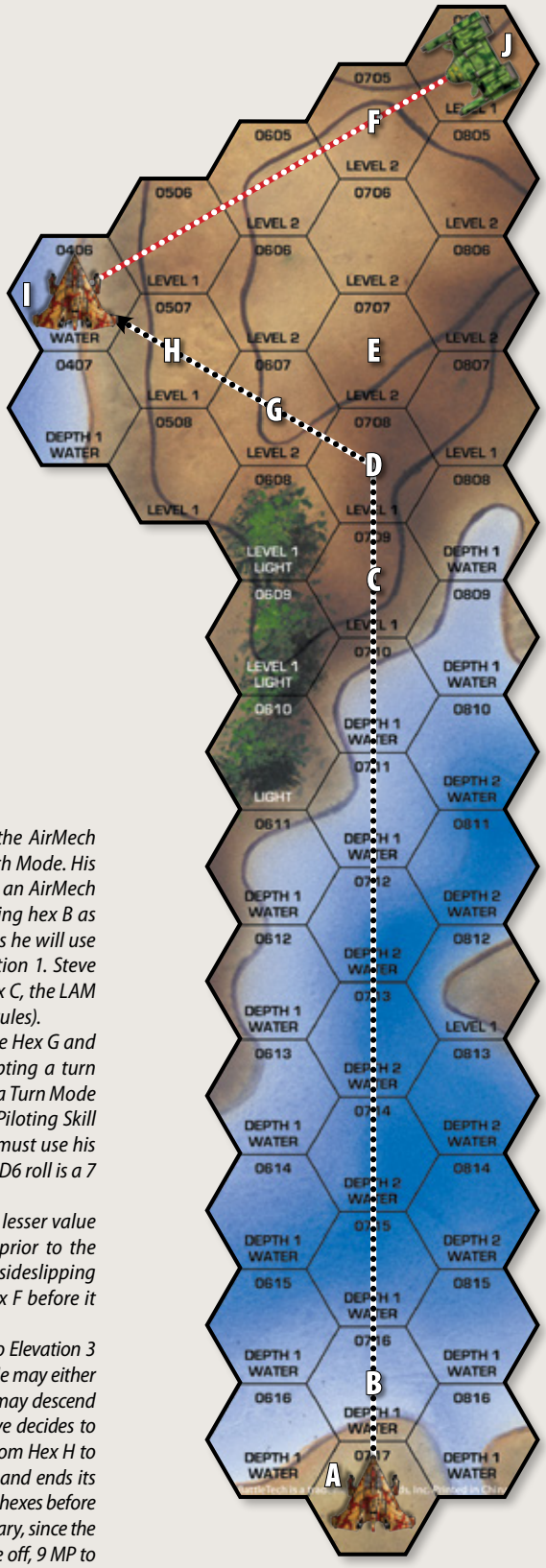
- **Landing:** When using AirMech movement modes, a LAM that descends to the level of the underlying terrain is attempting to land. No Piloting Skill Rolls are required to land unless the LAM has suffered critical damage to its gyro or hip actuator critical slots. If such damage has occurred, the LAM must make a successful Control Roll when landing to avoid a crash (see *Going In*, p. 113).
- **Stacking:** A LAM in AirMech Mode uses 'Mech stacking rules (see p. 57, *TW*), only when expending Walking or Running MP. When expending AirMech MP, the LAM uses WiGE stacking rules when it operates at 2 or fewer elevations above the underlying terrain; when 3 or more elevations above the underlying terrain, LAMs in AirMech Mode use the stacking rules for VTOLs.
- **Acceleration and Deceleration:** Even though AirMech movement is based on that of a WiGE vehicle, LAMs using AirMech movement are not bound by the acceleration/deceleration rules for vehicles as found in *Tactical Operations* (see p. 24, *TO*), if those optional rules are in play.
- **Turn Modes:** A LAM using AirMech movement must follow the rules for turn modes (see p. 25, *TO*), even if the optional Turn Modes rules are not otherwise being used. Terrain and environmental conditions do not modify the roll. If the Turn Mode Roll fails, apply a +0 Vehicle Type Modifier to the roll on the Failed Maneuver Table (see p. 26, *TO*).
- **Overdrive and Bonus MP:** A LAM using AirMech movement may not use the Overdrive speed described for vehicles in *Tactical Operations* (see p. 25, *TO*), but may gain bonus MP as a consequence of its WiGE-based movement equal to 1 extra MP for every 3 consecutive hexes of decreasing elevation (see pp. 25-26, *TO*).
- **Evasive Action/Evading:** A LAM using AirMech movement may not use Evasive Action (p. 77, *TW*) or Evading (p. 18, *TO*).

Steve is moving his Phoenix Hawk *LAM on the Large Lakes #1 map in the AirMech Movement and Combat diagram. In the previous turn he converted to AirMech Mode. His* Phoenix Hawk *LAM has 5 Jumping MP giving it an AirMech Cruise of 15 and an AirMech Flank of 23 (15 x 1.5 = 22.5, round up to 23). He begins the turn in hex A facing hex B as shown. He wants to move to Hex I to engage the 'Mech in Hex J. Steve decides he will use AirMech Flank movement. It costs 5 MP to lift off, putting the LAM at Elevation 1. Steve starts moving the LAM forward at a cost of 1 MP per hex. When it reaches Hex C, the LAM automatically rises to Elevation 2 at no additional cost (per WiGE movement rules).*

After moving into Hex D, Steve turns the LAM one hexside to the left to face Hex G and continues moving. Because it has moved more than 3 hexes before attempting a turn (required for spending 19 MP; see Turn Modes, p. 25, TO*), Steve does not incur a Turn Mode Roll. However, since the LAM is moving at Flank speed, he still must make a Piloting Skill Roll to avoid sideslipping. Consulting the LAM Skill Table, Steve sees that he must use his Aerospace Piloting Skill for this roll. His Aerospace Piloting is a 5, and Steve's 2D6 roll is a 7 so his movement continues normally.*

Had Steve rolled a 2 instead, the LAM would have sideslipped 3 hexes (the lesser value between the warrior's Margin of Failure and the LAM's distance traveled prior to the sideslip –1) into Hex E. Because hex E is only one level higher than Hex D, the sideslipping LAM would have automatically risen to Elevation 3 and continued on to Hex F before it could continue moving normally.

Continuing its movement from Hex D, Steve's LAM gains 1 elevation, rising to Elevation 3 when it enters Hex G. When Steve's LAM enters Hex H, he has a choice to make. He may either continue moving at Elevation 3 (at a cost of an additional 2 MP per hex) or he may descend to one elevation above the underlying terrain (putting him at Elevation 1). Steve decides to descend to Elevation 2, and then descends again (to Elevation 1) as he moves from Hex H to Hex I. When he reaches Hex J, Steve's LAM makes a 1-hexside turn to the right and ends its movement. Steve does not need to make a Turn Mode Roll since the LAM moved 3 hexes before changing facing. Another Piloting Skill Roll to avoid side-slipping is also unnecessary, since the unit has stopped its movement here. The total MP expenditure is 19: 5 MP to take off, 9 MP to move to Hex D, 1 MP to turn and face Hex G, 1 MP to move to Hex G, 1 MP to move to hex H, 1 MP to move to Hex I, and 1 MP to turn in Hex I.



• AIRMECH MOVEMENT AND COMBAT DIAGRAM •

LAM CRITICAL HIT TABLE

Critical Hit	BattleMech Mode	AirMech Mode	Fighter Mode
Avionics			
First hit	No Effect	+1 Piloting Modifier	+1 Piloting Modifier
Second hit	No Effect	+2 Piloting Modifier	+2 Piloting Modifier
Third hit	No Effect	+5 Piloting Modifier	+5 Piloting Modifier
Cockpit	Pilot Killed	Pilot Killed	Pilot Killed
Engine			
First hit	+5 Heat per turn	+5 Heat per turn	+2 Heat per turn
Second hit	+10 Heat per turn	+10 Heat per turn	+4 Heat per turn
Third hit††	Engine Destroyed	Engine Destroyed	Engine Destroyed
Jump Jets	–1 Jump MP (each hit)	–1 AirMech Cruise MP* (each hit)	–1 Safe Thrust* (each hit)
Landing Gear			
First hit	No Effect	No Effect	+1 Piloting to Land
Second hit	No Effect	No Effect	+2 Piloting to Land
Third hit	No Effect	No Effect	+5 Piloting to Land
Gyro			
First hit	+3 Piloting Modifier	+3 Piloting Modifier	+3 Piloting Modifier
Second hit	Gyro Destroyed‡	Gyro Destroyed‡	+6 Piloting Modifier
Sensors			
First hit	+2 To-Hit	+2 To-Hit	+2 To-Hit
Second hit	Weapon attacks impossible, regardless of current movement mode		
Arm Actuators			
Shoulder	+4 To-Hit†	+4 To-Hit†	+4 To-Hit†
Upper Arm	+1 To-Hit†	+1 To-Hit†	+1 To-Hit†
Lower Arm	+1 To-Hit†	+1 To-Hit†	+1 To-Hit†
Hand	+1 to Punch	+1 to Punch	No Effect
Leg Actuators			
Hip	Half Walk MP* +2 Piloting Modifier	+2 Piloting to Land	No Effect
Upper Leg	–1 Walk MP**, +1 Piloting Modifier	+1 Piloting to Land	No Effect
Lower Leg	–1 Walk MP*, +1 Piloting Modifier	+1 Piloting to Land	No Effect
Foot	–1 Walk MP*, +1 Piloting Modifier	+1 Piloting to Land	No Effect
Other Equipment	Per normal rules	Per normal rules	Per normal rules

*Recalculate AirMech Flank and Maximum Thrust MPs normally (x 1.5). Always round up.
**Recalculate Run MP normally (x 1.5). Always round up.
†Affects weapons in that arm only
††The third engine hit destroys the engine and the LAM shuts down, which may result in a no-thrust landing attempt (see *TW*, p. 86).
‡In BattleMech and AirMech Modes, the LAM will automatically fall and may not stand
Gyro Note: The first critical hit to the gyro disables the LAM's ability to convert between modes, regardless of the current movement mode. (If the LAM has a heavy-duty gyro, treat the first hit as a +1 Piloting Skill modifier instead, and the LAM may still convert between modes. The effects for the first hit on this table, including the loss of conversion capability, will thus occur with the second hit against such gyros. A third hit to a heavy-duty gyro destroys the gyro.)
Actuators Note: Critical hits to any arm actuator other than the hand will disable the LAM's ability to convert to or from BattleMech mode. Critical hits to any leg actuator other than the foot will disable the LAM's ability to convert to or from Fighter mode.

COMBAT PHASE

LAMs use the following combat rules in game play, based on their present configuration mode.

All Modes

The following rules apply to LAMs regardless of the conversion mode they are in at the time:

Piloting Skill Modifiers: Like aerospace units, LAMs apply a +1 to-hit modifier to all Piloting Skill Rolls for each pilot hit suffered by a LAM pilot.

Critical Hits: LAMs always suffer critical hits in accordance with the rules for BattleMechs, not aerospace fighters. This includes checking for critical hits whenever a location's internal structure suffers damage, rather than through damage that exceeds its aerospace armor threshold (see below). Consult the LAM Critical Hits Table (at left) when resolving critical hits against a LAM.

Bombs and Bomb Bays

Because doing so would interfere with their conversion abilities, LAMs may not carry bombs or external ordnance the way an aerospace fighter does. Instead, they must be constructed with internal bomb bays capable of accommodating weapons and equipment normally used in such a fashion (see *LAM Construction*, p. 114).

The bombs and other external ordnance usable within a LAM bomb bay are listed in the LAM Bomb Bay Ordnance Table (see p. 112).

In Fighter Mode, LAMs may carry, use, and jettison any items in its bomb bays as a normal aerospace fighter would use external ordnance (see pp. 245-247, *TW*). Because these items are carried internally, and their weight is largely accounted for during the unit's construction, the mass and size of any ordnance stored in these bomb bays will not affect the LAM's Thrust ratings in Fighter Mode.

In AirMech Mode, the LAM may carry, use, and jettison the items in its bomb bays via the rules used by VTOLs with external stores (see p. 108, *TO*). Because these items are carried internally, and their weight is largely accounted for during the unit's construction, the mass and size of any external ordnance in these bomb bays will not affect the LAM's AirMech MPs.

In BattleMech Mode, a LAM becomes unable to execute bombing missions. Thus, in this mode, the LAM may only use TAG and rocket launcher weapons stored in its bomb bays, treating such weapons as if they were mounted in the appropriate torso locations for their bays. These weapons always fire into the unit's forward arc. If a LAM in BattleMech Mode opts to jettison its bombs or other bomb bay stores, it may do so using the normal rules for dumping ammo (see p. 104, *TW*).

Excess Heat and Bomb Bays: In any mode of operation, a LAM that overheats while carrying bombs within its internal bays must check for ammunition explosion as if it is a 'Mech carrying Inferno munitions (see p. 141, *TW*).

LAM BOMB BAY ORDNANCE TABLE

Bomb Type	Description
Air-to-Air Arrow	20-point air-to-air missile (see p. 357, *TO*)
Anti-Ship Missile	30-point anti-ship missile (see p. 358, *TO*)
Anti-ship EW Missile	Capital-scale electronic-warfare missile (see p. 358, *TO*)
Arrow IV Missile	20-point air-to-ground missile, homing or unguided (see pp. 358-359, *TO*)
Cluster	5-point-per-hex air-to-ground cluster bomb (see pp. 249-250, *TW*)
Fuel	Provides 40 additional fuel points
High Explosive	10-point standard air-to-ground bomb (see pp. 249-250, *TW*)
Inferno	Incendiary air-to-ground bomb, generates 10 heat or damage (see p. 359, *TO*)
Laser Guided	10-point TAG-guidable air-to-ground bomb (see pp. 249-250, *TW*)
Light Air-to-Air Missile	6-point air-to-air missile (see p. 359, *TO*)
Rocket Launcher	Provides single-shot Rocket Launcher 10 to unit
TAG	Provides TAG weapon to unit (see p. 250, *TW*)
Thunder	Delivers 20-point standard minefield to target area (see p. 360, *TO*)
Thunder Active	Delivers 20-point active minefield to target area (see p. 360, *TO*)
Thunder Vibrabomb	Delivers 20-point vibrabomb minefield to target area (see p. 360, *TO*)
Torpedo	10-point air-to-water bomb (see p. 360, *TO*)

LAM BOMB BAY CRITICAL HIT TABLE

Bomb Type	Critical Hit Effect
Air-to-Air Arrow	Explodes for 20 points of damage
Anti-Ship Missile	Explodes for 30 points of damage
Anti-ship EW Missile	Explodes for 5 points of damage
Arrow IV Missile	Explodes for 20 points of damage
Cluster	Explodes for 5 points of damage
Fuel	Explodes on 2D6 roll 10+; 1 point of damage per point of fuel remaining
High Explosive	Explodes for 10 points of damage
Inferno	LAM adds 10 heat points in the current turn
Laser Guided	Explodes for 10 points of damage
Light Air-to-Air Missile	Explodes for 6 points of damage
Rocket Launcher	Explodes for 10 points of damage
TAG	Destroys TAG
Thunder	Explodes for 20 points of damage
Thunder Active	Explodes for 20 points of damage
Thunder Vibrabomb	Explodes for 20 points of damage
Torpedo	Explodes for 10 points of damage

Critical Hits to Bomb Bays: A critical hit to most of a LAM's internal stores (bomb bays) may cause an explosion doing damage as shown on the LAM Bomb Bay Critical Hit Table (see above). If a bomb is not listed, assume it explodes causing 10 points of damage. Treat an exploding bomb as an internal ammunition explosion (including causing 2 points of damage to the LAM's pilot). CASE or CASE II in the same location as the bomb bay will affect a bomb explosion just as it effects an ammo explosion. A critical hit to an empty Bomb Bay destroys the bay, but causes no further effect.

Repairing LAM Bomb Bays: Repairing a LAM's bomb bay takes 60 minutes. Apply a –1 Skill modifier to the Repair Check (see p. 181, *SO*). Bomb Bays cannot be partially repaired.

BattleMech Mode

A LAM in BattleMech Mode functions just like a BattleMech during the Combat Phase, and may make (and receive) Weapon and Physical Attacks as a 'Mech.

Mechanized Infantry: The only form in which a LAM may carry and deploy battle armor is in its BattleMech Mode. Because LAMs may not be constructed as OmniMechs, however, the only way such units can do so is if the battle armored unit is equipped with magnetic clamps. Any battle armor a LAM carries should be deployed before the LAM can switch modes, or both units may suffer damage (see *LAM Conversion*, p. 106).

Infantry Physical Attacks: As noted under the LAM Conversion rules, LAMs that are being swarmed by infantry risk damage to themselves if they switch modes before the infantry unit has been removed or destroyed.

Fighter Mode

LAMs in Fighter Mode deliver the attack using the same rules as an aerospace fighter. However, because LAMs are actually reconfigured BattleMechs, the LAM Fighter Firing Arcs Table (see p. 110) is used to translate the LAM's normal BattleMech firing arcs into their appropriate Fighter Mode equivalents.

Units attacking a LAM in Fighter Mode resolve the action with the same rules for attacks against an aerospace fighter, applying all appropriate modifiers for angle of attack, atmospheric effects, and so forth. The hit locations used, whether in space or atmosphere, are determined by using the LAM Fighter Hit Location Table (see p. 110).

For the purposes of Advanced Atmospheric Control Rolls (see p. 97, *SO*) or other rules that reference a fighter's damage threshold, a LAM in Fighter Mode receives a threshold value equal to the current internal structure points remaining in the location struck. However, while Control Rolls will still be required any time the LAM's Damage Threshold is exceeded, LAMs in Fighter Mode only check for possible critical hits if the damage exceeds a location's armor and hits the internal structure, like a 'Mech. Furthermore, the only way a LAM's structural integrity can be reduced while in Fighter Mode is when its center torso suffers a loss of internal structure points through damage (including damage from high-thrust maneuvers; see *Movement Phase*, p. 108).

LAMs in Fighter Mode are also still treated as BattleMechs when operating in vacuum, and thus may suffer hull breach chances when operating in space (see p. 54, *TO*).

Aside from these modifications, a LAM in Fighter Mode follows all normal aerospace fighter combat rules.

LAM FIGHTER HIT LOCATION TABLE

Die Roll	Nose	Aft	Side	Above/Below
2	Center Torso	Center Torso§	Head	Right Torso
3	Right Torso	Right Torso§	Arm‡	Arm†
4	Right Arm	Right Torso§	Center Torso	Arm†
5	Right Arm	Right Arm	Center Torso	Leg†
6	Right Torso	Right Leg	Torso‡	Right Torso
7	Center Torso*	Leg†*	Arm‡	Center Torso
8	Left Torso	Left Leg	Torso‡	Left Torso
9	Left Arm	Left Arm	Leg‡*	Leg†
10	Left Arm	Left Torso§	Leg‡	Arm†
11	Left torso	Left Torso§	Arm‡	Arm†
12	Center Torso	Center Torso§	Leg‡	Left Torso

*Control Roll required if the damage exceeds the LAM's Damage Threshold
†Roll 1D6: 1-3 Right, 4-6 Left.
§Roll 1D6: 1-4 Apply Damage to Front Torso, 5-6 Apply Damage to Rear Torso
‡Hits the corresponding arm, leg, or torso, e.g. attack from left side hits left arm, left torso, or left leg.

LAM FIGHTER FIRING ARCS TABLE

BattleMech Location	Fighter Firing Arc
Head	Nose
Center Torso	Nose
Center Torso (Rear)	Aft
Left Torso	Left Wing
Left Torso (Rear)	Left Wing (Aft)
Right Torso	Right Wing
Right Torso (Rear)	Right Wing (Aft)
Left Arm	Left Wing
Right Arm	Right Wing
Left Leg	Aft
Right Leg	Aft

AIRMECH ATTACKER MODIFIERS TABLE

Attacker Movement Mode	Modifier
Walking	+1
Running	+2
AirMech Cruise	+3
AirMech Flank	+4

AirMech Mode

For LOS purposes, a LAM in AirMech Mode has a height of 1 level and thus cannot benefit from partial cover. When calculating a LAM's Attacker Movement Modifier while in AirMech Mode, consult the AirMech Attacker Modifiers Table (see above).

Units attacking a LAM in AirMech Mode treat the LAM as a 'Mech for calculating Target Movement Modifiers.

A LAM in AirMech Mode that expends AirMech MP is considered airborne and receives a +1 Target Movement Modifier. Attacks that would ordinarily receive a special modifier against airborne targets (such as flak) also apply this modifier.

A LAM in AirMech Mode uses BattleMech firing arcs both to execute its attacks and when resolving attacks made against it, but unlike a standard BattleMech, a LAM in AirMech Mode cannot rotate its torso facing. Calculate attack direction and LOS as if the LAM is a 1-level-tall 'Mech at its current elevation and facing. Remember that if the AirMech is airborne, it will generally be at least 2 elevations high, counting its elevation and unit height together. Use the appropriate column of the 'Mech Hit Location Table (see p. 119, *TW*) to resolve damage against the LAM in AirMech Mode.

Physical Attacks: LAMs in AirMech Mode may make physical attacks whether they are on the ground or airborne, but the standard attack and damage rules for a BattleMech only apply if the LAM used Walking or Running MP during its Movement Phase.

Airborne AirMechs (those using AirMech MPs in the Movement Phase), may execute kick, punch, and melee weapon attacks in this movement mode, but must resolve these physical attacks using the AirMech's Aerospace Piloting Skill for the Base To-Hit Number, rather than the normal BattleMech Piloting Skill. Furthermore, the LAM's elevation must also be accounted for when executing such attacks, using the rules for different levels (see p. 150, *TW*).

Successful kick, punch, and melee weapon attacks performed while using AirMech MPs will inflict only half of their normal damage (rounded up). If such attacks fail for any reason—including punches and melee weapon attacks—a Control Roll is immediately required to avoid a crash (see *Going In*, p. 113).

AirMech Ram: LAMs using AirMech MPs cannot execute a charge attack, but may make a modified attack known as an "AirMech Ram". Like a ramming attack by an aerospace fighter, the AirMech Ram requires the LAM's controlling player to first roll an 11 or 12 on 2D6, representing the pilot's effort to summon the willpower for such a suicidal maneuver. This roll must be made immediately prior to the LAM's movement. If the roll is unsuccessful, the LAM must move normally, and may not attempt to ram. If successful, the pilot may attempt the AirMech Ram using a Base To-Hit Number of 5.

Add the LAM's Aerospace Piloting Skill to the ramming attack's base target number, and subtract its target's Piloting Skill. Terrain modifiers applicable to the target's hex and elevation are also added to the to-hit number for this attack. If the roll is equal to or higher than this modified target number, the ram is successful.

A successful AirMech Ram delivers 1 point for every 5 tons of the LAM's weight, multiplied by the number of hexes the LAM moved in the turn of the attack (rounded up). This damage is applied to a single hit location against the target, appropriate to the direction of the attack (Front, Side, or Rear). A successful AirMech Ram is always resolved against the target's normal hit location table (not the Punch or Kick tables). Meanwhile, the LAM will suffer 1 point of damage for every 10 tons its target weighs, multiplied by the number of hexes the LAM moved during the turn (rounded up). This damage is automatically applied directly to the LAM's front center torso.

If the LAM or its target are destroyed before an AirMech Ram to-hit roll is made, the attack automatically fails. A failed AirMech Ram attack forces the LAM's controlling player to make a Control Roll to avoid crashing (see *Going In*, p. 113).

A successful AirMech Ram places the unit in the hex adjacent to its target along its path of travel, and forces the LAM's controlling player to make a Control Roll. If this roll succeeds, the LAM lands safely in that hex (and will begin the following turn on the ground). Otherwise, the LAM suffers additional damage as if it fell in that hex from a height of 1 elevation above the underlying terrain.

HEAT PHASE

BattleMech Mode: LAMs in BattleMech Mode generate and dissipate heat in the same manner as a 'Mech.

Fighter Mode: LAMs in Fighter Mode generate and dissipate heat in the same manner as an aerospace fighter.

AirMech Mode: LAMs in AirMech Mode that use Walking or Running MP generate heat in the same manner as a BattleMech (1 point for Walking MP; 2 for Running MP). When using AirMech MPs, LAMs generate 1 point of movement heat for every 3 AirMech MPs expended (rounded normally).

AirMech Mode also confers Heat Sink capabilities as per the Partial Wing rules (see p. 295, *TO*). For example, in standard atmospheric pressure LAMs in AirMechs Mode apply –3 to their heat during the Heat Phase.

Steve's AirMech is in Hex I as shown in the AirMech Movement and Combat diagram (see p. 109). He ended his movement at Elevation 1, putting his LAM at Level 2 for LOS purposes. His target, a CHP-1N Champion *in Hex J, is standing on Level 1 terrain and is thus at Level 3 for LOS purposes. Because the hill in Hex F intervenes, the* Champion *will get partial cover.*

Steve checks the LAM Skill Table and sees that he'll use his BattleMech Gunnery Skill (4) for this combat. Consulting the LAM Attacker Modifiers Table, Steve adds 4 to his to-hit number for using AirMech Flank movement. The Champion *moved for a +2, giving Steve a Modified To-Hit Number of 10 for a short-range shot with the* Phoenix Hawk*'s large laser, and 12s for his shots with the medium lasers. Steve rolls 5, 12 and 8, landing a 5-point hit on the* Champion.

Steve calculates his heat build-up for the turn. His AirMech Flank movement generates heat equal to the number of MP divided by 3, rounded normally. Since he spent 19 MP, this equals 6.33, which rounds to 6 points of heat. His large laser generates 8 heat points, and each medium laser generates 3, for a total of 20. His Phoenix Hawk *LAM has 12 single heat sinks and shunts another 3 since it's in AirMech Mode so Steve's looking at 5 on the heat scale, assuming he doesn't take any significant damage.*

The Champion *returns fire with its SRM 6, two medium lasers, and an LB 10-X autocannon. The* Champion*'s Gunnery Skill is 3, and applies a +1 for using Walking movement. The* Phoenix Hawk *LAM's AirMech movement adds a +4 modifier, with another +1 applied because the LAM is airborne. The* Champion*'s SRM and medium lasers are at medium range, applying a +2 modifier to those weapons, but its LB 10-X is at short range and using cluster munitions, which give it a –2 Flak modifier against the AirMech. This means the SRM 6 and medium lasers will need 11s, while the LB 10-X needs an 7.*

The Champion *manages to roll a 12 for its SRM 6, an 11 for one medium laser, a 5 for the other medium laser, and an 8 for the LB 10-X. After resolving the damage—none of which manages to penetrate the LAM's armor—Steve notes that his AirMech has sustained 21 points of damage.*

The Phoenix Hawk *must now make a Control Roll due to this massive damage. Once again looking at the LAM Skill Table, Steve sees that he will need to use his Aerospace Piloting Skill for this roll, which is 5. The modifier is +1 for taking 21 points of damage, giving Steve a target number of 6. It's a bad day for Steve as he rolls a 4. Since his LAM was airborne, he will lose his MoF in elevation. Since he is only 1 elevation above the surface of the water, this results in a crash.*

Now things get tricky. The total number of levels fallen is 3, the difference between Elevation 1 and Elevation –1 (the bottom of the water hex at Depth 1), plus 1 additional level (see p. 68, TW*). Steve's LAM will take damage equal to its tonnage divided by 10 (rounded up) times the number of levels fallen, or 18 points, but since the LAM is falling into a water hex, this is reduced by half. Steve rolls a 5-point Damage Value grouping and a 4-point Damage Value grouping on his LAM, and checks for a hull breach for both hits. Fortunately, his LAM survives the damage with no breached locations. Unfortunately, since the LAM is only one level tall, it is completely submerged in the Depth 1 water hex. It cannot change modes underwater, and will have to walk out using its AirMech Walking MP of 2. As the nearest Level 0 hex is four hexes away, it will take Steve four turns to get his LAM back onto land. The only good news for Steve is that with his LAM completely submerged, it dissipates 6 additional points of heat, keeping him heat neutral this turn.*

GOING IN

AirMechs can move much faster than most BattleMechs and vehicles, but when something upsets their "flight", the increased speed can have disastrous results.

Side-slipping: If a LAM using AirMech Flank MP makes a facing change at any point in its movement and attempts to enter a new hex in the same turn, the player must make a Control Roll before the AirMech enters its new hex. If the roll is successful, the AirMech's movement continues as normal. Otherwise, the AirMech sideslips and may crash, collide with other terrain, or skid. If an AirMech skids, crashes, or collides with something, its movement automatically ends for the current turn.

A side-slipping AirMech will move in the direction of the hex to which it would have moved without the facing change, in the same manner as a side-slipping VTOL (see pp. 67-68, *TW*). The number of hexes a LAM will sideslip is equal to the Control Roll's margin of failure, *or* the number of hexes moved in the current turn (minus 1), whichever is less.

Even when side-slipping, if an AirMech using AirMech MP enters a hex that is only one level higher than the level of the underlying hex from which it exits, the AirMech will automatically rise one elevation above the level of the new hex. If the terrain in the hex entered is two levels higher than the hex exited, the AirMech begins a skid (see *Skidding*, below). If the hex entered is three or more levels higher than the hex exited, the AirMech will suffer a collision (see *Collisions*, below).

Skidding: An AirMech may skid in one of two situations: crashing (as the result of failing a Control Roll) or side-slipping into a hex two levels higher than the hex exited. An AirMech skids in the direction it was traveling and takes damage equal to half its normal falling damage (that is, a fall when standing in a clear hex) per hex skidded. The distance skidded is the *greater* of the MoF of the Control Roll *or* half the number of hexes moved in the current turn (rounded down). If an AirMech was side-slipping prior to skidding, subtract the number of hexes side-slipped from the skid distance.

An AirMech that skids into a water hex takes half normal skidding damage (one-quarter normal falling damage) per hex. If the AirMech occupies a water hex at the end of its skidding movement, it sinks to the bottom and takes damage for hitting the bottom of the water hex equal to half its normal crashing damage (see *Crashing*, above).

Collisions: If an AirMech enters a hex that is three or more levels higher than the hex from which it exited for any reason, it suffers a collision. The damage is equal to the number of hexes the AirMech moved in the current turn, times its tonnage, divided by 10 (rounded up). Assign the damage in 5-point Damage Value groupings, applied to the direction facing the obstruction the AirMech just hit.

Unintentional Charging: A skidding or side-slipping AirMech must make an unintentional Charge attack against any units (or buildings) in the path of its skid/side-slip. A side-slipping AirMech must make an unintentional Charge attack against units in the path of its side-slip only if the level of the unit it side-slips into (that is, the level of the underlying terrain, plus the level of the unit) is equal to or higher than the AirMech's elevation.

Crashing: An airborne AirMech must make a Control Roll in the following situations:

- It misses with any physical attack (including the AirMech Ram).
- It is successfully hit by a push, charge, or Death From Above physical attack.
- During any turn it remains aloft using AirMech MP and suffers 20+ points of damage. In this case, a cumulative +1 modifier to the Control Roll is added for every full increment of 20 points of damage sustained in the current phase, plus any other applicable modifiers (including weight class modifiers, if used; see p. 23, *TO*).
- It attempts a landing with a damaged gyro or leg actuators.

If the roll fails, the AirMech falls a number of elevations equal to its MoF. If this is greater than its elevation, it crashes into the hex it occupies (possibly creating an accidental fall from above attack, if another unit occupies the same hex). A crashing AirMech suffers damage equal to one tenth of the AirMech's tonnage (rounded up), multiplied by 1 plus the number of elevations fallen ([Tonnage ÷ 10] x [Elevations + 1]). Reduce this damage by half if the AirMech falls into a water hex.

An AirMech that crashes automatically skids in the direction it was moving at the time it crashed, unless it was hovering during the Movement Phase in which it crashed (in which case, the LAM simply crashes into the hex it was hovering above, and ends there).

An airborne LAM in AirMech or Fighter Mode that loses a side torso automatically crashes (use a MoF of 5 if required). Use the rules above to resolve an AirMech Mode crash, or use the rules on page 81 of *Total Warfare* to resolve a crash if the LAM is in Fighter Mode.

LAM CONSTRUCTION

LAMs are constructed using the same rules for BattleMech construction in *TechManual*, but with the following changes and additions.

Chassis Restrictions and Requirements

LAMs may only be constructed using an Inner Sphere technology base, and may not be constructed as OmniMechs. Only bipedal BattleMechs weighing up to 55 tons may be constructed as LAMs. LAMs may not be constructed weighing more than 55 tons or using four-legged (quad) or three-legged (tripod) chassis types.

Furthermore, due to the complexity and precision of their conversion process, LAMs may not mount certain weapons, equipment, and structural components that would interfere with the conversion process (see *Prohibited Technologies*, at right). Except for bomb bays (see p. 114), LAMs may not be constructed with internal cargo carrying capacity.

Other specific restrictions and requirements for LAM construction are as noted below:

Minimum Jumping MP: LAMs must be constructed with a minimum Jumping MP of 3

Fuel: LAMs receive 1 free ton's worth of fuel as part of their conversion equipment. This free ton provides 80 fuel points but does not add to the unit's allocated weight, nor does it occupy a critical slot. Additional fuel may be added in full-ton lots (each providing an additional 80 fuel points), with each ton of fuel occupying 1 critical slot.

Structural Integrity: A LAM's structural integrity is equal to the number of center torso internal structure points.

Weapon Locations: Unlike fighters, LAMs do not need to mount weapons and equipment symmetrically (matching weapons in opposite torsos and arms).

Conversion Equipment

Bimodal LAMs must devote 15 percent of the unit's total mass (rounded up to the nearest whole ton) to conversion equipment. Standard LAMs only require 10 percent of the unit's total mass (rounded up to the nearest whole number) in conversion equipment. Both Bimodal and Standard LAMs must then allocate additional "conversion equipment" on their Critical Hit Table as shown on the Conversion Equipment Table.

CONVERSION EQUIPMENT TABLE

Item	Number of Critical Slots and Location
Landing Gear	1 Center Torso, 1 Left Torso, 1 Right Torso
Avionics	1 Head, 1 Left Torso, 1 Right Torso
Fuel	None (1 ton of fuel is considered to contained within the engine)

Bomb Bays

LAMs may mount up to 20 bomb bays, each of which weighs 1 ton and occupies 1 critical space in the unit's left or right torso. Each bomb bay accommodates a single-slot bomb, and has no effect on the unit's movement.

The bombs (and other external ordnance items) that may be carried in LAM bomb bays are as shown in the LAM Bomb Bay Ordnance Table (see p. 111).

Prohibited Technologies

Except as noted on this list, a LAM may use any equipment not prohibited to BattleMechs, IndustrialMechs, or aerospace fighters. The following items are prohibited in LAMs:

Armor: LAMs may not use hardened armor and any other armor that requires critical hit slots, including ferro-fibrous armor, modular armor, and stealth armor. LAMs may use armored components, however.

Cockpits: LAMs may not use torso-mounted cockpits, nor any cockpits that requires additional critical hit slots.

Engines: LAMs may not use any engine other than a standard or a compact fusion engine and cannot mount a supercharger.

Gyros: Only standard, compact, and heavy-duty gyros may be employed by LAMs.

Internal Structure: LAMs may not use any internal structure that requires critical hit slots, such as endo steel.

Primitive Components: LAMs may not mount any primitive core components, such as engines, cockpits, gyros, and the like. Primitive and prototype weapons (see pp. 118 and 70) *may* be mounted on a LAM, however.

Extra-Large Weapons: LAMs may not mount any weapon system that must be allocated to more than one hit location (e.g. Right Arm & Right Torso), such as the Thumper or Arrow IV artillery weapons, nor may any weapon that can be optionally split between locations be mounted in more than one location. LAMs may not carry artillery weapons of any kind (bomb munitions are permitted via bomb bays).

Other Items: Aside from avionics and landing gear, any items that require the allocation of critical slots to more than one hit location may not be mounted on LAMs. This includes items that may normally be split between multiple hit locations on other BattleMech types. For example, a LAM may mount MASC or triple-strength myomer as either system may be allocated entirely in one hit location, but it cannot mount the Chameleon Light Polarization Shield, because that system requires 1 critical slot placed in each of the 'Mech's limbs and side torsos.

LAMs also may not mount backhoes, bridge-laying equipment, combines, dumpers, external stores, mechanical jump boosters, partial wings, or jump packs/drop packs.

Finally, except for physical attack weapons, LAMs may not mount any weapon that requires a Piloting skill as part of its use (such as the heavy Gauss rifle).

Lisa is building a LAM version of the classic Phoenix Hawk. *Her first step in designing this unit is to select a 50-ton chassis. This is slightly heavier than the original 45-ton BattleMech, which she hopes will help offset some of the extra construction costs incurred by the LAM's conversion systems.*

The fact that Lisa is building a LAM means that she cannot use an endo steel internal structure to save weight, nor does she want to spend the extra weight for reinforced structure, or deal with the in-game damage potential of composite structure. Thus, she opts for standard internal structure, which weighs 10 percent of the LAM's total mass (5 tons). The LAM's conversion gear will take up another 10 percent of the LAM's weight (5 more tons).

With 10 tons allocated so far, Lisa moves on to determining the Phoenix Hawk*'s engine.*

The original Phoenix Hawk *had a Walking MP of 6, but in order to free up mass for conversion equipment and weapons, Lisa downgrades the 270 engine to a 250, giving her LAM a Walking MP of 5. Multiplying the LAM's 50 tons by 5 equals 250, and consulting the Master Engine Table (see p. 49,* TM*) Lisa sees that a 250-rated engine weighs 12.5 tons. While she'd love to save tonnage by using an XL engine, she knows that a LAM can only mount a standard fusion engine and so the engine weight remains 12.5 tons.*

Next, Lisa determines the LAM's gyro weight by dividing its 250 engine rating by 100. This yields 2.5 which rounds up to 3, for a 3-ton gyro. As the Phoenix Hawk *will need to jump in order to be a LAM, Lisa then adds 5 standard jump jets. Per the Jump Jets Table (see p. 51,* TM*) these will weigh 0.5 tons each, for a total of 2.5 tons in jump jets.*

Adding a 3 ton standard cockpit brings the running total to 31 tons.

The LAM gets 10 heat sinks free with its engine; she decides to make them double heat sinks. Lisa divides the engine's 250 rating by 25 and determines that only 10 heat sinks can be contained within the engine. As she plans to equip her Phoenix Hawk *with several lasers, she opts to install two additional double heat sinks at a cost of 2 tons.*

Lisa next gives her Phoenix Hawk *8 tons of standard armor for a total of 128 points. She records the details and moves on to the next step: Weapons and Ammo. An ER large laser gives the* Phoenix Hawk *its main offensive punch. Lisa decides to back this up with four medium lasers. The weapons and armor add another 17 tons to the* Phoenix Hawk*, bringing the total to 50 tons.*

Finally, the conversion equipment, weapons and ammo must be allocated on the critical hit table. The conversion equipment consists of: 3 Avionics components which are placed in the head and left and right torsos; 1 fuel tank that Lisa notes is included within the LAM's engine—if Lisa had chosen to add additional fuel, each ton of fuel would occupy 1 critical hit location; 3 landing gear struts, 1 placed in the center torso, and 1 each in the left and right torsos. After allocating the conversion equipment, Lisa still must record the locations for the Phoenix Hawk's *weapons, heat sinks, and 5 jump jets.*

The final stats for the Phoenix Hawk *LAM are:*

Type: *Phoenix Hawk* LAM MK I
Technology Base: Inner Sphere (Advanced)
Tonnage: 50
Battle Value: 1,942

Equipment			**Mass**
Internal Structure			5
LAM Conversion Equipment			5
Engine	250		12.5
Walking MP:	5		
Running MP:	8		
Jumping MP:	5		
AirMech Cruise MP:	15		
AirMech Flanking MP:	23		
Safe Thrust:	5		
Maximum Thrust:	8		
Heat Sinks:	12 [24]		2
Gyro:			3
Cockpit:			3
Fuel:	80		0
Structural Integrity:	16		
Armor Factor:	128		8
	Internal Structure	*Armor Value*	
Head:	3	6	
Center Torso:	16	23	
Center Torso (rear):		5	
R/L Side Torso:	12	18	
R/L Side Torso (rear):		4	
R/L Front Leg:	8	10	
R/L Rear Leg:	12	15	

Conversion Equipment Allocation

Location	*Item*	*Spaces Remaining*
Head	1 Avionics	0
Center Torso	1 Landing Gear	1
Right Torso	1 Landing Gear 1 Avionics	10
Left Torso	1 Landing Gear 1 Avionics	10
Right Arm	—	8
Left Arm	—	8
Right Leg	—	2
Left Leg	—	2

Weapons and Ammo	**Loc**	**Critical**	**Tonnage**
Medium Laser	RA	1	1
ER Large Laser	RT	2	5
Medium Laser	LT	1	1
Medium Laser	LT	1	1
Medium Laser	LA	1	1
Jump Jets	RT	2	1
Jump Jet	CT	1	.5
Jump Jets	LT	2	1

MACHINA DOMINI INTERFACE (JIHAD)

R&D Start Date: circa 3068 (Word of Blake), circa 3082 (Clan Hell's Horses)
Prototype Design and Production: circa 3078 (Word of Blake), 3083 (Clan Hell's Horses)

The so-called "Machina Domini" interface was an experimental effort by the Word of Blake's Manei Domini to further enhance the connection between MechWarriors and their machines, while simultaneously protecting the warrior from the most brutal punishment. Derived from efforts to crack Clan ProtoMech technology, this interface used a three-component control system that required a VDNI-enhanced MechWarrior, a modified power armor suit, and a compatible interface cockpit. Combined, these technologies not only created a true symbiosis between man and machine, but also protected the warrior from virtually all harm. The Machina Domini interface obviated the need for both the BattleMech's gyro and most functions of the Diagnostic Interpretation (DI) Computer; to the warrior, the 'Mech moved as a direct extension of his own body.

While Machina Domini technology was known to have reached field-testing phase, only a dozen or so units using this system saw action beyond the doomed world of Gibson. None of these "Gestalt" machines survived the Jihad, and efforts to duplicate the Word of Blake's research in the decades since have been largely abandoned by the Inner Sphere powers. Curiously enough, however, scientists from Clan Hell's Horses began trials on a similar system soon after the war. Evidently adapted to work with Clans' enhanced-imaging neural technology instead of VDNI implants, these Clan versions of the Machina Domini interface have yet to go past the prototype stage.

MACHINA DOMINI INTERFACE GAME RULES

Rules Level: Experimental
Available to: BM, BA
Tech Base (Ratings): Inner Sphere (E/XXFX), Clan (F/XXFF)

The "Machina Domini" interface requires three key components to function: A MechWarrior equipped with either a buffered or standard Vehicular Direct-Neural Interface (VDNI) implant (see pp. 82), a PA(L) suit equipped with a BattleMech Neural Interface Unit (see p. 116), and a BattleMech equipped with a BattleMech Interface Cockpit (see p. 116). Without all three of these components in working order, the "Machina Domini" connection (and, of course, the BattleMech itself) will not function.

In game play, a "Machina Domini" BattleMech functions in accordance with standard rules, with the following modifications:

MechWarrior Skills: A BattleMech operating with an active Machina Domini interface automatically receives a –1 modifier to all Gunnery and Piloting target numbers.

Piloting Skill Checks: Even if the Machina Domini 'Mech still mounts a gyro, any critical hits to Gyro slots are ignored while the Machina Domini interface is working. A unit with a working Machina Domini interface also ignores the effects of gyro destruction.

MechWarrior Damage: The Machina Domini MechWarrior ignores all pilot damage from head hits and internal ammunition explosion effects, but can still be killed if the head location is destroyed. MechWarrior damage from overheating will still occur if the BattleMech sustains any Life Support critical hits, as will MechWarrior damage resulting from failed Piloting Skill rolls made during a fall.

Hostile Environments and Hull Breaches: If operating in a hostile environment, the Machina Domini MechWarrior will suffer no effects unless the cockpit armor is breached *and* the PA(L) interface suit is reduced to an armor value of 0.

Cockpit Critical Hits: If the interface cockpit itself suffers a critical hit, the Machina Domini MechWarrior will receive two pilot hits from the attack, the PA(L) suit he is wearing will suffer 1 point of armor damage, and the BattleMech will suffer the equivalent effects of a single Gyro critical hit. On a second critical hit to the interface cockpit, the Machina Domini MechWarrior will suffer two more pilot hits, the PA(L) suit will suffer an additional 1 point of armor damage, and the interface connection will be critically damaged (with effects treated as a second Gyro hit). (If, through interface cockpit critical hits, the interface suit is reduced *below* an armor value of 0, both the suit and the MechWarrior wearing it are considered destroyed.)

Ejection: A Machina Domini may eject from his 'Mech at any time per the standard rules (see pp. 196-198, *TO*), but receives a –2 target number modifier when doing so, to reflect the added resilience of the PA(L) interface suit. Once ejected, the Machina Domini MechWarrior is treated as a single battle armor unit with a squad size of 1 trooper. The armor value of this unit is equal to that of the PA(L) itself, minus any armor damage sustained from Interface Cockpit hits.

Special Pilot Abilities (Optional): At the players' discretion, the use of the Machina Domini interface can also impart onto its MechWarrior one free Gunnery or Piloting Skill-based Special Pilot Ability as featured in *A Time of War* (see pp. 219-224, *AToW*), regardless of the ability's pre-requisites. The nature of this ability must be determined before play begins and is selected by the MechWarrior's controlling player.

Clan Machina Domini Interface: In game play, the Clan version of the Machina Domini interface functions identically to the Inner Sphere version, except that the pilot must be equipped with enhanced imaging neural implants (see pp. 75) instead of any form of VDNI. Units using a Clan Machina Domini interface cannot be operated by pilots that lack EI neural implants, even if they possess a VDNI.

MACHINA DOMINI INTERFACE CONSTRUCTION RULES

In addition to a MechWarrior equipped with some form of VDNI implant, the "Machina Domini" Interface requires two additional components: The BattleMech Neural Interface Unit (which is built into the interface suit), and the BattleMech Interface Cockpit (which replaces the standard BattleMech cockpit).

BattleMech Neural Interface Unit (NIU)

The BattleMech NIU can only be mounted in the interface suit, which must be constructed as a PA(L)-type battlesuit (as larger battlesuits cannot fit in the interface cockpit). The BattleMech NIU weighs 100 kilograms and occupies 2 slots in the suit's torso location.

BattleMech Interface Cockpit

The BattleMech interface cockpit weighs 4 tons and takes one extra Cockpit critical slot. The Interface can only be installed in BattleMechs, and may not be mounted in a Torso location. The interface cockpit cannot be protected with component armor, nor can it be combined with a cockpit command module or any other cockpit types (including small cockpits). A BattleMech equipped with an interface cockpit also may not employ the Cramped Cockpit or Rumble Seat Design Quirks.

A BattleMech with an interface cockpit may be constructed without a gyro, in which case the usual Gyro slots on the unit's Critical Hit Table are treated as empty, and can be used for other components.

Clan Machina Domini Interfaces

The Clan version of Machina Domini interface uses the same construction rules as the Inner Sphere version, except that they require a MechWarrior equipped with an EI neural implant instead of VDNI implants.

MODULAR SPACE STATIONS (MULTIPLE ERAS)

Introduced: 2565 (Terran Hegemony)
Standard Production: 2585 (Terran Hegemony)
Extinct: 2790 (Inner Sphere)
Recovered: 3090 (Republic of the Sphere)

Since mankind's earliest ventures into space, the construction of large and complex spaceborne assets has been accomplished only by piecemeal operations, where various components and modules were assembled "on-site" to create larger structures. Few early examples of such early modular constructs have been as memorable as Crippen Station, the platform from which the first fusion-powered spacecraft was launched. At its height, Crippen massed several million tons, and was really more a cobbled-together mixture of smaller, independent components than a true station in the modern sense. As technology advanced, these amalgam stations became impractical due to the weaknesses inherent in their delicate and complicated—and often improvised—construction.

As humanity expanded, the space stations built in their new colonies were often shipped in parts, carried in the cargo holds of numerous shuttles and JumpShips, to be painstakingly assembled at their destinations. When the K-F boom enabled JumpShips to carry larger, externally-mounted craft through hyperspace, the advent of the K-F adapter for space stations enabled the transport of DropShip-sized stations, but larger facilities still needed to be assembled from parts delivered via cargo holds.

In the late twenty-sixth century, the Star League Defense Force needed a means to move its latest system defense station—the *Bastion* class—from Nicholas Spacecraft's New Earth Shipyards to locations across the Inner Sphere. At 150,000 tons, however, the *Bastion* was simply too large to mount a K-F adapter, but its complicated systems and unique architecture promised to make hauling them in parts a daunting (and expensive) proposition.

With the SLDF unwilling to compromise on the *Bastion*'s specs, a new transport method was needed. Nicholas Spacecraft responded with a new, jump-friendly modular design approach intended to allow for the station to be shipped in DropShip-sized parts for rapid assembly on site. This subtle-yet-sublime technique allowed stations to be built in separate modules stable enough for external transport, while simplifying the assembly process immeasurably. The *Bastion* was thus built in two 75,000-ton modules, each with an integral K-F adapter, which could then be linked together and activated in record time. Similar methods became the norm for all oversized space stations, space habitats, and orbital factories constructed throughout the Star League period, including the massive *Hughes*-class mobile yard station. (Note, today, many believe the Wolf's Dragoons' enigmatic *Hephaestus* station was actually a highly-modified version of a *Hughes*-class yard, and was thus also delivered to the Inner Sphere as a modular station.)

MODULAR SPACE STATION GAME RULES

Rules Level: Advanced
Available to: SS
Tech Base (Ratings): Inner Sphere (D/EXXE); Clan (D/EEEE)

Modular space stations may be dismantled into separate modules for hyperspace transit, with each module weighing no more than 100,000 tons, and requiring its own docking collar. Docking a modular space station is performed in the same manner as a DropShip-to-JumpShip docking sequence (see pp. 66-68, *SO*). Any failed docking attempts will double the normal docking time.

Assembling or dismantling a modular space station takes 1 day for every 15,000 tons of the final station's weight (rounded up). The station is inhabitable after one quarter of this total assembly time has elapsed, but the station's weapons, sensors, and any bay equipment will not become operational until the entire station is fully assembled.

Once assembled, a modular space station operates exactly as a standard space station.

Moving a disassembled modular space station follows the same rules as found under the K-F Adapter (see p. 105).

MODULAR SPACE STATION CONSTRUCTION RULES

Any space station designed to have a final total mass of more than 100,000 tons may be built as a modular space station. Modular stations automatically incorporate integral K-F adapters. These adapters take up no significant weight, nor do they take up any space on the station's record sheet, but they will increase the station's cost by the number of adapters required. In essence, a modular space station receives 1 K-F adapter for every 100,000 tons of station mass (or fraction thereof).

PRIMITIVE PROTOTYPE EQUIPMENT (AGE OF WAR)

Introduced: Variable (see Rules)
Extinct: Variable (see Rules)

During the Age of War, only a few of the weapon systems seen in *BattleTech* today were widely available for use on vehicles, fighters and (eventually) BattleMechs. Prior to 2460, these weapons were the machine gun, flamer (standard and vehicular), standard LRMs and SRMs, all standard lasers, standard AC/2s and AC/5s, and the Thumper, Sniper and Long Tom artillery pieces. After 2460, production models of the AC/10 and PPC became widely available. Finally, the AC/20, developed specifically as a 'Mech-killer weapon system, emerged as a production weapon after 2500.

Likewise, other vital technologies emerged in this time period, such as the K-F booms and K-F compatible docking collars that made the modern DropShip/JumpShip combination possible, as well as the jump jet system for BattleMechs.

Before all of these items debuted, a number of early versions hit the field, with many of these "primitive prototypes" remaining in use for decades after their more efficient upgrades were introduced. By the dawn of the Star League age, few of these early examples of modern technology remained in service.

PRIMITIVE PROTOTYPE EQUIPMENT RULES

Rules Level: Experimental
Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS
Tech Base (Ratings): Inner Sphere (C/FXXX)
Game Rules: Based on their type, Primitive prototype weapons will operate differently in game play, as described below. Any of these weapons may be deployed before their standard production date, as long as the scenario or units are set after the prototype year shown in the Prototype Dates for Basic Weapons Table. Note that a few items—specifically the machine gun, flamers, and most tube artillery weapons—were so well established by the time of the Age of War that they effectively have no prototype phase to speak of.

Primitive prototype energy weapons (lasers and PPCs) will produce 50 percent more heat when fired (rounding up).

Primitive prototype ballistic weapons (standard autocannons and the Long Tom artillery weapon) will suffer a jam on any to-hit roll result of 2 and may carry only three-quarters of their listed ammunition capacity (rounding up) per ton. Jammed weapons cannot be cleared in battle, and are considered damaged—but not destroyed—for game play and repair purposes. Thus, an autocannon/20—introduced in 2500—*could* be fielded in the 2490s, but it would be a prototype that carries only 4 rounds of ammo per ton [0.75 x 5 = 3.75, rounded up to 4], and would be as prone to weapon jams as a modern Ultra autocannon.

Primitive prototype missile weapons (standard LRMs, SRMs, and their torpedo equivalents) apply a –2 modifier on the Cluster Hits Table for every successful attack, treating any modified result of 1 or less as a minimum result of 2. Primitive missile and torpedo launchers may carry only three-quarters of their listed ammunition capacity (rounding up) per ton. When assessing the damage value of a Primitive prototype missile launcher, use the 5 result on the Cluster Hits Table, rather than the 7 result.

Regardless of their nature, all Primitive prototype basic weapons are incompatible with modern targeting enhancers, including Artemis, Narc, and the targeting computer.



Some DropShips still in operation have service records dating back hundreds of years.

PROTOTYPE DATES FOR BASIC WEAPONS TABLE

Weapon System	Prototype	Production
Machine Gun	NA*	Pre-Spaceflight*
Flamer (Standard)	NA*	Early Spaceflight*
Flamer (Vehicle)	NA*	Pre-Spaceflight*
LRMs (All)	2295	2300
SRMs (All)	2365	2370
Torpedo Launchers (LRT/SRT)	2370	2380
Autocannon/2	2290	2300
Autocannon/5	2240	2250
Autocannon/10	2443	2460
Autocannon/20	2490	2500
Small Laser	2290	2300
Medium Laser	2290	2300
Large Laser	2306	2310
PPC	2439	2460
Thumper Artillery	NA*	Pre-Spaceflight*
Sniper Artillery	NA*	Pre-Spaceflight*
Long Tom Artillery	2445	2500

*These items were perfected to modern standards prior to interstellar space travel and thus have no Prototype phase.

Construction Rules: Aside from the difference in heat for primitive prototype energy weapons, the difference in ammunition capacity per ton for primitive ballistic weapons, artillery, and missile launchers, and the modified aerospace damage values for primitive missile launchers, all other data for primitive prototype weapons—including weight, cost, and critical space—is identical to their standard versions.

PRIMITIVE PROTOTYPE DROPSHIP AND JUMPSHIP EQUIPMENT

Rules Level: Advanced
Available to: DS (K-F Boom); JS, WS (DropShuttle Bay and Pre-Boom Docking Collar)
Tech Base (Ratings): Inner Sphere (C/CXXX [DropShuttle Bay], B/CXXX [Pre-Boom Docking Collar], C/CXXX [Prototype KF Boom])

Until the dual development of the DropShip K-F boom and the JumpShip docking hardpoint (a modified form of the standard docking collar) in the mid-twenty-forth century, JumpShips carried their DropShips within internal bays that significantly limited both the number of ships they could carry as well as their maximum transport tonnage. The development of the boom made it possible for JumpShip designers to discard these inefficient internal bays, and instead mount one or more DropShips—each of much greater mass than previously possible—on external docking points around which the hyperspace field could now be extended.

This technology revolutionized interstellar transport, quickly becoming the standard while drastically slashing transport costs; JumpShips could be built smaller and more economically, while massive DropShips, which could now carry more cargo tonnage than ever before, became the norm.

Note: Prior to the introduction of the K-F Boom and the docking hardpoint, docking collars still existed and appeared also on space stations and mobile structures. These pre-boom collars did not

allow for hyperspace jumps, and instead functioned merely as connection points between such large-scale units, enabling the transfer of cargo, fuel, and personnel. In terms of unit construction, there is no difference between a modern docking collar/hardpoint and the pre-boom docking collar except for the use of KF-extending boom technology.

DROPSHUTTLE BAYS

Introduced: ~2110 (Terran Alliance)
Standard Production: 2120 (Terran Alliance)
Extinct: 2500

In the early days of interstellar travel, most jump-capable vessels were equipped with the same transit drives found mostly on modern DropShips and WarShips. Of course, even then, these ships remained incapable of actually entering a planetary atmosphere to transfer cargo and personnel. While small-craft shuttles sufficed for early colonial projects and exploration, the need for larger ship-to-surface transports led JumpShip designers to build larger bulk craft—DropShuttles—that were the ancestor to modern DropShips. To carry these vessels, JumpShips employed DropShuttle bays, which mainly amounted to an upscaled version of a typical small craft launch bay.

Ultimately, the size limitations of DropShuttle bays, combined with long launch and recovery times, led engineers to work on externalizing these bays, resulting in the creation of a standardized docking collar system in the early 2300s. When the introduction of the K-F Boom in the mid 2400s then made it possible for these externally-docked DropShips to transit through hyperspace with their parent JumpShips, DropShuttle bays quickly fell into disuse.

Game Rules: A DropShuttle bay may accommodate up to two DropShuttles or DropShips, each weighing no more than 5,000 tons, and with a combined weight that may not exceed 10,000 tons. The process of launching or recovering craft from a DropShuttle bay follows the same rules as for a DropShip docking procedure (see pp. 66-68, *SO*), except that the time taken by the entire process—per DropShuttle—is calculated differently. This time is computed as 30 minutes, plus 1 minute for every 200 tons the DropShuttle weighs (rounded up). Thus, a DropShuttle weighing 5,000 tons would take 55 minutes to launch from (or be recovered by) a JumpShip's DropShuttle bay (30 + [5,000 ÷ 200] = 55). Only one DropShip/DropShuttle may launch from a DropShuttle bay at any given time.

Craft entering or exiting from a DropShuttle bay may be attacked as a separate unit, and may not make any attacks that would pass through the JumpShip they are entering or exiting from. Damage to a bay containing a DropShuttle is handled as per the rules for repair facilities (see p. 335, *TO*).

Units that possess DropShuttle bays must apply a +1 target modifier to any Control Rolls required while such bays are occupied, but otherwise may maneuver and execute weapon attacks as normal.

Construction Rules: A JumpShip, WarShip or space station may be constructed with one or more DropShuttle bays, each of which must be assigned a unique armor facing. This means that such vessels may only place a maximum of 1 DropShuttle bay per armor facing. Furthermore, no unit may mount more than 1 DropShuttle bay per 100,000 tons of its own total weight (rounded up). Thus, a 450,000-ton JumpShip may mount a maximum of 5 DropShuttle bays (450,000 ÷ 100,000 = 4.5, round up to 5), with each bay assigned its own unique armor facing.

Each DropShuttle bay weighs 11,000 tons, and counts as two docking collars against the unit's maximum number of docking hardpoints for construction purposes (see p. 304, *TO*).

PROTOTYPE DROPSHIP K-F BOOM

Introduced: 2458 (Terran Hegemony)
Standard Production: 2470 (Terran Hegemony)

Every modern DropShip capable of completing a hyperspace jump while docked with a JumpShip is able to do so thanks to its integral K-F boom, a device that extends the JumpShip's K-F field beyond its own hull to envelop the DropShip. Without this technology, a hyperspace jump would destroy any external DropShips and possibly the JumpShip itself (though safety mechanisms predating these booms simply abort such jumps before they can be executed).

K-F boom technology was developed so that it could be easily retrofitted into older vessels, albeit at significant cost in money and shipyard time. Thanks to this, hundreds of refit services emerged during the latter twenty-forth century throughout the Inner Sphere and Periphery states specifically to "modernize" older DropShips with K-F booms.

Game Rules: For game purposes, the standard K-F boom is an integral part of a DropShip's docking collar (see p. 238, *TM*), while prototype versions simply add a +2 target modifier to the Control Roll needed to successfully dock with a JumpShip or WarShip. If this docking roll fails by 2 or more, the KF boom fails to successful "synch up" with the mothership, and any attempts to jump while docked will automatically abort, forcing the two vessels to undock and re-dock if they want to try again. DropShips built after 2469, and/or those that undergo an upgrade to a production-grade KF Boom (as described below) may ignore this modifier and its associated effects.

DropShips built before the development of the K-F boom, or which simply lack a K-F boom, instead treat any critical hits to the K-F boom as an avionics critical hit. Moreover, any such vessels that link up with the docking collar of a JumpShip or WarShip will render such vessels incapable of entering hyperspace in any way.

DropShips without a K-F boom, including those constructed before the development of the K-F boom, may be retrofitted to incorporate a primitive boom and a standardized docking collar as a Class E Refit (see p. 188, *SO*). This refit requires a total of 30 days to complete, at a cost of 12 million C-bills.

Construction Rules: The K-F boom has no mass, and is integrated into the DropShip's docking collar. From 2458 to 2469, DropShips constructed with a K-F boom increase the cost of the ship's docking collar to 1,010,000 C-bills to reflect the prototype's cost. (From 2470 and onward, the standard collar incorporates a production-grade boom, and the price drops to the standard 10,000 C-bills for new DropShip construction, with refits available for 120,000 C-bills.)

DOCKING HARDPOINT (DOCKING COLLAR) [PRE-KF BOOM]

Introduced: 2304 (Terran Alliance)
Standard Production: 2350 (Terran Hegemony)

The introduction of the DropShip K-F boom made it possible for jump-capable ships to eliminate massive internalized DropShuttle bays, and devote that space to living quarters, weapons, or more utilitarian cargo storage. Prior to that development, however, some vessels still featured external docking mechanisms that could accommodate DropShuttles and other large in-system craft that today fall under the classification of DropShips. (Such craft could then be used to ferry supplies and crew from stations and surface bases without taking the excessive amount of docking time required of DropShuttle bays and such.

Although vessels docked with these pre-boom collars could not be carried through hyperspace, the advent of the KF Boom in 2458 opened the door to a wave of refits that upgraded these collars to their modern form with only a modest amount of re-engineering. Thus, the presence of pre-boom collars made it easier for older JumpShips and WarShips to transition into a new age of hyperspace travel even as a surge of new ship types quickly evolved to make full use of the new JumpShip-and-DropShip combination.

Game Rules: When docked with a DropShip (see pp. 66-68, *SO*), a vessel that features a pre-Boom docking collar will be unable to execute a hyperspace jump. All such efforts will automatically abort, as the vessels must undock first. Otherwise, pre-Boom docking collars will function normally in gameplay.

JumpShips built after the development of the KF boom may subsequently upgrade their pre-Boom docking collars with standard (post-Boom) DropShip docking hardpoints. This process is treated as a docking collar replacement operation (see pp. 181-183, *SO*), and costs 5,000,000 C-bills for each hardpoint replaced.

Construction Rules: The pre-Boom JumpShip docking hardpoint weighs the same as its standard version, and uses the same construction rules to install (see p. 154, *SO*), but costs 500,000 C-bills per collar.

PRIMITIVE PROTOTYPE JUMP JETS

Introduced: 2464 (Terran Hegemony)
Standard Production: 2471 (Terran Hegemony)

Standard production model jump jets (along with their required BattleMech gyroscope modifications and control software upgrades) debuted in 2471 within the Terran Hegemony (later, in each of the other Inner Sphere and Periphery nations). Prototype jump jet models were introduced in 2464 with the debut of the *Wasp* BattleMech (prototype jump jets were later included in the *BattleAxe* and the *Shadow Hawk*).

Game Rules: Any BattleMech mounting prototype jump jets that jumps must make a Piloting Skill Roll with a TN of +3 (in addition to any other modifiers) to avoid falling when it lands (see *Piloting/Driving Skill Rolls*, p. 59, *TW*). Primitive prototype jump jets generate heat as standard jump jets.

Construction Rules: Primitive prototype jump jets have the same mass, take up the same critical space, and maintain the same mounting rules as standard jump jets.

PRIMITIVE UNITS AND RETROTECH (MULTIPLE ERAS)

Introduced: Variable (See Rules)

All technologies begin somewhere. Though the modern combat vehicles, BattleMechs, fighters, and spacecraft had already become ubiquitous by the days of the first Star League, there was a time where all of those common engines of warfare existed in cruder, less polished forms. For most of these machines, this infancy period covered the span of centuries between the fall of the original Terran Alliance and the rise of the first Star League, an era dominated by the bloody time known as the Age of War.

Historians across the Inner Sphere came to see the closing years of the twenty-fourth century as the point where virtually all major military technologies attained their maturity, with BattleMechs striding the fields on thousands of worlds, delivered by fusion-powered DropShips under the escort of titanic WarShips. For even though many more sophisticated upgrades and refinements were yet to come, it was by the dawn of the 2500s that virtually all of the engineering principles we recognize today crystallized into their present forms.

Indeed, as if to emphasize that point, the trials of the Word of Blake Jihad even prompted many realms to delve into the standards of these "primitive" pre-modern technologies as a means to quickly build up their depleted armies. Dubbed "RetroTech", the machines that resulted, borne of desperation, nevertheless created a glimpse into the ancestry of today's BattleMechs, while simultaneously reminding an increasingly tech-jaded Inner Sphere how far we had come.

PRIMITIVE UNITS OVERVIEW

Rules Level: Advanced
Available to: BM, IM, SV, AF, SC, JS, DS, WS
Tech Base (Ratings): Primitive/Inner Sphere (Variable)

The following rules will enable players to create and use vehicles, fighters, 'Mechs, and spacecraft such as those introduced during the Age of War era. While these units are collectively referred to here as Primitive, the majority of these rules will also apply to the modern-primitive units (known as RetroTech) that were also constructed during the Word of Blake Jihad.

Unless specifically stated otherwise, all of the Primitive and RetroTech units built using these rules will conform to the game play rules found in *Total Warfare* (*TW*), *Tactical Operations* (*TO*), and the rest of the core rules line, except as noted below (see *Primitive Units Game Rules*). Likewise, the construction rules for these units will modify those found in *TechManual* (*TM*), *Tactical Operations*, and *Strategic Operations* (*SO*) as appropriate.

PRIMITIVE UNITS GAME RULES

The following game rules apply to Primitive (and RetroTech) units in combat.

Primitive 'Mechs

The following rules modifications apply to combat involving Primitive (and RetroTech) BattleMechs and IndustrialMechs:

Primitive 'Mech Cockpits: The Primitive BattleMech cockpit functions as a standard BattleMech cockpit, and applies no modifiers in combat. Primitive IndustrialMech cockpits, however, apply a +2 to-hit modifier to all weapon attacks made by the Primitive IndustrialMech (reduced to +1 if the cockpit is modified with advanced fire control).

Critical Hits: When determining critical hits against a Primitive (or RetroTech) 'Mech, apply a +2 to the roll result if the target is a BattleMech (+4 if it is an IndustrialMech). For Primitive BattleMechs, any modified result of 13 or more is treated as a 12 result. For Primitive IndustrialMechs, a result of 14 or more will result in 4 critical hits to a torso location, or a limb/head blown off effect in an arm, leg, or head location.

Primitive Combat Vehicles and Conventional Fighters

The following rules modifications apply only to combat involving Primitive vehicles and conventional fighters:

Primitive Targeting Systems: For combat vehicles and conventional fighters created before 2300, apply a +1 to-hit modifier for all weapon attacks. This modifier is in addition to the unit's existing fire control system modifiers (if any; so, a primitive fighter using a

PRIMITIVE VS. MODERN

Technically speaking, all BattleMechs, IndustrialMechs, combat vehicles, and aerospace units might be considered "modern" designs in the *BattleTech* universe, but the engineering behind them evolved most dramatically in the earliest centuries of the setting. To reflect the nature of more primitive units (such as those available during the Age of War), these rules introduce a new Technology Base classification: Primitive.

The Primitive Tech Base is effectively confined to the Inner Sphere (and the Periphery); a unit constructed using a Primitive Tech Base may not use Clan technology unless it has been built after 2850 *and* the designer is using the Mixed Technology rules found in *Tactical Operations* (see p. 377, *TO*). A Primitive unit designed and built with modern technologies reflects the throwback standards known as "RetroTech", rather than the truly Primitive Tech Base. Even so, RetroTech units may employ Clan-made weapons (and weapon accessories, such as Artemis IV and targeting computers), but other Clan components are such as heat sinks, armor, and the use of OmniMech pod-mounting technology are simply too far advanced to work on a Primitive-level frame.

Modern Tech Introduction: For historical purposes, "modern" technology, as defined under these rules, refers to the point where the standard construction rules for BattleMechs, combat vehicles and aerospace units apply as found in the *TechManual*. Players running games set in specific points of *BattleTech* history, using armies affiliated with the specific realms of the day, should therefore note where each of the major Inner Sphere and Periphery powers of the Age of War period finally and fully adopted this modern level of unit construction, as indicated below.

Year	Realm
2470	Terran Hegemony
2475	Federated Suns and Lyran Commonwealth
2487	Draconis Combine
2501	Free Worlds League
2503	Rim Worlds Republic
2504	Capellan Confederation
2505	Taurian Concordat

basic fire control system will suffer a +2 to-hit modifier: +1 for primitive targeting systems +1 for basic fire control = +2).

From 2300 and after, the added modifier for primitive targeting systems no longer applies.

Support Vehicle Rules: The units covered by these rules are referred to as "Primitive Combat Vehicles" and "Primitive Conventional Fighters" primarily for context, but it should be remembered that the standard construction rules for both unit types did not exist as such originally. Because these units are actually constructed using the rules for Support Vehicles, they are, in fact, bound by the Support Vehicle game play rules as well.

Primitive Aerospace Fighters and Small Craft

The following rules modifications apply only to combat involving Primitive aerospace fighters and small craft:

Primitive Aerospace Targeting Systems: For Primitive aerospace fighters and small craft, apply an additional +1 to-hit modifier for all weapon attacks made at Long and Extreme ranges. This modifier does not apply to aerospace units built as RetroTech units, nor does it apply to Primitive aerospace fighters and small craft from 2300 and after.

Primitive Large Aerospace Craft

Beyond the construction rules modifications outlined later, Primitive DropShips, JumpShips, and other large aerospace units receive no additional gameplay modifications. Note, however, that some rules options available to large craft will be unavailable until the advent of suitable technologies during the "Primitive" period. These include the following:

DropShip Docking Operations: Prior to 2458, jump-friendly docking collars and K-F booms did not exist as such, rendering DropShips unable to link up with JumpShips externally and transit with them through hyperspace. However, prior to this, DropShips weighing 5,000 tons or less could serve as "shuttles" that could in turn be launched and recovered by larger JumpShips as if they were small craft (requiring a specialized DropShuttle bay for the capability).

Until the advent of the KF Boom and the corresponding "post-boom" collars, DropShips weighing more than 5,000 tons could not be transported through hyperspace by any means other than as dismantled cargo. Even if the vessel possesses a naval repair facility of sufficient capacity, vessels carried within would still require a KF boom to enable transition through hyperspace. Efforts to jump while docked with a vessel that lacks a KF boom will automatically abort the procedure.

Jump Sail and Jump Drive Charging: Prior to 2200, the jump sail did not exist as such. As a result, all JumpShips constructed before 2200 must charge their K-F drives directly from the ship's fusion engines using the quick-charge rules (see pp. 87-88, *SO*).

RESTRICTED TECHNOLOGIES

The construction rules presented in the following pages define how Primitive units modify the existing standard construction rules found either in *TechManual* (for 'Mechs, vehicles, fighters, small craft, and DropShips), or in *Strategic Operations* (for JumpShips and WarShips). Because of the similarities between them, these rules modifications will apply when building the truly Primitive units and their modern-primitive RetroTech equivalents.

Still, differences *do* exist between the two types of Primitive units, primarily in the items and equipment that may be mounted on the original Primitives, and their RetroTech throwbacks. When constructing units using the basic Primitive Tech Base, the following weapons and equipment restrictions apply as indicated. For items that are prohibited to RetroTech units, see *RetroTech*, below:

Armor (All Units): Primitive 'Mechs, aerospace fighters, small craft, and larger aerospace units (including DropShips and JumpShips) may only mount Primitive Armor. Primitive combat vehicles and conventional fighters created before 2300 are limited to support vehicle armor with a maximum Tech Rating of C, and a maximum BAR value of 7. Primitive combat vehicles and conventional fighters created from 2300 and after are limited to support vehicle armor with a maximum Tech Rating of D, and a maximum BAR value of 7. A maximum BAR rating of 8 applies after 2425, and a maximum BAR rating of 9 after 2440. After 2464, primitive combat vehicles and conventional fighters may mount support vehicle armor of BAR 10.

Cockpits and Control Systems (All Units): Primitive 'Mechs and aerospace fighters may only employ Primitive cockpits. Primitive control systems for all other units are handled in accordance with their specific rules as well, and cannot be upgraded to "modern" standards.

Where a unit requires a fire control system for combat functionality (including the Basic and Advanced Fire Control systems available to support vehicles and IndustrialMechs), the construction rules for their appropriate unit types are still used, but when these systems are used on a Primitive unit, they will function in game play as described under Primitive Units Game Rules referenced earlier.

Engines (All Units): Primitive 'Mechs, aerospace fighters, small craft, and larger aerospace units (including DropShips and JumpShips) may only mount Primitive engines as spelled out in their rules. Primitive combat vehicles and conventional fighters created before 2300 are limited to support vehicle engines with a maximum Tech Rating of C. Primitive combat vehicles and conventional fighters created from 2300 and after are limited to support vehicle engines with a maximum Tech Rating of D.

Gyros ('Mechs): Primitive 'Mechs can only use Primitive gyros.

Internal Structure ('Mechs and Vehicles): Primitive 'Mechs can only make use of standard internal structure (or standard IndustrialMech structure, for IndustrialMechs). Endo steel and other advanced structures listed in *Tactical Operations* may not be used by Primitive 'Mechs. Primitive combat vehicles and conventional fighters created before 2300 can only use support vehicle structure with a maximum Tech Rating of C. Primitive combat vehicles and conventional fighters created from 2300 and after can use support vehicle structure with a maximum Tech Rating of D.

Docking Collars (Small Craft, DropShips, JumpShips): While external docking collars were available prior to the advent of the JumpShip/DropShip combination in 2470, these systems could not be used to enable hyperspace transit until the development of the K-F boom (which was mounted on DropShips) and the matching post-KF boom docking hardpoint in 2458.

Players designing large spacecraft before 2458 thus *can* mount a standard docking collar on these units, but must identify these as pre-boom collars, incapable of entering hyperspace when DropShips are docked to them. From 2458 and forward, the K-F boom and matching docking hardpoints will become available, and this restriction will no longer apply. (Of course, even so, the year of the unit's construction will still determine if the unit may mount a prototype form of these technologies, or the final "modern" form.)

Jump Jets ('Mechs): Primitive 'Mechs can only make use of prototype jump jets (see p. 120) or standard jump jets.

Weapons and Equipment: Primitive units (unless otherwise stated) may add weapons, ammunition and other equipment per standard rules for the unit in question, except all such weapons and equipment may only be installed if they have an introduction date of 2500 or earlier. (After that period, enough manufacturers had improved their engineering processes to the point where units were constructed under standard construction rules, and efforts to support the obsolete engineering standards of Primitives were abandoned.)

Note that the above also permits the use of primitive and prototype weapons and equipment from the Age of War period featured in this book, as long as they also have introductory dates before 2500.

RetroTech

During the Word of Blake Jihad, extensive damage to factories and infrastructure at nearly every level paralyzed many realms' ability to replace their equipment losses or support local defenses against an enemy that seemed willing and able to hit anywhere, at any time. Desperate to muster any kind of defense, several local civilian factories and refit facilities launched limited-capacity supporting production lines capable of turning out BattleMechs and combat vehicles built to lesser design standards. Though seen by many as scarcely better than armed industrial equipment, these machines were actually patterned on Age of War-era equipment. Because they were still built with a limited capacity to handle newer technologies, these otherwise primitive units became collectively known as "RetroTech".

While the actual "RetroTech craze" ran mostly from the middle of the Jihad to its end, RetroTech rules apply any time a unit built with the Primitive Tech Base is designed to employ any non-Primitive weapons or equipment.

RetroTech 'Mechs, vehicles, and fighters are built using the same basic rules modifications for Primitive units, but because they appeared long after the appearance of modern technologies, they have a broader range of options available to them. When constructing RetroTech units, the following weapons and equipment restrictions apply to the Primitive construction rules in place of those established above:

Armor (All Units): RetroTech units may mount any type of armor available to the unit type, including modern armors such as ferro-fibrous, hardened, and the like. RetroTech combat vehicles and conventional fighters are still built using the support vehicles rules, and so may only mount armor types available to support units (but are no longer bound to any Tech Base or BAR restrictions).

Cockpits and Control Systems (All Units): RetroTech 'Mechs and aerospace fighters may only mount Primitive Cockpits. Primitive control systems for all other units are handled in accordance with their specific rules as well, and cannot be upgraded to "modern" standards. Note that with the exception of Primitive IndustrialMech cockpits, RetroTech cockpits and targeting systems will not suffer the targeting modifiers associated with their original Primitive versions.

Engines (All Units): RetroTech 'Mechs, aerospace fighters, small craft, and larger aerospace units (including DropShips and JumpShips) may only mount Primitive engines as spelled out in their rules. RetroTech combat vehicles and conventional fighters likewise remain limited to support vehicle engines with a maximum Tech Rating of C.

Gyros ('Mechs): RetroTech 'Mechs can only use Primitive gyros.

Internal Structure ('Mechs and Vehicles): RetroTech 'Mechs can only make use of standard internal structure (or standard IndustrialMech structure, for IndustrialMechs). Endo steel and other advanced structures listed in *Tactical Operations* may not be used by RetroTech 'Mechs. RetroTech combat vehicles (and conventional fighters) can only use support vehicle structure with a maximum Tech Rating of C.

Docking Collars (Small Craft, DropShips, JumpShips): RetroTech aerospace units may mount docking collars normally.

Jump Jets ('Mechs): RetroTech 'Mechs can make use of any type of jump jets, including modern versions such as the standard and improved variety.

Weapons and Equipment: RetroTech units may add weapons, ammunition and other equipment from any era per standard rules for the unit in question.

Mixed Tech

If a Primitive or RetroTech unit employs a non-Primitive cockpit, engine, gyro or internal structure of any kind, it may no longer be considered Primitive or RetroTech, but instead becomes classified as having a mixed-technology unit with an Inner Sphere Tech Base (see *Mixed Technologies*, p. 377, *TO*).

PRIMITIVE 'MECH CONSTRUCTION

Rules Level: Advanced
Available to: BM, IM
Tech Base (Ratings): Inner Sphere (D/CFEF)

Primitive BattleMechs and IndustrialMechs are built using the standard BattleMech and IndustrialMech Construction rules (see pp. 44–59, and pp. 63–75, *TM*), but with the changes described below.

Timeline: In universe, the Primitive IndustrialMech (also called a WorkMech) was introduced in 2350 and the Primitive BattleMech in 2439. The "primitive stage" of 'Mech development lasted until 2520; such construction began to phase out in 2500, but it would take another two decades until all primitive production stopped.

Step 1: Design the Chassis

The following rule changes apply to Step 1 of BattleMech or IndustrialMech design (designing the chassis).

Choose Technology Base: Primitive BattleMechs and IndustrialMechs can only be built using Inner Sphere technology (see *Primitive vs. Modern*, p. 121, for exceptions covering "modern Primitive" designs). Primitive 'Mechs cannot be constructed as OmniMechs, nor may they be designed as LAMs, QuadVees, or Tripods. Primitive 'Mechs may only be built as bipeds or four-legged units.

Choose Weight (Tonnage): Primitive BattleMechs and IndustrialMechs may weigh between 10 and 100 tons, determined in five-ton increments. Within these limits, the player may choose any tonnage. The total weight of the 'Mech's engine and components (as well as weapons and armor, if appropriate) may not exceed this amount.

Allocate Tonnage for Internal Structure: Primitive 'Mech internal structure is identical in all ways to standard internal structure (including cost), with Primitive BattleMech internal structure taking up 10 percent of the unit's total weight, and Primitive IndustrialMech internal structure taking up 20 percent of the unit's total weight.

The number of internal structure boxes a Primitive 'Mech receives are as those of an equivalent-weight modern 'Mech on the Internal Structure Table (see p. 47, *TM*). As indicated under Restricted Technologies (see pp. 121-122), Primitive 'Mechs may not employ any alternative internal structure types (such as endo steel).



Charles is going to create the MSK-5S Mackie*, the first operational Primitive BattleMech introduced by the Terran Hegemony in 2439. As a Primitive BattleMech, the* Mackie *can only use Inner Sphere technology.*

Charles intends the Mackie *to have a standard humanoid chassis configuration; he chooses to make the* Mackie *100 tons.*

With a mass of 100 tons, Charles allocates 10 tons for the Mackie*'s internal structure.*

Step 2: Install Engine and Control Systems

The following rule changes apply to Step 2 of BattleMech or IndustrialMech design (installing the engine and control systems):

Install Engine: Both Primitive BattleMechs and Primitive IndustrialMechs can use ICE, fuel cell, fission, or standard fusion engine types. Primitive engines are identical in all ways to their modern engines (including costs), except that, after calculating the unit's Engine Rating as normal, the result must be multiplied by 1.2 and rounded up to the nearest available Engine Rating from the Master Engine Table (see p. 49, *TM*). This modified Engine Rating is then used to find the weight of the Primitive 'Mech's engine.

Note that even though the normal Master Engine Table is used in this step, the requirement for a heavier, higher-rated engine to achieve the same performance is intended to reflect the reduced efficiency of an obsolete engine type. This means that the resulting engine is considered a Primitive engine, and will not improve its performance when placed in a modern chassis.

Add Gyroscope: Primitive gyros are identical in all ways to standard gyros (including costs), but compute their weight based on the Primitive 'Mech's modified Engine Rating (as indicated above), rather than their actual, modern Engine Rating. (See pp. 50–51, *TM*.)

Determine Jump Capability: Only fusion- or fission-powered Primitive 'Mechs built after 2464 may mount jump jets. These jets are mounted in accordance with the standard rules for BattleMech jump jets (see p. 51, *TM*).

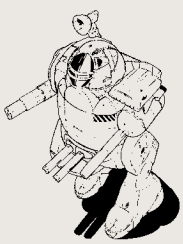
Primitive 'Mechs built from 2464 to 2470 may only use Primitive prototype jump jets (see p. 120), while Primitive 'Mechs built after 2470 may mount standard or Primitive prototype jump jets. Improved jump jets are incompatible with Primitive technology, as are the various jump boosters featured in *Tactical Operations*.

Special Physical Enhancements: The engines, structure, and musculature used in Primitive 'Mechs are incompatible with physical enhancements such as MASC, triple-strength myomers, and similar speed- or strength-boosting technologies featured in *Tactical Operations* (such as an engine supercharger).

Determine Cockpit Type: Primitive cockpits are identical in all ways to standard cockpits (including costs), except that both the Primitive BattleMech cockpit and the Primitive IndustrialMech cockpit weigh 5 tons. Primitive BattleMechs may only mount a Primitive BattleMech cockpit, while Primitive IndustrialMechs may only mount a Primitive IndustrialMech cockpit.

As noted in the combat rules, Primitive IndustrialMech cockpits lack targeting systems by default, as well as any ejection systems for the pilot. They may be upgraded with such equipment as noted in *TechManual*, but even so, a Primitive IndustrialMech will still suffer a +1 to-hit modifier in addition to the modifiers applicable to the IndustrialMech's fire control systems (if any). Primitive BattleMech cockpits do not suffer this deficiency, and automatically feature advanced fire control.

Primitive 'Mechs may not use modern targeting computers or C^3 or C^3i systems unless they are also equipped with advanced fire control. Because those technologies post-date the days when Primitive 'Mechs were originally constructed, however, installing such systems automatically makes the 'Mech a RetroTech unit. Remember that Primitive BattleMech receive advanced fire control by default.



Charles' Mackie *is a 100-ton Primitive BattleMech with a Walking MP of 3. Normally this would require a 300-rated engine, but because this is a Primitive 'Mech, the rating is multiplied by 1.2 to give a final engine rating of 360. As the* Mackie *is to use a fusion engine, the weight is found to be 33 tons, and the 'Mech receives the standard 10 free single heat sinks.*

With a 360-rated engine, Charles' Mackie *requires a 4-ton gyro.*

As it is the first BattleMech ever produced, with an introduction date of 2439, Charles' Mackie *cannot mount jump jets (which will not appear—even in prototype form—until 2471). It also uses the 5-ton Primitive BattleMech cockpit, which comes with its own advanced fire control system.*

Step 3: Add Additional Heat Sinks

Primitive 'Mechs may only install standard (single) heat sinks. The number of "weight-free" heat sinks (if any) that a Primitive 'Mech receives from its engine is based on its engine type as per the normal rules in *TechManual* (see p. 71, *TM*).

Per standard BattleMech Construction rules, the number of sinks that need not be allocated to the Primitive 'Mech's Critical Hit chart is equal to the 'Mech's modified Engine Rating, divided by 25 (rounded down).



Since Charles installed a fusion engine, his Mackie *will receive 10 heat sinks at no cost in weight. He chooses to add an additional 7 single heat sinks, to offset the combat heat he expects the 'Mech to generate once fully armed.*

Given the Mackie*'s modified Engine Rating of 360, 14 of these 17 sinks need not be placed on the unit's (360 ÷ 25 = 14.4, rounded down to 14); the other three must be allocated critical spaces on the record sheet.*

Step 4: Add Armor

As with normal 'Mech design, the armor used by Primitive 'Mechs may be purchased in half-ton lots, and the maximum number of armor points that may be mounted in each of the 'Mech's body locations are identical to those of a modern BattleMech of the same weight (see pp. 54–57, *TM*).

For Primitive 'Mechs, the only armor types permitted are as follows (RetroTech 'Mechs may mount alternative armor types, as indicated under *Restricted Technologies*, see pp. 121-122):

Primitive BattleMech Armor: Primitive BattleMechs can only mount Primitive BattleMech armor, which has an effective BAR of 10 and multiplies the number of standard armor points provided per ton (16) by 0.67 (rounding down to the nearest whole number).

Primitive IndustrialMech Armor: Primitive IndustrialMechs may only mount Commercial armor, which has an effective BAR of 5 and multiplies the number of points provided per ton of standard armor (16) by 1.5 (rounding down to the nearest whole number).



The Mackie *carries 20 tons of Primitive BattleMech armor. This gives the 'Mech 214 points of armor [20 (armor tonnage) x 16 (standard points per ton) x 0.67 (Primitive armor factor) = 214.4, rounded down to 214].*

Charles allocates the armor thus: 9 points to the head, 31 points to the front center torso, 20 points each to the front side torsos, 10 points to all three rear torso locations, 24 points to each arm and 28 points to each leg.

Step 5: Add Weapons, Ammunition and Other Equipment

Primitive 'Mechs (unless otherwise stated) may add weapons, ammunition and other equipment per standard rules, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pp. 121-122, for more information.

After 2500, enough manufacturers had improved their engineering processes to the point where 'Mechs from every realm could be made using standard construction rules and equipment. Any post-2500 'Mechs built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Step 6: Complete Record Sheet

Primitive 'Mechs use the standard 'Mech record sheet, which is completed as normal (see p. 59, *TM*).

Charles completes his Mackie *design by adding a PPC (7 tons) to the left arm, a large laser (5 tons) to the center torso and an autocannon/5 (8 tons) to the right arm (with a ton of ammunition located in the right torso).*

When completing his Mackie*'s record sheet, Charles consults the normal* TechManual *specs for the large laser and autocannon, but because he chose to place a PPC in a 2439-vintage 'Mech, he was forced to select the Primitive prototype version of that weapon, and thus consults the rules in this book (see* Primitive Prototype Equipment*, pp. 117-120), to find the specs for that weapon.*

PRIMITIVE COMBAT VEHICLE CONSTRUCTION

Rules Level: Tournament Legal
Available to: SV
Tech Base (Ratings): Inner Sphere (C/CDEF)

Even though they are classified as Combat Vehicles in terms of their battlefield function, Primitive combat vehicles are actually designed using the Support Vehicle rules found in *TechManual* instead (see pp. 116-155, *TM*). Primitive combat vehicles may be built using the hover, naval, tracked, VTOL, wheeled, or wing-in-ground effect (WiGE) motive types, as appropriate. When building such units, the following restrictions apply:

Restricted Technologies: All *Restricted Technologies* rules defined for vehicles (see pp. 121-122) apply to Primitive combat vehicles as appropriate.

Maximum Technology: Primitive combat vehicles follow the maximum Tech Ratings under Restricted Technologies for the vehicle's chassis and engine (see pp. 121-122). This also applies to chassis modifications, so Primitive combat vehicles may not be constructed using advanced chassis modifications such as Ultra-Light before TR D is available or the Omni chassis modification.

Maximum BAR: Primitive combat vehicles follow the maximum Tech Ratings and BAR values restricted by date under Restricted Technologies (see pp. 121-122) for the vehicle's armor.

RetroTech vs. Modern Support Vehicles: A support vehicle built with any weapons and equipment listed in the *Restricted Technologies* rules—while still using a chassis, engine, *and* armor of Tech Rating of C or less, may be considered a RetroTech combat vehicle. If a support vehicle is built with a chassis or engine that has a Tech Rating higher than C, it is considered a modern Support Vehicle instead.

PRIMITIVE CONVENTIONAL FIGHTER CONSTRUCTION

Rules Level: Tournament Legal
Available to: SV
Tech Base (Ratings): Inner Sphere (C/CDEF)

Even though they function exactly as Conventional Fighters, Primitive conventional fighters are actually designed using the Fixed-Wing Support Vehicle rules found in *TechManual* instead (see pp. 116-155, *TM*). Primitive conventional fighters may only be built with the fixed wing motive type; airship support vehicles are never considered to be anything other than a support vehicle, even when armed.

When building Primitive conventional fighters, the following restrictions apply:

Restricted Technologies: Primitive conventional fighters follow the maximum Tech Ratings under *Restricted Technologies* for the fighter's chassis and engine (see pp. 121-122). This also applies to chassis modifications, so Primitive conventional fighters may not be constructed using advanced chassis modifications such as Ultra-Light before TR D is available or the Omni chassis modification.

Maximum Technology: A maximum Tech Rating of C applies for the fighter's chassis and engine. This also applies to chassis

modifications, so Primitive fighters may not be constructed using advanced chassis modifications such as Ultra-Light construction or Omni-chassis.

Crew Needs: For purposes of computing crew needs, Primitive conventional fighters use the minimum gunners requirements of a Small size support vehicle, with only one gunner required per weapon facing. This gunner can include the fighter's pilot.

Maximum BAR: Primitive conventional fighters follow the maximum Tech Ratings and BAR values restricted by date under *Restricted Technologies* (see pp. 121-122) for the fighter's armor.

RetroTech vs. Modern Support Vehicles: A fixed-wing support vehicle built with any weapons and equipment listed in the *Restricted Technologies* rules—while still using a chassis, engine, *and* armor of Tech Rating of C or less, may be considered a RetroTech conventional fighter. If a fixed-wing support vehicle is built with a chassis or engine that has a Tech Rating higher than C, it is considered a modern Support Vehicle instead.

PRIMITIVE AEROSPACE FIGHTER CONSTRUCTION

Rules Level: Tournament Legal
Available to: AF
Tech Base (Ratings): Inner Sphere (D/DEFF)

As with Primitive 'Mechs, constructing a Primitive aerospace fighter uses the standard rules given in *TechManual* (see pp. 181-199, *TM*), with a few minor changes as outlined below:

Timeline: In universe, the Primitive aerospace fighter was introduced in 2300. The "primitive stage" of fighter development lasted until 2520; such construction began to phase out in 2500, but it would take another two decades until all primitive production stopped.

Step 1: Design the Chassis

The following rule changes apply to Step 1 of aerospace fighter design (designing the chassis).

Choose Technology Base: Primitive aerospace fighters can only be built using Inner Sphere technology (see *Primitive vs. Modern*, p. 121, for exceptions covering "modern Primitive" designs). Primitive aerospace fighters cannot be constructed as OmniFighters.

Choose Weight (Tonnage): Primitive aerospace fighters may weigh between 10 and 100 tons, determined in five-ton increments. Within these limits, the player may choose any tonnage. The total weight of the fighter's engine and components (as well as weapons and armor, if appropriate) may not exceed this amount.

Step 2: Install Engine and Control Systems

The following rule changes apply to Step 2 of aerospace fighter design (installing the engine and control systems):

Install Engine: Primitive aerospace fighters can only use standard fusion engine types. As with Primitive 'Mech engines, after calculating the unit's Engine Rating as normal, multiply that value by 1.2 and round up to the nearest available Engine Rating on the Master Engine Table (see p. 49, *TM*). This modified Engine Rating is then used to find the weight of the Primitive aerospace fighter's engine. In all other ways, Primitive fighter engines are identical in all ways to their modern counterparts (including costs).

Note that even though the normal Master Engine Table is used in this step, the requirement for a heavier, higher-rated engine to achieve the same performance is intended to reflect the reduced efficiency of an obsolete engine type. This means that the resulting engine is considered a Primitive engine, and will not improve its performance when placed in a modern chassis.

Add Control/Crew Systems: Primitive aerospace fighter cockpits are identical in all ways to standard cockpits (including costs), except that the Primitive aerospace fighter cockpits weigh 5 tons, and automatically impose an additional +1 to-hit modifier for attacks made at Long and Extreme ranges.

Primitive fighters may not use modern targeting computers or C^3 or C^3i systems.

Step 3: Add Armor

As with normal aerospace fighter design, the armor used by Primitive aerospace fighters may be purchased in half-ton lots, with the maximum number of armor points that may be mounted on the fighter's four armor facings (nose, aft, and both wings) equal to the fighters tonnage x 8.

Primitive aerospace fighters may only use Primitive aerospace fighter armor. This armor is identical to that used by Primitive BattleMechs; it has an effective BAR of 10, and multiplies the number of standard armor points provided per ton (16) by 0.67 (rounding down to the nearest whole number). This armor may be allocated by the designer in accordance with the normal aerospace fighter armor rules (see pp. 190-191, *TM*).

Step 4: Add Additional Heat Sinks

Primitive aerospace fighters may only install standard (single) heat sinks. Because all Primitive aerospace fighters must use fusion engines, this engine type automatically provides 10 "weight-free" heat sinks. Additional heat sinks may be added to improve the Primitive fighter's heat efficiency.

Step 5: Add Weapons, Ammunition and Other Equipment

Unless otherwise stated, Primitive aerospace fighters may add weapons, ammunition and other equipment per the normal rules, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pp. 121-122, for more information.

After 2500, enough manufacturers had improved their engineering processes to the point where aerospace fighters from every realm could be made using standard construction rules and equipment.

Any post-2500 aerospace fighters built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Step 6: Complete Record Sheet

Primitive aerospace fighters use the standard aerospace fighter record sheet, which is completed as normal (see p. 198-199, *TM*).

PRIMITIVE SMALL CRAFT CONSTRUCTION

Rules Level: Tournament Legal
Available to: SC
Tech Base (Ratings): Inner Sphere (D/DEFX)

Constructing a Primitive small craft uses the standard rules given in *TechManual* (see pp. 181-199, *TM*), with a few minor changes as outlined below:

Step 1: Design the Chassis

The following rules changes apply to Step 1 of small craft design (designing the chassis).

Choose Unit Type and Shape: Primitive small craft may be constructed in either spheroid or aerodyne shapes. Unless

otherwise specified in the basic rules and these modifications, both shapes of Primitive small craft will adhere to the same construction rules and restrictions.

Choose Technology Base: Primitive small craft can only be built using Inner Sphere technology (see *Primitive vs. Modern*, p. 121, for exceptions covering "modern Primitive" designs).

Choose Weight (Tonnage): Primitive small craft may weigh between 100 and 200 tons, determined in five-ton increments. Within these limits, the player may choose any tonnage. The total weight of the small craft's engine and components (as well as weapons and armor, if appropriate) may not exceed this amount.

Step 2: Install Engines and Control Systems

The following rule changes apply to Step 2 of small craft design (installing the engine and control systems):

Install Engine: The mass of the Primitive small craft's engine is dependent upon the period when the vessel is constructed. Begin by finding the Primitive small craft's Base Movement Factor per the standard rules (see *Aerospace Unit Engine Table*, p. 185, *TM*). Then, in place of the normal small craft engine weight formula, use the one found under the Primitive Engine Weight Formula column of the Primitive Small Craft Engine/Controls Weight Table (see below), based upon the ship's year of introduction. Round all engine weights up to the nearest half-ton.

Structural Integrity: The minimum and maximum structural integrity (SI) values for a Primitive small craft are computed as normal for a standard small craft of equivalent weight and shape. SI weights for Primitive small craft are likewise identical to their normal versions.

Fuel: When determining the Primitive small craft's tactical fuel efficiency, *divide* its number of fuel points per ton (normally 80 points) by the Primitive Fuel Factor appropriate to its year of introduction, to reflect the vessel's lower fuel efficiency. Do not round this value until after assigning the desired fuel tonnage (at which point the fuel points round down to the nearest whole number).

For the small craft's strategic fuel efficiency, *multiply* its usual number of fuel tons per burn-day (normally 1.84 tons/burn-day) by its Primitive Fuel Factor (see *Determine Fuel Capacity*, p. 186, *TM*). Round this figure up to the nearest 0.01 tons per burn day.

Add Control/Crew Systems: As with their engines, the weight of the control systems used by a Primitive small craft is dependent on the vessel's year of introduction. In place of the normal small craft control systems weight formula, use the appropriate one found under the Primitive Control System Weight Formula column of the Primitive Small Craft Engine/Controls Weight Table (see below). Round all control system weights up to the nearest half-ton.

Like aerospace fighters, the control systems of Primitive small craft automatically impose an additional +1 to-hit modifier for attacks made at Long and Extreme ranges.

Crew: The crew numbers for a Primitive small craft are computed as normal. All crewmen must be assigned at least steerage-grade quarters (at 5 tons per crewman), but better quarters can be assigned instead, if desired. The weight of all Primitive crew and passenger quarters are the same as their modern versions.

Step 3: Add Armor

Primitive small craft armor is identical in all ways to standard armor (including costs), except that all armor mounted on a Primitive small craft—including the "free" armor provided by the vessel's structural integrity value—must be multiplied by 0.66, rounding down to the nearest whole number.

Step 4: Add Additional Heat Sinks

Primitive small craft may only install standard (single) heat sinks. This includes the "weight-free" heat sinks provided with the vessel's engine (which are computed as normal).

Step 5: Add Weapons, Ammunition and Other Equipment

Unless otherwise stated, Primitive small craft may add weapons, ammunition and other equipment per the normal rules, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pp. 121-122, for more information.

After 2500, enough manufacturers had improved their engineering processes to the point where small craft from every realm could be made using standard construction rules and equipment.

Any post-2500 small craft built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Step 6: Complete Record Sheet

Primitive small craft use the standard small craft record sheet appropriate to their hull type (aerodyne or spheroid). This sheet is completed as normal (see p. 198-199, *TM*).

PRIMITIVE DROPSHIP CONSTRUCTION

Rules Level: Tournament Legal
Available to: DS
Tech Base (Ratings): Inner Sphere (D/DFXX)

The modern DropShip didn't fully develop until after the advent of the docking collar, which also led to the K-F boom that allowed for the extension of the K-F field around externally-carried DropShips. Prior to that time, any non-jump-capable interplanetary drive vessel was formally called a shuttle, even though many contemporary pilots often used the term "dropship" to reference shuttles small enough to dock inside a JumpShip. (Shuttles were also constructed in this period that could not fit inside a JumpShip, however. These large craft were thus bound to the solar system where they were assembled, and typically appeared only in systems with multiple planets, or with zones under active colonization or mining efforts.)

When modern construction techniques took over in 2500, and all DropShips mounted docking collars as a matter of standard procedure, the term "DropShip" became formalized.

PRIMITIVE SMALL CRAFT ENGINE/CONTROLS WEIGHT TABLE

Year of Introduction	Primitive Engine Weight Formula*	Primitive Fuel Factor	Primitive Control System Weight Formula*
2100 - 2150	Base Movement Factor x 0.143	2.2	Tonnage x 0.01575
2151 - 2200	Base Movement Factor x 0.1235	1.9	Tonnage x 0.01425
2201 - 2250	Base Movement Factor x 0.1105	1.7	Tonnage x 0.01275
2251 - 2299	Base Movement Factor x 0.0975	1.5	Tonnage x 0.01125
2300 - 2399	Base Movement Factor x 0.091	1.4	Tonnage x 0.00975
2400 - 2499	Base Movement Factor x 0.078	1.2	Tonnage x 0.00825
2500+	Base Movement Factor x 0.065**	1.0**	Tonnage x 0.0075**

*Round all weights up to the nearest 0.5 tons.
**These Factors apply to the standard construction rules only and cannot be used with these Primitive Construction Rules (they are provided for fictional context only, to show when "modern-day" construction arrived).

Constructing a Primitive DropShip uses the standard rules given in *TechManual* (see pp. 181-199, *TM*), with the changes outlined below. Note that despite the nuanced use of the term "shuttle" versus "dropship" that applied in this early time period, these rules will refer to all large non-hyperspace craft by the general term of "Primitive DropShip".

Military vs. Civilian: Before 2500, the various technologies and engineering techniques involved in large system-transit spacecraft had not yet advanced enough to permit the more robust and dedicated military DropShips of the modern age. As such, unless specifically stated otherwise, all of these rules will be based on those established for civilian DropShips.

Step 1: Design the Chassis

The following rules changes apply to Step 1 of DropShip design (designing the chassis).

Choose Unit Type and Shape: Primitive DropShips may be constructed in either spheroid or aerodyne shapes. Unless otherwise specified in the basic rules and these modifications, both shapes of Primitive DropShip will adhere to the same construction rules and restrictions.

Choose Technology Base: Primitive DropShips can only be built using Inner Sphere technology (see *Primitive vs. Modern*, p. 121, for exceptions covering "modern Primitive" designs).

Choose Weight (Tonnage): Primitive DropShips may weigh from 200 tons to the maximum defined by their weight limit in the Primitive DropShip Maximum Weight Limit Table, based on the vessel's shape and year of introduction. Like their modern kin, the weight of a Primitive DropShip must be determined in 100-ton increments. Within these limits, the player may choose any tonnage. The total weight of the vessel's engine and components (as well as weapons and armor, if appropriate) may not exceed this amount.

Interstellar Travel: A Primitive DropShip must be 5,000 tons or less to be carried within a Primitive JumpShip for interstellar travel. If it is larger than 5,000 tons, then it is an interplanetary-only craft.

Step 2: Install Engines and Control Systems

The following rule changes apply to Step 2 of DropShip design (installing the engine and control systems):

Install Engine: The mass of the Primitive DropShip's engine is dependent upon the period when the vessel is constructed. Begin by finding the Primitive DropShip's Base Movement Factor per the standard rules (see *Aerospace Unit Engine Table*, p. 185, *TM*). Then, in place of the normal DropShip engine weight formula, use the one found under the Primitive Engine Weight Formula column of the Primitive DropShip Engine/Controls Weight Table (see p. below), based upon the ship's year of introduction. Round all engine weights up to the nearest half-ton.

Structural Integrity: The minimum and maximum structural integrity (SI) values for a Primitive DropShip are computed as normal for a standard DropShip of equivalent weight and shape. SI weights for Primitive DropShips are likewise identical to their normal versions.

Fuel: When determining the Primitive DropShip's tactical fuel efficiency, *divide* its number of fuel points per ton (see p. 186, *TM*) by the Primitive Fuel Factor appropriate to its year of introduction, to reflect the vessel's lower fuel efficiency. Do not round this value until after assigning the desired fuel tonnage (at which point the fuel points round down to the nearest whole number).

For the DropShip's strategic fuel efficiency, *multiply* its usual number of fuel tons per burn-day (based on its equivalent-weight civilian DropShip, see *Determine Fuel Capacity*, p. 186, *TM*) by its Primitive Fuel Factor. Round this figure up to the nearest 0.01 tons per burn day.

Add Control/Crew Systems: As with its engines, the weight of the control systems used by a Primitive DropShip is dependent on the vessel's year of introduction. In place of the normal DropShip control systems weight formula, use the appropriate one found under the Primitive Control System Weight Formula column of the Primitive DropShip Engine/Controls Weight Table (at left). Round all control system weights up to the nearest half-ton.

Unlike Primitive aerospace fighters and small craft, the control systems of Primitive DropShips impose no additional to-hit modifiers for weapon attacks at any range.

PRIMITIVE DROPSHIP MAXIMUM WEIGHT LIMIT TABLE

Year of Introduction	Weight Limit (in tons), Spheroid / Aerodyne
2110-2129	3,000 / 1,000
2130-2149	4,000 / 1,500
2150-2164	7,000 / 2,500
2165-2174	10,000 / 3,500
2175-2199	14,000 / 5,000
2200-2249	15,000 / 6,000
2250-2299	19,000 / 7,000
2300-2349	23,000 / 8,000
2350-2424	30,000 / 10,000
2425-2499	50,000 / 20,000
2500+	100,000* / 35,000*

*These maximums apply to the standard construction rules only and cannot be used with these Primitive Construction Rules (they are provided for fictional context only, to show when "modern-day" limitations arrived).

PRIMITIVE DROPSHIP ENGINE/CONTROLS WEIGHT TABLE

Year of Introduction	Primitive Engine Weight Formula*	Primitive Fuel Factor	Primitive Control System Weight Formula*
2100 - 2150	Base Movement Factor x 0.130	2.0	Tonnage x 0.0150
2151 - 2200	Base Movement Factor x 0.117	1.8	Tonnage x 0.0135
2201 - 2250	Base Movement Factor x 0.104	1.6	Tonnage x 0.0120
2251 - 2299	Base Movement Factor x 0.091	1.4	Tonnage x 0.0105
2300 - 2350	Base Movement Factor x 0.0845	1.3	Tonnage x 0.00975
2351 - 2499	Base Movement Factor x 0.0715	1.1	Tonnage x 0.009
2500+	Base Movement Factor x 0.065**	1.0**	Tonnage x 0.0075**

*Round all weights up to the nearest 0.5 tons.

**These Factors apply to the standard construction rules only and cannot be used with these Primitive Construction Rules (they are provided for fictional context only, to show when "modern-day" construction arrived).

Crew: The crew numbers for a Primitive DropShip are computed as normal. This crew must be assigned at least steerage-grade quarters (at 5 tons per crewman), but better quarters can be assigned instead, if desired. The weight of all Primitive crew and passenger quarters are the same as their modern versions.

Step 3: Add Armor

Primitive DropShip armor is identical in all ways to standard armor (including costs), except that all armor mounted on a Primitive DropShip—including the "free" armor provided by the vessel's structural integrity value—must be multiplied by 0.66, rounding down to the nearest whole number.

Step 4: Add Heat Sinks

Primitive DropShips can only mount standard (single) heat sinks. This includes the weight-free heat sinks provided with the DropShip's engine. To determine the number of these weight-free heat sinks, use the formula from the Primitive DropShip Heat Sinks Table, instead of the formulas provided on p. 193 of *TechManual*.

PRIMITIVE DROPSHIP HEAT SINKS TABLE

Aerospace Unit Type	Weight-Free Heat Sinks
Aerodyne Primitive DropShip	Engine Tonnage ÷ 75*
Spheroid Primitive DropShip	√(Engine Tonnage x 1.3)*

*Round down

Step 5: Add Weapons, Ammunition and Other Equipment

Unless otherwise stated, Primitive DropShips may add weapons, ammunition and other equipment per the normal rules, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pp. 121-122, for more information.

After 2500, enough manufacturers had improved their engineering processes to the point where DropShips from every realm could be made using standard construction rules and equipment.

Any post-2500 DropShip built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Step 6: Complete Record Sheet

Primitive DropShips use the standard DropShip record sheet appropriate to their hull type (aerodyne or spheroid). This sheet is completed as normal (see p. 198-199, *TM*).

PRIMITIVE JUMPSHIP CONSTRUCTION

Rules Level: Advanced
Available to: JS, WS
Tech Base (Ratings): Inner Sphere (D/EFXX)

The modern JumpShips and WarShips seen throughout human-occupied space evolved from far more primitive vessels during mankind's early exodus from Terra, and the Age of War that followed. Built as much to haul cargo and personnel as they were to defend themselves from harm, the early Kearny-Fuchida ships balanced jump range against maneuvering drives, fuel storage, cargo holds, quarters, armor, and armaments.

With early jump cores and maneuvering drives particularly limited in terms of weight-to-performance ratios, few ships stood out as particularly dedicated to transport or combat. It was only as drive efficiencies increased, and larger hull sizes became more practical, that the distinctive evolution of transport-exclusive JumpShips and combat-focused WarShips became possible. The advent of the JumpShip/DropShip combination further divided these jump vessel types, as they enabled the construction of cheaper (but much larger) dedicated cores for JumpShips, leaving the more established (but much more expensive) compact cores to the modern WarShips.

Constructing a Primitive JumpShip (or WarShip) uses the standard rules given for WarShip construction in *Strategic Operations* (see pp. 142-161, *TO*), with the changes outlined below. Note that even though modern JumpShips and WarShips are distinctly different unit classes, these rules will refer to all large hyperspace-capable craft by the general term of "Primitive JumpShip", and will apply the rules to both vessel types, regardless of their function.

Step 1: Design the Chassis

The following rules changes apply to Step 1 of WarShip design (designing the chassis).

Choose Unit Type: Although the unit classification is technically that of a JumpShip (regardless of whether the unit is designed as a dedicated transport or a combat vessel), for construction purposes, all Primitive JumpShips are built as WarShips.

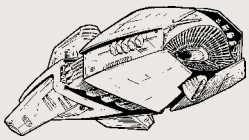
Choose Technology Base: Primitive JumpShips can only be built using Inner Sphere technology (see *Primitive vs. Modern*, pp. 121, for exceptions covering "modern Primitive" designs).

Choose Weight (Tonnage): Primitive JumpShips may weigh from 50,000 tons to the maximum weight limit shown in the Primitive JumpShip Maximum Weight Limit Table, based on the vessel's year of introduction. Like their modern kin, the weight of a Primitive JumpShip must be determined in 1,000-ton increments. Within these limits, the player may choose any tonnage. The total weight of the vessel's engine and components (as well as weapons and armor, if appropriate) may not exceed this chosen amount.

PRIMITIVE JUMPSHIP MAXIMUM WEIGHT LIMIT TABLE

Year of Introduction	Terran Alliance	Terran Hegemony	Great Houses	Periphery
2110-2129	100,000	NA	NA	NA
2130-2149	150,000	NA	NA	NA
2150-2164	200,000	NA	NA	NA
2165-2174	250,000	NA	NA	NA
2175-2199	350,000	NA	NA	NA
2200-2299	500,000	NA	350,000	300,000
2300-2349	NA	1,000,000	600,000	450,000
2350-2399	NA	1,600,000	800,000	600,000
2400-2459	NA	1,800,000	1,000,000	1,000,000
2460+	NA*	NA*	NA*	1,000,000*

*From 2460 and onward, Primitive JumpShips ended production throughout most of the Inner Sphere; Periphery-made JumpShips could still be produced to Primitive standards up until 2500.



David is building the Aquilla*-class Transport JumpShip. As a Primitive JumpShip, the* Aquilla *only uses Inner Sphere technology.*

David decides he wants the Aquilla *to be a truly ancient design, built by the Terran Alliance when the human race was first colonizing. He decides to give it a 2148 introduction date, which means the maximum weight is 200,000 tons. David decides the Aquilla will weigh 100,000 tons.*

Step 2: Install Engines and Control Systems

The following rule changes apply to Step 2 of WarShip design (installing the engine and control systems):

Install Engine: The mass of the Primitive JumpShip's engine is dependent upon the period when the vessel is constructed, the vessel's total tonnage, and its desired Safe Thrust. To find the proper formula, find the Primitive JumpShip's year of introduction on the Primitive JumpShip Engine/Controls Weight Table, and use the formula found under the Primitive JumpShip Maneuvering Drive Weight Formula column. This formula replaces the standard formulas found in the standard rules. All engine weights must be rounded up to the nearest full ton.

Note that in the days of Primitive JumpShips, virtually all such vessels used maneuvering drives rather than the station-keeping drives of modern JumpShips. If a Safe Thrust of less than 1 is desired, apply a minimum value of 0.2 to the appropriate engine weight formula, which will produce a weight consistent with a station-keeping drive system.

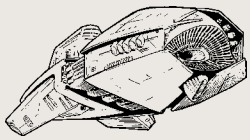
The Maximum Thrust of any Primitive JumpShip is equal to its Safe Thrust x 1.5, rounded up to the nearest whole number. (In the case of a "station-keeping" Primitive JumpShip, with a Safe Thrust of less than 1, the vessel receives no Max Thrust value.)

Fuel: When determining a Primitive JumpShip's tactical fuel efficiency, *divide* its number of fuel points per ton (see p. 147, *SO*) by the Primitive Fuel Factor appropriate to its year of introduction, to reflect the vessel's lower fuel efficiency. Do not round this value until after assigning the desired fuel tonnage (at which point the fuel points round down to the nearest whole number).

For the JumpShip's strategic fuel efficiency, *multiply* its usual number of fuel tons per burn-day (based on its equivalent-weight modern WarShip, see *Determine Fuel Capacity*, p. 147, *SO*) by its Primitive Fuel Factor. If the Primitive JumpShip has been given a station-keeping drive (represented by a Safe Thrust of less than 1), divide this modified strategic fuel efficiency value by 10. Round the final figure up to the nearest 0.01 tons per burn day.

Fuel Pumps: As with modern JumpShips and WarShips, the fuel pump system adds 2 percent to the total tonnage devoted to the vessel's fuel, rounded up to the nearest full ton.

Structural Integrity: The minimum and maximum structural integrity (SI) values for a Primitive JumpShip are computed as normal for a WarShip of equivalent weight. SI weights for Primitive JumpShips are likewise identical to that of a modern WarShip.



Since he knows the engine is likely to be huge on such an early craft, David's decides to only give it a Safe Thrust of 1. Given the JumpShip's 2148 date, this means that the formula for its engine weight is Tonnage x Safe Thrust x 0.120. Plugging in the ship's tonnage and Safe Thrust yields a total weight of 12,000 tons for the maneuvering drive (100,000 x 1 x 0.120 = 12,000).

Before resolving his fuel needs, David decides to determine the weight for his ship's structural integrity. After reviewing the rules in Strategic Operations*, he knows that the vessels' Max Thrust of 2 (Safe Thrust 1 x 1.5 = 1.5, round up to 2) will give him a legal SI value range between 2 and 60. He decides that, since this is such an early design, an integrity value of 10 feels appropriate.*

He then determines the weight devoted to the ship's SI will be 1,000 tons [10 (SI) x 100,000 (ship tonnage) ÷ 1,000 (per p. 148, SO) = 1,000 tons]. That starts his running total at 13,000 tons.

David then figures how much fuel he wants to add. He decides on a nice, even 2,500 tons. This would give a modern ship 25,000 points of fuel (10 points per ton for ships weighing 100,000 tons), but must be divided by the Primitive Fuel factor of 2, and so the Aquilla *receives only 12,500 points of fuel as a result. At 2,500 tons for fuel, David also finds that he must add another 50 tons for fuel pumps (2% of 2,500 tons = 50 tons). This gives him a running total of 15,550 tons.*

Determine K-F Jump Capability: During the early years of JumpShip development, while the K-F drive was being perfected, the actual performance of those drives fell far short of the 30 light-year range now achievable. Longer-ranged jumps invariably required ever-larger drive sizes, and so smaller drive cores were often preferred to allow room for cargo, fuel, and other equipment. As the technology was perfected, drive cores were maximized for both weight efficiency and cost-effectiveness, creating the modern 30-LY drives in standard and compact-core formats.

To find the weight of a Primitive JumpShip's Kearny-Fuchida drive, determine a maximum jump range in whole light-years(with a minimum of 15) and use the Primitive Kearny-Fuchida Drive Formula (see p. 130) to find its weight relative to the ship's total tonnage.

K-F Drive Integrity: As with a modern WarShip, a Primitive JumpShip's K-F Drive Integrity value is equal to 2 + (K-F drive weight ÷ 25,000), rounded up to the nearest whole number.

Jump Sail: Prior to 2200, no K-F ships mounted a jump sail, and thus

PRIMITIVE JUMPSHIP ENGINE/CONTROLS WEIGHT TABLE

Year of Introduction	Primitive JumpShip Maneuvering Drive Weight Formula*	Primitive Fuel Factor	Primitive Control System Weight Formula*
2100 - 2150	Tonnage x Safe Thrust x 0.120	2.0	Tonnage x 0.00625
2151 - 2200	Tonnage x Safe Thrust x 0.102	1.7	Tonnage x 0.005
2201 - 2250	Tonnage x Safe Thrust x 0.084	1.4	Tonnage x 0.0035
2251 - 2299	Tonnage x Safe Thrust x 0.066	1.1	Tonnage x 0.00275
2300+	Tonnage x Safe Thrust x 0.06**	1.0**	Tonnage x 0.0025**

*Round up to the nearest 0.5 tons.

**At this point, JumpShip engines and controls reached their modern construction standards, even though a number of other components still had yet to mature.

PRIMITIVE KEARNY-FUCHIDA DRIVE FORMULA

K-F Drive Weight (% of Total JumpShip Weight): 5% + 3% per light-year

Maximum Jump Distance (All Primitive K-F Drives): 30 light years.

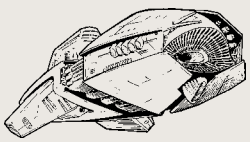
PRIMITIVE JUMP SAIL WEIGHT TABLE

Year of Introduction	Primitive Jump Sail Weight Formula
2200 - 2229	300 + (Tonnage ÷ 2,000)
2230 - 2259	150 + (Tonnage ÷ 4,000)
2260 - 2299	75 + (Tonnage ÷ 8,000)
2300+	30 + (Tonnage ÷ 20,000)*

*At this point, K-F jump sails reached their modern construction standards, even though a number of other JumpShip components still had yet to mature.

this piece of equipment cannot be added to any Primitive JumpShip with an introduction date before 2200. For ships introduced between 2200 and 2300, jump sails may be added, but run much larger and heavier than their modern descendants. To reflect this fact, use the ship's year of introduction to find its appropriate Primitive Jump Sail Weight Formula on the Primitive Jump Sail Weight Table (see above). Round any jump sail weights up to the nearest full ton.

Regardless of the weight formula used, jump sails receive an integrity value equal to 1 plus the sail's mass, divided by 20. The jump sail integrity value is rounded up to the nearest whole number.



The Aquilla*-class transport was the mainstay of the Calderon Expedition that would go on to form the Taurian Concordat. To avoid squandering all of his tonnage on the maximum possible jump range, David gives the vessels a jump range of only 15 light-years. Thus, the vessel's K-F drive will weigh 50,000 tons [5% (Base) + (3% x 15 (LY range)) = 50% of the* Aquilla*'s total mass; 100,000 x .50 = 50,000]. This provides a running total of 65,550 tons.*

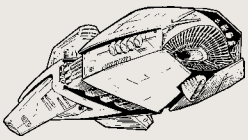
David next figures the K-F drive's integrity. Like a modern WarShip of equal drive weight, this will equal 4 [2 + (50,000 ÷ 25,000) = 4].

Because his Aquilla *pre-dates the advent of the jump sail, David does not install one, and thus does not need to compute the sail's weight or integrity.*

Add Control/Crew Systems: As with its engines, the weight of the control systems used by a Primitive JumpShip is dependent on the vessel's year of introduction and its total tonnage. In place of the normal JumpShip (or WarShip) control systems weight formula, use the appropriate one found under the Primitive Control System Weight Formula column of the Primitive JumpShip Engine/Controls Weight Table (see p. 129). Round all control system weights up to the nearest full ton.

Unlike Primitive aerospace fighters and small craft, the control systems of Primitive JumpShips impose no additional to-hit modifiers for weapon attacks at any range.

Crew: The crew numbers for a Primitive JumpShip are computed as normal for a WarShip of equivalent weight. This crew must be assigned at least steerage-grade quarters (at 5 tons per crewman), but better quarters can be assigned instead, as desired. The weight of all Primitive crew and passenger quarters are the same as their modern versions.



Next David determines the weight of the control systems. Once more, he consults the Primitive JumpShip Engine/Controls Weight Table, this time consulting the Primitive Control System Weight Formula column, where he finds that his ship's introduction date yields a formula of Tonnage x 0.00625. This makes the control systems equal to 625 tons (100,000 tons x 0.00625 = 625 tons).

After reviewing the Advanced Aerospace Unit Minimum Crew Table on page 150 of Strategic Operations*, David determines his* Aquilla*'s minimum crew requirements will be 65 [45 + (1 per 5,000 tons (100,000 ÷ 5,000 = 20)) = 65). He also wants to add 30 second-class passenger accommodations, which means a total of 665 tons. Since he hasn't assigned weaponry yet, he doesn't know how many gunners he'll need or ultimately how many officers will be required, so he'll have to figure those later.*

Counting the crew and passenger quarters he has already assessed for minimum crew and passengers, David's running total stands at 66,840 tons spent.

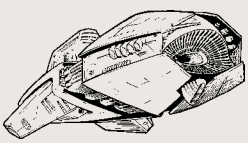
Step 3: Add Heat Sinks

Primitive JumpShips can only mount standard (single) heat sinks. This includes the weight-free heat sinks provided with the JumpShip's engine, as well as any added to that by the designer. To determine the number of these "weight-free" heat sinks, add the number 45 to the square root of the primitive JumpShip's engine weight (rounded down). This replaces the normal heat sink formulas for the equivalent modern vessels (as provided on p. 151, *SO*).

PRIMITIVE JUMPSHIP HEAT SINKS TABLE

Weight-Free Heat Sinks
45 + √(Engine Tonnage)*

*Round down

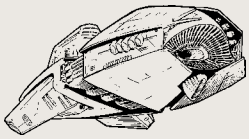


Using the formula from the Primitive JumpShip Heat Sinks Table, David comes up with 154 heat sinks his vessel will receive at no cost in weight: 154 [45 + √ (12,000) = 154.54; rounded down to 154). As he does not plan this ship to be laden with weapons, he feels he won't need to add any more heat sinks, leaving him with the same running total of 66,840 tons.

Step 4: Add Armor

Primitive JumpShips use the rules and limits for standard JumpShips when computing their armor values (see p. 152, *SO*), and may not mount any of the advanced armor types such as improved ferro-aluminum, ferro-carbide, or lamellor ferro-carbide. This means that the maximum tonnage of armor a Primitive JumpShip may carry is equal to the ship's SI tonnage, divided by 12 (rounded down to the

nearest half ton). In addition to this, as with modern JumpShips, Primitive JumpShips will receive additional "weight-free" armor points per facing, based on their structural integrity values.



Reviewing the Advanced Aerospace Unit Armor Table let's David know that he could assign a maximum of 83 tons of standard armor to his ship [1,000 (SI mass) ÷ 12 = 83.33, rounded down to 83]. He does not believe he'll need anything close to that, and so decides he's going to assign only 69 tons of Primitive armor.

Before placing the armor, he first determines how much "weight-free" armor the Aquilla *will receive in addition to this, which is 1 point of capital-scale armor per facing, for a total of 6 points [10 (SI) ÷ 10 = 1 per facing; 6 facings x 1 point per facing = 6 points].*

David then multiplies the 69 tons of armor he has opted for by the standard Advanced Aerospace Unit Armor Weights for a 100,000-ton Inner Sphere JumpShip using standard armor, and finds that this yields 55 armor points [69 (armor tonnage) x 0.8 (standard armor for a 100,000 vessel) = 55.2, rounding down to 55]. He then adds the free 6 points to 55 for a total of 61. Multiplying this total armor value by the Primitive armor factor of 0.66, he finds he has 40 armor points to allocate [61 (non-Primitive armor points) x .66 (Primitive armor factor) = 40.26, rounding down to 40].

He thus assigns this armor as follows: 9 to the nose, 7 to each fore-side, 6 to each aft-side and 5 to the aft.

This leaves a running total of 66,909 tons.

Step 5: Add Weapons, Ammunition and Other Equipment

Unless otherwise stated, Primitive JumpShips may add weapons, ammunition and other equipment per the normal rules for WarShips, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pp. 121-122, for more information.

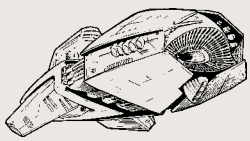
After 2500, enough manufacturers had improved their engineering processes to the point where JumpShips and WarShips from every realm could be made using standard construction rules and equipment.

Any post-2500 JumpShips or WarShips built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Docking Collars: The external docking collar system was not available to JumpShips or WarShips prior to 2304. From 2304 through 2458, docking collars are available under the standard construction rules, but these pre-boom collars lack the means to extend the JumpShip's KF field to any attached vessels. It is only after the development of the DropShip KF boom and compatible collar systems in 2458 that JumpShips and WarShips will be able to mount modern-style docking collars.

Step 6: Complete Record Sheet

Primitive JumpShips always use the standard WarShip record sheet. This sheet is completed as normal (see p. 159, *SO*).



Right away David designs to arm his vessel. Knowing how truly ancient the design is compared to all the weaponry available within TechManual *and* Tactical Operations*, and knowing this was one of the very first of its kind and open conflict simply wasn't thought of, he decides for some machine guns. He places 2 machine guns (1 ton) and 2 tons of ammo in the nose; 1 machine gun (.5 tons) plus 1 ton of ammo in each fore location; 1 machine gun (.5 tons) and 1 ton of ammo in each broadside; 1 machine gun (.5 tons) and 1 ton of ammo in each aft side location; 2 machine guns (1 ton) and 2 tons of ammo in the aft: this generates a total of 15 tons.*

Now that he's figured the weaponry, he can wrap up figuring the crew. He knows he needs 2 gunners, which equates to 14 tons for crew quarters [2 (# of gunners) x 7 (second-class crew quarters) = 14]. He then reviews the Additional Crew table again on page 150 of SO and determines he needs 12 officers [65 (base crew) + 2 (total gunners) = 67 ÷ 6 = 11.17, rounding up to 12]. That equates to a total officer crew quarters tonnage of 120 [12 (officers) x 10 (first-class crew quarters) = 120].

Next, David decides he wants to provide 8 Small Craft (with a total of 4 doors), which equates to 1,600 tons. David also adds a single DropShuttle Bay in the Aquilla*'s nose (with 1 door), which costs another 11,000 tons.*

David then adds 20 escape pods, at 7 tons a piece, for a total of 140 tons. All of this gives him a running total of 79,798.

Finally, David takes the remaining tonnage and assigns it into 2 cargo bays of 10,101 tons each, with a single door for each cargo bay.

PROTOTYPE SPECIALTY MISSILES (CLAN INVASION)

Introduced: Variable (See Rules)
Extinct: Variable (See Rules)

At the start of the Clan Invasion, Inner Sphere weapons designers were in the midst of a military tech renaissance that not only brought back many of the advances of the fallen Star League, but also spurred a number of new developments intended for battlefield use. While some would go on to become mainstays of the Inner Sphere armies, others never made it past the limited production of their prototype stage. These special munitions types are described below.

SPECIALTY MUNITIONS: DEAD-FIRE (DF) MISSILES

R&D Start Date: ca. 3050 (Draconis Combine)
Prototype Design and Production: 3052 (Draconis Combine)

Dead-Fire (DF) missiles emerged as one of the Draconis Combine's early efforts to offset rising munitions costs. They were devised at first as an alternative missile load for use standard LRM and SRM launchers, featuring larger warheads at the expense of targeting systems and thruster power. While at first the DCMS appeared impressed by their potential, the advent of the MRM launcher led the Combine to abandon these missiles by the end of the 3050s—but not before the technology was shared or copied by virtually every Inner Sphere state at the time.

Dead-Fire (DF) Missile Rules

Rules Level: Experimental
Available to: Any units equipped with standard LRM or SRM launchers
Tech Base (Ratings): Inner Sphere (C/XXEE)
Game Rules: DF missiles may only be fired from standard LRM and SRM launchers (including those modified with Artemis fire control systems). They may not benefit from any form of targeting enhancements, however, so the use of Artemis, Narc, and the like will have no effect on the use of dead-fire missile volleys.

DF missiles use shorter range brackets than their standard launcher ranges (as indicated in the Additional Alternate Era Weapons and Equipment Tables), but generate the same amount of heat when fired. Upon a successful hit, the number of missiles in a given DF missile flight is resolved using the appropriate column of the Cluster Hits Table, with a –3 modifier applied to the roll. On any result of less than 2, only a single DF missile hits the target.

Each missile in a DF LRM volley will deliver 2 points of damage, distributed in 5-point clusters as a normal LRM flight; each DF SRM missile delivers 3 points of damage, with each missile that hits rolled for a separate hit location.

In the event of an internal ammunition explosion, DF warheads explode with the damage value of a full flight of missiles, multiplied by the remaining flights in the ammo slot.

Construction Rules: Dead-Fire missiles are compatible only with standard-type LRM and SRM launchers, and may only be carried in full-ton lots. A ton of DF missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes and types. DF missiles are not available in torpedo format, nor may they be combined with features from other specialty munitions.

When assigning aerospace damage values for a unit that uses DF missiles, use the damage value of an equivalent-sized rack of missiles as if it struck its target with a Cluster Hits Table roll of 4.

SPECIALTY MUNITIONS: RETRO-STREAK (RS) MISSILES

R&D Start Date: ca. 3045 (Draconis Combine)
Prototype Design and Production: 3048 (Draconis Combine)

Retro-Streak (RS) missiles were a special alternative missile load specifically developed for use with the Streak SRM launcher, as a defensive countermeasure against enemy Streak launchers. These warheads, which "spoofed" incoming Streak missiles to divert them away from the target, proved only partially effective in the field, despite several attempts to improve their performance. Combined with the fact that their use tied up ammo-conservative Streak launchers on defensive duties, this lackluster utility prompted the various factions working on these weapons to abandon their use by the late 3050s.

Retro-Streak (RS) Missile Rules

Rules Level: Experimental
Available to: Any unit equipped with Streak SRM launchers
Tech Base (Ratings): Inner Sphere (E/XXFX)
Game Rules: RS missiles may only be fired from Streak SRM launchers, and will only fire when the unit is successfully attacked by a hostile Streak SRM launcher. If multiple Streak SRMs with RS warheads are on the defending unit, its controlling player may determine which of his Streak SRM launchers fires its RS warheads. RS warheads may not be fired offensively, and will not fire if the attacking unit fails to deliver a Streak SRM attack.

Regardless of the size of the rack that fires them, RS missiles force the attacking Streak SRM to resolve its number of missile hits using the appropriate column of the Cluster Hits Table, as if the attack originated from a standard SRM. An additional modifier of –2 applies to this Cluster Hits Table roll, with any modified roll result less than 2 translating to a miss by the entire flight.

In the event of an internal ammunition explosion, RS warheads explode with the damage as an equivalent number of standard Streak SRMs.

Construction Rules: Retro-Streak missiles are compatible only with Streak SRM launchers, and may only be carried in full-ton lots. A ton of RS missiles provides the same number of shots as an equivalent ton of standard Streak missiles for all given launcher sizes.

SPECIALTY MUNITIONS: SHOOT-AND-SIT (SS) MISSILES

R&D Start Date: ca. 3046 (Federated Commonwealth)
Prototype Design and Production: 3049 (Federated Commonwealth)

Shoot-and-Sit (SS) missiles were a special alternative missile load specifically developed for use with the Narc missile beacon launcher, as a modified form of explosive pods. These warheads used the same latching mechanisms as a standard Narc pod, coupled with an explosive charge triggered by remote activation.

The premise was to attach several of these explosive limpets before detonating them, in the hopes that the sudden surge of damage could better down the enemy than spreading the damage out by individual hits. Given the existence of more powerful contact-explosive Narc pods, and the preference among most MechWarriors to leave the damage-dealing job to weapons specifically designed for same, led the NAIS to ultimately shelve these missiles by the end of the Clan Invasion era.

Shoot-and-Sit (SS) Missile Rules

Rules Level: Experimental
Available to: Any unit equipped with standard Narc missile beacon launchers
Tech Base (Ratings): Inner Sphere (E/XXFX)
Game Rules: SS missiles may only be fired from standard Narc missile beacon launchers. A Shoot-and-Sit missile does not deliver damage on a hit, but instead attaches to the hit location it strikes and arms itself for later activation. For this reason, the attacker must keep track of where the SS missiles hit his target; should the location be subsequently destroyed before the SS is detonated, the warhead is lost along with the destroyed location.

Detonating SS missiles is performed in any later Weapon Attack Phase by the unit which fired the missiles (or another unit friendly to it). If such units do not have a valid line of sight to the target unit that has been struck with SS missiles, or if a hostile ECM bubble lies between the attacker and target, the detonation signal cannot be relayed.

When a detonation signal is relayed, all SS missiles still attached to the target unit will explode, delivering 3 points of damage per missile. A detonation signal to SS missiles cannot set off only a portion of the attached missiles on a given unit, but will not set of SS missiles latched onto a different target. Only one detonation signal to friendly SS missiles can be sent per attacking unit per turn.

In an internal explosion (due to heat or critical damage), SS warheads deliver 3 points of damage per missile.

Construction Rules: Shoot-and-Sit (SS) missiles are compatible only with standard Narc launchers (not improved or compact Narc launchers), and may only be carried in full-ton lots. A ton of SS missiles provides the same number of shots as an equivalent ton of standard Narc missiles.

QUADVEES (DARK AGE)

Introduced: 3135 (Clan Hell's Horses [Tracked]), 3148 (Clan Hell's Horses [Wheeled])

The QuadVee was developed by Clan Hell's Horses as a kind of ground-based equivalent of the defunct Land-Air BattleMech. This BattleMech-vehicle hybrid, tailor-made for the combined arms aspects of warfare in the Dark Age, incorporates a two-man crew, and offers greater flexibility in combat, including the 360-degree field of fire common to turreted vehicles, and the ability to circumvent immobilizing damage by converting between operational modes.

Although the QuadVee was initially seen as a lackluster new unit type at best, and was initially limited to tracked vehicle conversions, the Horses continued to experiment with this concept even as the wars of the Dark Age intensified. In 3150, a new wheeled version of this unit type was reportedly being tested deep within the Clan's Occupation Zone.

QUADVEE GAME RULES

Rules Level: Advanced
Available to: BM
Tech Base (Ratings): Clan (F/XXXF)

In game play, QuadVees are largely bound by all of the rules for a four-legged BattleMech, but the following modifications apply due to the unique nature of these hybrid units.

Piloting/Gunnery Skills

To overcome the intensive cross-training of two skill sets required by a LAM pilot, a QuadVee has two crewmen: one serves as the unit's dedicated driver, with the other as the dedicated gunner. A QuadVee may operate with just one crewman, but depending on which is not present, extra penalties will apply as noted below.

Dedicated Pilot: Whenever in BattleMech Mode, the dedicated pilot uses his Piloting Skill to resolve all piloting actions as a MechWarrior. In Vehicle Mode, this same warrior uses his Piloting Skill in place of Driving Skill when any Driving Skill Rolls are made. Physical Attacks of any kind are also resolved using the pilot's Piloting Skill Rating.

Dedicated Gunner: As long as the QuadVee has a dedicated gunner, it may select up to three primary targets per turn before incurring the secondary target modifier (see *Multiple Targets Modifier*, p. 109, *TW*).

Disabled or Missing Crew: If the dedicated pilot is disabled (i.e. unconscious or killed) or not present, the QuadVee's gunner can take over pilot duties, but must apply a +2 target number modifier to all Piloting/Driving Skill checks (including those made for Physical Attacks). Likewise, if the dedicated gunner is disabled or not present, the pilot can still fire the QuadVee's weapons, but does so at an additional +2 to-hit modifier, and loses the ability to designate more than one primary target.

Conversion

Conversion is the process of switching between the QuadVee's two modes of operation: BattleMech and Vehicle. The conversion process must be announced at the start of the unit's movement and is considered complete by the end of its move in that turn's Movement Phase.

QuadVees cannot switch between modes while submerged. Regardless of the mode the QuadVee is converting from, conversion costs 2 MP, plus 1 additional MP for every critical hit suffered to the unit's leg actuators, conversion equipment, or tracks. (If the total cost of MPs needed for conversion exceeds the QuadVee's maximum available MPs for the turn, it cannot convert between modes.) The facing of a QuadVee does not change during the conversion process, but if the unit has any remaining MPs after conversion, it may use them to move and change facing.

If the terrain occupied by a QuadVee at the end of its conversion is illegal for its movement type, the QuadVee is reduced to 0 MP upon completing its conversion, but is not considered immobile.

A QuadVee that attempts to use its weapon in the same turn it opts to switch between modes will suffer a +3 to-hit modifier for any such actions, using the skills appropriate to the mode the unit converted *from*. The conversion process imposes no additional modifiers for attacks made against a QuadVee.

A QuadVee can still perform conversions even with a destroyed gyro, but will be unable to use its MPs in BattleMech Mode with such damage. For conversion purposes only, gyro damage does not count against the unit's MPs.

Movement Phase (BattleMech Mode)

A QuadVee in BattleMech Mode uses standard four-legged 'Mech ground movement rules.

Movement Phase (Vehicle Mode)

A QuadVee in Vehicle mode uses all standard and advanced movement rules applicable to a tracked vehicle (if it possesses Tracks) or a wheeled vehicle (if it possesses Wheels). For tracked QuadVees, the unit's Walking MP and Running MP translate directly into Cruise and Flank MP (respectively), while Wheeled QuadVees receive 1 extra Cruise MP in Vehicle mode, and recalculate their Flank MP as normal. Any MP modifiers resulting from leg actuator critical hits have no effect on a QuadVee in its Vehicle mode.

QuadVees with jump jets may not use Jumping MP while in Vehicle mode.

Unlike normal tracked and wheeled vehicles, QuadVees *may* enter and traverse water in their Vehicle Mode, but must apply the standard MP reductions for BattleMech movement when doing so.

QuadVees in Vehicle Mode ignore any Piloting Skill Rolls to avoid falls, but remain susceptible to skidding, collisions, and other piloting effects.

Combat Phase (BattleMech Mode)

QuadVees in BattleMech mode use the following combat rules in game play:

A QuadVee in BattleMech Mode uses standard four-legged 'Mech combat rules, with the following additions:

Rotating the Fire Arc: As long as the QuadVee's gyro is undamaged, its torso is able to rotate through 360 degrees, just like a tank turret (see *Rotating The Firing Arcs*, *Vehicles*, p. 106, *TW*). A damaged gyro reduces the QuadVee to the torso twist range of up to 2 hexsides—like a standard bipedal BattleMech that has the Extended Torso Twist Design Quirk (see p. 194, *SO*). A destroyed gyro reduces torso rotation further, to that of a standard biped BattleMech's torso twisting limit (1 hexside).

Combat Phase (Vehicle Mode)

A QuadVee in Vehicle Mode uses standard four-legged 'Mech combat rules, with the following additions:

Rotating the Firing Arc: In Vehicle Mode, a QuadVee retains the same 360-degree torso-rotation range as it has in BattleMech Mode.

Line of Sight: For line of sight (LOS) purposes, a QuadVee in Vehicle Mode is 1 level high.

Physical Attacks: A QuadVee in Vehicle Mode can only execute Charging (Ramming) attacks. If subject to physical attacks from other 'Mechs, the QuadVee is treated as a 'Mech that stands 1 level lower than its present level (thus a QuadVee being attacked by a BattleMech on the same level is treated as if it is actually standing one level below its attacker).

Heat: QuadVees in Vehicle Mode still track their heat exactly as if they were in BattleMech Mode.

QuadVee Pilot Damage (Both Modes)

Only the pilot receives damage due to an ammunition explosion, though heat effects, as well as any damage to the head, apply to both warriors. If the pilot cockpit slot is destroyed (see *Cockpit*, below), the gunner automatically takes over, provided he is present (see *Piloting/Gunnery Skills*, p. 133, for the modifiers that would apply to such a situation).

If both cockpit slots are destroyed, or there is no surviving warrior to take over the primary pilot position, the QuadVee is considered destroyed per the standard game play rules for cockpit destruction.

QUADVEE CONSTRUCTION RULES

QuadVee follow all the same construction rules as four-legged 'Mechs, with the following additions and modifications:

Technology Base

QuadVees can only be built using the Clan Technology Base. QuadVees may be constructed as OmniMechs.

Weight Limits

QuadVees may only be constructed within the weight limits of standard BattleMechs. They cannot be constructed as super-heavy 'Mechs.

Cockpit

A QuadVee mounts a special 4-ton cockpit that takes up 2 critical slots; assign a "cockpit" to Slot 4 in the head location. Slot 3 is the "Pilot" slot; Slot 4 is the "Gunner" slot. No other cockpit type, including Cockpit Command Console, may be installed on a QuadVee.

Conversion Equipment

QuadVees must devote 10 percent of the unit's total mass (rounded up to the nearest whole ton) to conversion equipment, and must assign 1 "Conversion Equipment" critical slot to all four legs (for a total of 4 critical slots).

Other Equipment

A QuadVee must mount Tracks in all four legs (see p. 249, *TM*) if built to convert into a tracked Vehicle mode. These Tracks occupy 1 critical slot in all four legs, and have a combined weight equal to 10 percent of the QuadVee's total mass, rounded up to the nearest half-ton.

If built to convert into a wheeled Vehicle mode, the vehicle must mount Wheels in all four legs instead. These Wheels occupy the same number of critical slots as the Tracks, but have a combined weight equal to 15 percent of the QuadVee's total mass, rounded up to the nearest half-ton.

ROBOTIC AND DRONE SYSTEMS (MULTIPLE ERAS)

Introduced: Various (See Rules)

There are a host of autonomous robotic/drone control systems that cover the gamut from ground units up to massive WarShips. Regardless of their name or era of deployment, the systems discussed here all fall under the broad category of "robotic control systems".

Robotics versus Remotes: Unless otherwise specified, the rules and equipment featured in this section will cover autonomous and semi-autonomous robotic units. These differ from the remote-operated systems described under in *Tactical Operations* (see p. 305, *TO*), as they are designed to function with little to no human interaction.

GENERAL ROBOTIC UNIT GAME RULES

Rules Level: Experimental
Available to: Variable (See rules)
Tech Base (Ratings): Variable (See rules)

The following rules dictate the baseline functions and rules for all robotic units, specifically those which feature the smart robotic control system (SRCS), the SDS (Caspar) drone control system, the Caspar II advanced SRCS, and the shielded aerospace SRCS. While those specific control systems and equipment—as presented later in this section—may modify these rules based on the unique features of those items, all will derive their core features from these rules.

Robotic Independent Command Rules

Except when otherwise stated in these rules or those of their specific control equipment, robotic units will follow all standard movement, combat, and heat rules applicable to their unit type. However, due to their structured programming, robotic units may not move and attack as intuitively as normal human-controlled units. Instead, most robotic unit actions are dictated by a list of pre-determined events and reactionary orders (see *Robotic Independent Command Rules*, pp. 149).

The Robotic Independent Command rules will require that all robotic units determine their Aggression levels at the start of the scenario. A robotic unit's Aggression level may not be changed afterward, unless such orders are received from a designated Control Unit (see pp. 139-140). If a robotic unit is under the direction of a control unit and is not prevented from receiving commands (such as by hostile ECM), the controlling player may change the robotic unit's Aggression level during the End Phase of any turn.

Depending on the nature of control systems in use, a robotic unit's response to command will take effect either immediately upon its next Initiative Phase, or a full turn afterward.

Robotic Skill Ratings

Unlike remote-operated drones, robotic units have their own Piloting and Gunnery Skill ratings, which are determined by the unit's type and the relative mass it devotes to its robotic control system. The construction rules for each of the robotic control systems featured in this section include tables to identify the base target numbers for all Gunnery and Piloting/Driving Skills that robotic units may receive, as well as any modifications that may be built in during the unit's construction.

MAN'S NEVER-ENDING DREAM FOR ARTIFICIAL LIFE

Since man's earliest industrial forays into industrialization, there has always been a fascination with technology that was capable of independent operation. Human innovation gave us clockwork automatons which would lead to automated manufacturing robots and from there to predictive response systems that greatly improved passenger vehicle safety. Human imagination would soar beyond these technological limitations to create fictional worlds where technology could create a utopian paradise, or a frightening vision of man subjugated by his technology. The crossing of imagination and innovation would lead to incredible leaps of technology as man spread his wings and took to the stars.

Robotic Units

The evolution of "smart" technology, as it applied to robotic units during mankind's first steps into outer space, was a far cry from the often feared malevolence of pre-spaceflight speculative fiction, where many writers and thinkers anticipated an apocalyptic "robot revolution". Rigidly programmed, robotic units filled a wide variety of critical roles as little more than sophisticated drones. Automated search and rescue missions, deep sea and space mining automatons, smart surveillance satellites, and deep space combat fighters, were just a few of the applications for which robots were adapted.

Even the most sophisticated robots of the Star League remained truly incapable of independent thought. Despite some of the best approximations of human brain processing possible, these high-tech wonders relied on a fundamental base programming—thought algorithms that could only anticipate so many variables. Nevertheless, the fear of robots run amok prompted the majority of the commercial and industrial robot producers throughout the Inner Sphere to incorporate hard-wired "safety programming" intended to render their products harmless to humans. (Military and police robots, of course, were another matter entirely.)

Star League Space Defense System Drones

The Terran Hegemony's Space Defense System (SDS) Network was one of the most advanced technological achievements in history. The brainchild of First Lord Jonathan Cameron, it was conceived as a completely integrated defense network able to defend a system from jump point to planet surface with the minimal use of manpower. Deployed across the Hegemony it was intended to defend the nation from all-out invasion, a reality that would tragically come to pass when Stefan Amaris took command of the system and used it to hold off the power of the SLDF navy for years. At the time of its implementation it met with heavy resistance from the Star League Council members. That the system would be deployed within the Hegemony borders caused significant concern; Cameron allayed these fears by explaining the untried network should be rolled out near their place of manufacture. Once the system was proven reliable, the member state capitals would each get their own SDS system. Many Hegemony worlds already possessed ground-based capital weapon defenses and the first SDS drones took flight in 2695, with the network considered fully operational by 2730. Despite this, it was never rolled out beyond the Hegemony's borders.

The heart of this network was its automated aerospace drones, a mixture of robotic fighters, drone DropShips, space stations and WarShips, including the infamous M-5 *Caspar* drone. The SDS drones used an ultra-sophisticated artificial intelligence system that allowed it to operate with only a handful of humans monitoring an entire network of drones. When linked by a special battle computer network, the SDS drones became even more fearsome, calling on the digitized skills of the Star League's best admirals. Using equally automated space stations and space ports, the SDS drones were capable of basic repairs, rearmament and the launch and recovery of sub-units. Typically SDS drones were deployed at a system's jump points as their primary deployment, with deployment around a system's primary world done for key worlds of the Hegemony. At Terra this was taken to the extreme with the entire system blanketed by overlapping drones, space stations, control ships, and planetary based capital weapon systems.

Jonathan Cameron's goal of the ultimate protective system was fully realized in the Hegemony's SDS Network, much to the misfortune of General Kerensky, the SLDF and ultimately the entire Inner Sphere. During the campaign to liberate the Hegemony from Stefan the Usurper, a huge percentage of the SLDF's naval forces were devastated by the SDS network.

Fortunately, or unfortunately, what we know of the network today is mostly limited to battle ROM recordings and eyewitness accounts. After liberating Terra, Kerensky set out to destroy the entire SDS Network and all records associated with it. His purge left little behind and has all but ensured the system will never be rebuilt.

The M-Series Drones

The M-series drones would make up the vast majority all SDS drones produced. Few other drone models were produced and those rarely made it out of prototype stage with none surviving the Amaris Civil War. This includes the DropShip and smaller experimental prototypes constructed by Amaris's scientists. This attempt to build out the existing SDS network was essentially unsuccessful, accounting for only a handful of kills in the final campaign to liberate Terra.

The M-5 drone was the most famous and successful of the Star League's SDS drones, but it was not the only one. Below is an overview of the eleven unit classes that made up this series.

M-1: The original proof-of-concept drone used an *Ares Mk VII* Attack Craft hull as its base. Equipped with a slightly smaller engine and comparable firepower, the M-1 saw its first test flights in 2692. It saw moderate use until the development of the *BlackWasp* series drone fighters. While the robot brain of the *BlackWasp* was not as sophisticated, it proved more versatile. There were no M-1s in service by the time of the Amaris coup.

M-2: The second SDS Drone used the 1,800 ton *Hector* hull to test larger scale deployments. After the friendly fire episodes involving the M-2 drones, the Hegemony scrapped it in favor of focusing on the larger M-3.

M-3: Based on the *Pentagon* DropShip, the M-3 was the first SDS Drone to see wide scale deployment. The M-3 proved the viability of the SDS drones and would see service alongside the larger M-5 through the life of the SDS network. The last M-3s were destroyed during the Kerensky's final approach over Terra.

M-4: The first WarShip SDS drone used aging *Baron*-class hulls refitted with drone controllers. Intended only as a proof of concept, the last of the ten M-4s built was scrapped in 2735.

MAN'S NEVER-ENDING DREAM FOR ARTIFICIAL LIFE (CONTINUED)

M-5: The M-5 SDS drone was a ground-up robotic WarShip based mainly on the *Lola*-class destroyer. The pinnacle of SDS drone capability, these *Caspar*-class drones would become the stuff of legends and nightmares.

M-6: This drone was a failed attempt to outfit a *Texas* battleship with an SDS control system. The size of the ship proved too daunting to wire with the advanced control systems and the only prototype was destroyed when it slammed itself into Pluto.

M-7 and M-8: Much smaller cousins to the M-9, these SDS stations were fully unmanned, lightly armed and served as repair and refit stations for robotic fighters and SDS drones throughout the Hegemony.

M-9: Rarely referred to by its M-series designation, the *Pavise* SDS Battlestation was the largest SDS system ever deployed.

M-10: Using refitted *Titan* hulls, this little seen SDS drone was used for deploying or transporting large formations of robotic fighters into combat. Few were built as the effort to refit the DropShips to drone controls was not usually worth the effort and standard carrier DropShips were used to deploy ASF drones.

M-11: The success of the part-drone, part-human M-9 would lead to the M-11. Dubbed the *Da Vinci*-class, the M-11 would be the most advanced drone system ever produced and would allow a skeleton crew to service drones and remote stations across the Hegemony without the need for costly yard time. The existence of the M-11 was not discovered until the late thirty-first century; previous reports mistook these vessels as standard *Newgrange*-class YardShips, upon which the concept was being tested.

Word of Blake SDS Network

When Kerensky dismantled the Hegemony's SDS network, he destroyed the pinnacle of artificial intelligence. The purge extended beyond just the SDS system and reached out to try and wipe away any technology that was based on the SDS system's advanced intelligence. His efforts proved to be incredibly effective, and when he departed the Inner Sphere virtually nothing remained to point the way to how to rebuild the infamous network. Not even the organization that would become ComStar retained enough information to duplicate the system. It is believed that Jerome Blake fully supported and was instrumental in Kerensky's efforts to destroy the network.

In the centuries since Kerensky's exodus, other realms attempted to build SDS systems, based on the simpler robotic and remote-controlled units, but none of these could ever match the technological perfection of the Terran Hegemony's network. That was, of course, until the thirty-first century, when the Word of Blake came very close.

Note that robotic 'Mechs have a much higher Piloting Skill target number than other robotic unit of equivalent control system sophistication. This stems from the lack of human pilots and the neurohelmet input that is so vital to their balancing systems and fine motor control. Special Piloting modifiers that might augment this Skill—such as the –2 modifier for quadruped 'Mechs—will apply to the robotic unit's Piloting target numbers as normal.

Robotic Initiative

Because of their limited battlefield awareness and non-existent sense of intuition, most robotic units will resolve their Initiative rolls as a separate force from any other human-operated units (including remote-controlled drones). This makes all robotic units attached to a given force the equivalent of an independent force, separate from—and usually slower than—its human masters.

If multiple robotic unit types (such as Caspar II drones and units using basic SRCS equipment) are present, the robotic units may need to make even more segregated Initiative rolls to handle the different control system types.

Movement and Terrain Restrictions

Robotic units move in accordance with the standard rules for their unit type, with the following additional restrictions:

Physical Attacks: Robotic units cannot deliberately perform physical attacks, such as ramming, charging, pushing, punching, and kicking, unless such actions are specifically called for by an Event Order under the unit's Independent Command Rules (see pp. 149-153).

High-G Maneuvers (Robotic Aerospace Units): Depending on the robotic aerospace unit's current Aggression level, such units may use high-G maneuvers during combat, even if it means possible damage to the unit's structural integrity (see p. 78, *TW*). Robotic aerospace units never have to roll to avoid pilot damage when executing a high-G maneuver, but will need to make any required Control Rolls to check for SI damage.

Regardless of Aggression levels, a robotic aerospace unit will not make use of high-G maneuvers if it has a current SI value of 1. As long as the unit's SI is 2 or more, a robotic aerospace unit at an Aggression level of "Aggressive" can always execute high-G maneuvers. If the unit is at an Aggression level of "Neutral", it may only execute high-G maneuvers when there are targets within the unit's weapons range. A robotic aerospace unit set to a "Defensive" Aggression level may only use high-G maneuvers when there are targets within its weapons' Short range bracket.

Restricted Terrain/Environments: In addition to the normal terrain restrictions for their unit types, robotic units may suffer further terrain and environmental restrictions due to the restrictive programming that guides their actions. These added restrictions are described below. If a robotic unit is forced into environmental conditions or terrains outside of its normal or robotic limitations and is not destroyed, the unit will shut down for the remainder of the scenario.

- **BattleMechs:** Robotic BattleMechs may not operate on the Low Altitude Map, High Altitude Map, or Space Map. Robotic BattleMechs may not be deployed via combat drop, orbital drop, or perform space drops.
- **Combat Vehicles, Support Vehicles and IndustrialMechs:** For the most part, all of these robotic unit types may not operate on the Low Altitude Map, High Altitude Map, Space Map, or Underwater. As special exceptions, robotic combat and support vehicles built as submarines can function normally underwater, while robotic support vehicles built as airships, fixed-wing aircraft, and VTOLs may fly with the standard airborne terrain restrictions of their non-robotic equivalents. Robotic satellites may only operate in space, above the atmospheric interface layer.
- **Conventional Fighters:** Robotic conventional fighters receive no additional restrictions over their non-robotic equivalents.
- **Aerospace Fighters and Small Craft:** Robotic aerospace fighters and small craft will not use the *Aerospace Units on Ground Mapsheets* rules (see pp. 91-92, *TW*) except when attempting to take off or land. Robotic aerospace units will not purposely cross the Interface layer between space and high atmosphere (see p. 78, *TW*). If a robotic aerospace unit operating in space is

forced through the Interface layer and into the atmosphere for any reason (such as gravity or a failed Control Roll), it will attempt to land at the nearest friendly landing field. If no friendly field is available, the unit will attempt a landing in the closest clear or water terrain not occupied by other units or buildings. Once landed, a robotic aerospace unit will deactivate. A robotic aerospace fighter or small craft that begins play within an atmosphere will never attempt to climb beyond the Interface layer.

- **DropShips:** Robotic DropShips will not use the *Aerospace Units on Ground Mapsheets* rules (see pp. 91-92, *TW*) except when attempting to take off or land.
- **JumpShips, Space Stations, and WarShips:** Robotic JumpShips or space stations that cross the Interface layer into an atmosphere for any reason will cease all offensive operations, and use all available Thrust to attempt a return to space. If unable to return to space, robotic JumpShips and space stations will use all available Thrust to attempt a crash-landing in the nearest major body of water or clear terrain not occupied by other units or buildings.

Robotic Non-Combat Units

Robotic units built as non-combat units (such as IndustrialMechs and commercial vehicles) are not designed to engage in hostile actions; their programming is limited to performing specific operations such as mining, harvesting, or surveillance. In compliance with universally recognized laws on drones and robotics, these units feature safety protocols specifically designed to avoid causing damage to personnel and property, while also preserving the robotic unit's own functionality.

To reflect this, any time a robotic non-combat unit is attacked in any fashion, it will signal an alert to its human control unit (if any), and attempt to retreat from the field as a crippled unit under the Forced Withdrawal rules. If unable to escape the field, the threatened robotic unit will shut down.

Using Weapons and Equipment

Although robotic units have no crew for game play purposes, they may operate any and all mounted weapons in accordance with the unit's rules, and will never suffer modifiers for operating any weapons, sensors, or communications equipment with insufficient crew. This even extends to the use of advanced sensors rules as found in *Strategic Operations* (see p. 117, *SO*).

Other specialty equipment that requires additional crew to operate—such as MASH units, field kitchens, and the like—may be mounted on robotic units, but these items cannot be operated without outside assistance or on-board "passengers". An exception is the Advanced Robotic Transport Bay System (see p. 147).

Ammunition: Robotic units may carry any legal ammunition for their on-board weapons, but cannot switch between them at will. Instead, all ammunition assigned to a weapon must be expended in a set sequence, based on its placement on the unit's record sheet, beginning with the ammunition slot located in the most upper-left position on the sheet, and continuing to the ammunition slot in the most lower-right position on the same sheet.

For example, a robotic BattleMech with autocannon ammunition in its left arm and left torso will begin firing ammunition from the ammo slot in its left arm first, and will only begin to expend rounds from the left torso ammo slot when all shots in the left arm are exhausted (or is otherwise rendered unavailable).

When in doubt as to what ammunition slots feed what weapon, the controlling player must determine the sequence of ammunition types the unit will use in advance, changing munitions types only on a ton-by-ton basis.

Heat: Robotic units that track heat will operate within certain predefined limits intended to maximize their survivability and effectiveness. These heat limits will be defined by the robotic unit's type as well as its current Aggression level (see Heat Management Decision Tree, p. 159).

Heat from external sources (such as fire, flamers, and plasma weapons) is not counted against the unit's general heat restrictions, but may force a robotic unit into higher heat levels than normally permitted by its programming. Any heat-tracking robotic unit that ends its turn with more than 14 points of excess heat may perform no other action in the following turns beyond basic movement at a Walk/Cruise/Safe Thrust rate, until its heat levels have returned to 0.

Pilot/Crew Damage

Because they lack an actual crew, robotic units do not need to make Consciousness checks when they suffer critical hits that would ordinarily wound or stun their pilots and crews. Instead, any time a robotic unit suffers a critical hit that would stun or wound its pilot/crew, the unit will suffer a temporary disruption that applies a +1 target modifier to all Piloting and Gunnery actions during the following turn. (This modifier does not stack if more than one stun or wound effect occurs in the same turn, and will only persist for 1 turn in such an event.)

If a robotic unit receives a critical hit that would kill its pilot or crew (including the destruction of the unit's cockpit location), the critical hit destroys the unit's operating systems, knocking the unit out of commission for the remainder of the game. The unit is treated as if it has suffered a destroyed cockpit or killed crew, and removed from play.

Hazardous Environments, Heat, and High-G Maneuvers: Robotic units ignore all pilot damage that would otherwise be sustained from overheating or hazardous environments. Robotic aerospace units are immune to any pilot damage effects for high-G maneuvers (see p. 78, *TW*).

Electronic Warfare and Interference

Even though they are designed to operate independently, and are directed by on-board programming that requires little to no actual communications, many robotic units are susceptible to electronic warfare and other significant interference effects via their sensory equipment. For these units, sensory overload caused by electronic interference can have an unpredictable effect, based largely on the nature of the unit being affected.

For ground-based robotic units, including all mobile structures and buildings, hostile ECM fields of any kind—including attacks from hostile Haywire Narc pods, ECM systems of all types, or electromagnetic pulses from any source (EMP mines, nuclear weapon attacks, EMI terrain conditions, and so forth)—all create interference powerful enough to affect the unit.

For robotic aerospace units (including space stations, but *not* including airborne mobile structures), ground-based ECMs have no effect, but EM pulses from nuclear weapons detonated in atmosphere, hits from ASEW missiles, and all ECM systems used by other aerospace units while the electronic warfare rules in *Strategic Operations* are in play (see pp. 110-113, *SO*), will produce effects powerful enough to cause them interference.

When a robotic unit is exposed to an electronic interference source that can affect it, the robotic unit's controlling player must roll 1D6, and consult the Robotic Electronic Interference Effects Table.

Special Conditions

The following special rules govern robotic units when such events occur in the course of their operation.

Boarding Actions: Any unit type that may normally be targeted by a boarding action (including large naval vessel support vehicles, small craft, DropShips, JumpShips, space stations, and WarShips) may even be targeted for such actions if they are operating as a robotic unit. These boarding actions follow the rules found in *Tactical Operations* and *Strategic Operations* as appropriate to their unit type (see pp. 199-207, *TO* and pp. 36-38, *SO*), but with the following additions and exceptions.

Robotic units cannot initiate boarding actions.

When resolving any boarding actions against a robotic unit, the robotic unit receives a Marine Point value that reflects its closed control systems, lack of standard crew passages, and fixed internal defenses including small arms and self-sealing containment sections. These base Marine Point values, shown in the Robotic Unit Base Marine Points Table, are determined based on the robotic unit's type, its control systems, and the amount of control tonnage it has devoted to the equivalent number of crewmen (factored as steerage-class quarters for the crew and gunners a manned unit would need; this latter detail is further described in the construction rules for each robotic control system covered in this section.)

If any human passengers are being carried by a robotic unit that is being boarded, those passengers may add to this base Marine Point value to augment the unit's defense. Any robotic unit that can be targeted by a boarding action must note its final Marine Point value on its record sheet prior to the start of play.

Note that if a robotic unit is shut down at the time it is being boarded, the robotic unit is treated as if it has a Marine Point value of 0 (plus any Marine Points added by human passengers).

Any successful boarding action that eliminates the robotic unit's defenders will prompt the robotic unit to shut down. A unit shut down by boarding action cannot be restarted during the same scenario, but may be salvaged and used by the capturing force later (presuming it is not destroyed in the process, and does not have and employ a booby trap device).

Fighter Squadrons: Robotic aerospace fighters may be combined into squadrons, as long as they are of identical control system types (so robotic aerospace fighters may not be grouped together into squadrons with remote-operated drones or human-controlled units; likewise, robotic aerospace units employing basic SRCS cannot be combined into squadrons with robotic aerospace units using shielded aerospace SRCS). Though robotic fighters of different Skill ratings may be combined, the entire squadron always receives the worst (highest) base target numbers of all its component members for its Gunnery and Piloting ratings.

Players choosing to field robotic fighters in squadrons must arrange these squadrons prior to the start of play;

ROBOTIC ELECTRONIC INTERFERENCE EFFECTS TABLE

Roll	Effects (by Robotic Unit Type)
1-4	Non-aerospace units shut down for 3 turns, restarting in the Movement Phase of the fourth turn. If still within an interference effect upon reactivation, unit executes Forced Withdrawal and may not return, even if it escapes the interference effect. Aerospace units suffer +1 target modifiers to Gunnery and Piloting Skill checks (+2 if the ECM source is a hostile WarShip). Effect lasts 1 turn, after which the unit must check again if still within an interference area. Mobile Structures and Buildings suffer no effects.
5	Non-aerospace units continue to move in the direction of their last heading, at the same speed as their last movement rate, for the next 3 Movement Phases, but may take no other actions in that time. If this movement places the unit in illegal terrain, the unit crashes into it and becomes immobilized within the first illegal hex, suffering damage as if it fell into the new terrain from the hex before it. If any other units or buildings lie in the path of a non-aerospace unit's movement, check for collision by rolling a charge/ram attack for the unit, with a +4 to-hit modifier. A missed charge/ram attack simply indicates that the unit's "target" was able to sidestep, and the robotic unit passed without contact. After 3 turns, the unit returns to normal. Aerospace units may not expend Thrust or take any other actions for 1 turn, and thus drifts at its current heading and velocity). If in atmosphere or within a map area affected by gravity, the unit will also drop 1 High-Altitude Map hex row toward the ground (3 altitudes on the Low-Altitude Map), crashing if they are reduced to (or below) the ground heax row/altitude. After 1 turn, the unit returns to normal. Mobile Structures and buildings shut down for 1D6 ÷ 2 turns (round up), restarting in the Movement Phase of the turn after that. The unit returns to normal operations upon restarting.
6	All units except for mobile structures and buildings will berserk on this result. While berserk, the unit closes on the nearest active unit—friend or foe—and attacks it with all available weapons (even attempting to ram the target, if the robotic unit is unarmed), ignoring heat effects. The unit remains in this state as long as it is still exposed to the interference effect that triggered this result, or until the unit is destroyed. If a berserking unit destroys its target, it will immediately seek out another. Mobile Structures and buildings shut down for 1D6 ÷ 2 turns (round up), restarting in the Movement Phase of the turn after that. The unit returns to normal operations upon restarting.

ROBOTIC UNIT BASE MARINE POINTS TABLE

Robotic Control System Type	Small Craft	Satellite	Large Craft*	Crew / Gunners**
Smart Robotic Control System (SRCS)	1	1	3	+0.5 / +0.25
Shielded Aerospace SRCS	1	1	3	+0.5 / +0.25
SDS (Caspar) Drone Control System	4	NA	10	+1 / +0.5
Caspar II Advanced SRCS	2	NA	5	+1 / +0.5

*Includes DropShips, JumpShips, Space Stations, WarShips, and Large Naval Support Vehicles, where applicable.
**Per 7 tons of control systems devoted to equivalent Crewmen/Gunners (see construction rules), round normally.

robotic fighters cannot form up into squadrons, or break off from squadrons during the course of the scenario.

In all other respects, robotic fighter squadrons follow the standard rules and restrictions for fighter squadrons (see p. 27, *SO*).

Human Controls: Most robotic units featuring a SRCS may not be operated by human crews. Robotic 'Mechs, combat vehicles, fighters, small craft and satellites possess no interface controls, and may not be modified for human operation without a complete refit that includes the replacement of the unit's cockpit and control systems.

Robotic support vehicles, DropShips, WarShips, and space stations, however, *do* possess rudimentary "maintenance" controls that allow basic operations by a skeleton crew. When these robotic units are operated by human crews, the robotic unit may function as a normal unit of equivalent type and does not have to follow the Robotic Independent Command Rules. While under human control, the robotic unit uses the base Gunnery and Piloting Skills of its human operators, but applies a +2 target modifier to all Piloting Skill rolls, and a +4 target modifier for all Gunnery Skill rolls. A robotic unit operating under direct human control in this fashion also may not move or accelerate faster than its current Cruise/Safe Thrust.

Hyperspace Travel: Robotic units—including JumpShips equipped with robotic control systems—are unable to initiate hyperspace travel without outside intervention. To transit through hyperspace, a human crew must generally board a robotic JumpShip (or stow the robotic units within a human-crewed JumpShip for travel), and then "drive" the vessel through hyperspace normally with all robotic control systems deactivated for the duration of the process (see pp. 88-89, *SO*). Once the jump is completed, the crew then reinitializes all robotic control systems before departing, at which point the units' Aggression levels are set and they may resume operating normally.

Robotic units attached or loaded within a robotic or drone JumpShip may not detach or launch without a command from a designated Control Unit.

If, for any reason, a robotic unit undergoes hyperspace transit without first being deactivated, resolve the effect as though the unit were an aerospace unit exposed to electronic warfare, but apply a +3 modifier to the 1D6 roll. A result of 6 or more is treated as a 6. All effects of hyperspace travel on robotic units persist until the unit is shut down or destroyed.

Shutdown Robotic Units: A robotic unit that shuts down while on the ground becomes an immobile unit. Robotic VTOLs and WiGEs while airborne will crash to the ground in the following turn's Movement Phase. Robotic units that shut down while in space will drift at their current heading and velocity, and will automatically fail any required Control Rolls.

All other airborne robotic units that shut down while operating in the Space/Atmosphere Interface, atmospheric rows, or ground row of hexes on the High-Altitude Map (or while operating at any altitude of the Low Altitude Map), will fall 1 hex per turn of inactivation (or 3 altituds, if the Low Altitude Map is in play). If there is more than one possible hex the falling unit may enter, determine which hex the unit falls into randomly. Shutdown airborne units begin to fall during the aerospace Movement Phase of the turn following their shutdown. If it falling unit enters a Ground Hex on the High-Altitude Map, or Altitude 0 on the Low-Altitude Map, the unit crashes.

If a robotic unit is not destroyed and can be reactivated later, it will resume normal operation.

Shutdown robotic units that may be targeted by boarding actions have an effective Marine Point value of 0, for purposes of Boarding Actions (see above).

Control Units

Friendly human-operated units may be designated as Control Units for friendly robotic units prior to the start of a scenario. Unlike control units for remote-operated drones, robotic Control Units need not maintain constant communication with their drones. Instead, Control Units need only relay periodic commands, whenever they are needed to modify the robotic units' behavior.

Control Unit Requirements: Any unit weighing 200 tons or less in total mass must have functioning sensors and at least 3 tons of communications equipment, a C^3 command computer, an improved C^3 computer, or a cockpit command console, in order to act as a robotic Control Unit. Units so equipped can send 1 command to robotic units per turn for each such piece of equipment possessed (to a minimum of 1 command sent per turn). For example, a BattleMech that features both a cockpit command console and an improved C^3 computer would be able to send 2 commands to friendly robotic units per turn.

For mobile structures, buildings, and all other units weighing over 200 tons—including Support Vehicles and all types of large spacecraft—the unit need only possess functioning sensors and advanced (military-grade) fire control systems, or a minimum 3 tons of communications equipment. Units so equipped can send 1 command per turn for every firing arc the unit possesses. An additional 2 commands per arc may be issued if the unit possesses a small Naval Comm-Scanner Suite, or 3 commands per arc if the unit possesses a large Naval Comm-Scanner Suite (see pp. 332-333, *TO*). Thus, a spheroid DropShip lacking NCSS equipment, could send up to 6 commands to friendly robotic units per turn as a robotic Control Unit, while a WarShip with a large NCSS could relay up to 32 commands per turn to friendly robotic units (4 per arc x 8 firing arcs).

Relaying Commands: Robotic Control Units relay their commands during their Weapon Attack phase, and may only relay commands to friendly robotic units within their line of sight. If the Control Unit is ground-based, it may relay commands to robotic units up to 80 kilometers away (approximately 160 map sheets, or 2,667 hexes); if the Control Unit is an aerospace unit, its maximum relay range is 3,000,000 kilometers (approximately 166,667 space hexes).

Each robotic Control Unit may only relay 1 command to a given friendly robotic unit at a time, and a robotic unit may only receive 1 command per turn from a designated Control Unit. For the purposes of these rules, robotic aerospace units arranged into fighter squadrons are treated as a single robotic unit; all other robotic units must be commanded one at a time. Commands relayed to friendly robotic units do not take effect until the start of the turn after the command was relayed.

If the Control Unit weighs less than 200 tons, sending commands prevents the unit from executing any other weapon attacks unless the unit is doing so via a cockpit command console or dedicated communications equipment; units relaying commands via C^3 equipment alone cannot relay commands and execute weapon attacks at the same time. For all other unit types, every 4 robotic commands relayed (rounded up) reduces the unit's ability to use one of its weapon arcs in the same turn.

Special Equipment: Control Units equipped with an Autonomous Tactical Analysis Computer (ATAC) or Direct Tactical Analysis Control (DTAC) system relay commands differently. See the rules for those items to determine their additional impact on relaying commands as a robotic Control Unit.

Legal Commands: Only four commands can be issued to a robotic unit by a Control unit: Activate, Shut Down, Change Aggression Level, and Designate Priority Target:

- **Activate:** Activates a robotic unit that has been shut down by a previous shutdown command or a hyperspace jump effect. The robotic unit will activate at the start of the next combat turn.
- **Shut Down/Prepare for Boarding:** Deactivates an active robotic unit. The robotic unit will shut down at the start of the next combat turn. If in space, the unit will continue drifting along its previous course and velocity. If in flight where gravity has influence, the unit will begin to fall toward the ground at a rate of 1 High-Altitude Map hex per turn (or 3 Low-Altitude Map heax row/altitude per turn), and will crash if they reach ground hex row/altitude in this fashion. Unless otherwise noted, shut down robotic units that can be boarded also deactivate their internal defenses, and thus have a base Marine Point value of 0.
- **Change Aggression Level:** This command allows the Control Unit to change the robotic unit's Aggression level. When issuing the command, the controlling player simply announces the new Aggression level for the unit. The new Aggression level takes effect at the start of the following turn.
- **Designate Priority Target:** Designating a priority target overrides the robotic unit's normal target selection process as outlined in the Robotic Independent Command Rules (see pp. 149-153), and makes the new target the robotic unit's top priority for all attacks, starting in the next turn. Once the priority target is destroyed, the robotic unit returns to its normal target selection process via the Robotic Independent Command Rules.

SMART ROBOTIC CONTROL SYSTEM (SRCS)

Introduced: Early spaceflight

Truly robotic drones date back to the earliest years of Terran spaceflight. Moving beyond remote-controlled technologies of the day, these units were capable of independent operation via a structured set of pre-programmed commands. While not truly intelligent in any fashion, these units used sophisticated "smart" software to resolve actions based on specific parameters set in advance of their deployment. The main drawback to these independent robotic units, which greatly limited their military application, was their susceptibility to ECM, combined with programming that proved too rigid to adapt to a rapidly changing battlefield environment.



Word of Blake Tiamat *DropShip automated with* Caspar II *artificial intelligence.*

Although a smart robotic control system (SRCS) could be installed in virtually any type of vehicle, the technology was most commonly mated with aerospace units, which operated far from significant terrain variables, and the risk to civilian populations and property was vastly reduced. In the commercial sector, may firms still produce robotic control systems for the civilian and industrial use, but the technology fell out of use in the military sector following the collapse of the Star League, and did not return to significant use until the years leading up to the Word of Blake's Jihad.

Smart Robotic Control System (SRCS) Game Rules

Rules Level: Advanced
Available to: BM, IM, CV, SV, CF, AF, SC, DS, JS, SS, MS, Buildings
Tech Base (Ratings): Inner Sphere (C/DXFF), Clan (C/XFFF)

Units equipped with the basic smart robotic control system (SRCS) presented here follow all general robotic unit game rules described on pp. 134-141, with the specific modifications noted below.

Changing Aggression: If a Control Unit directs a unit operating with a SRCS to change to a new Aggression level, the change will not take effect until after the second Initiative Phase following the End Phase in which the order was given. During the intervening turn, the robotic unit will maintain its previous Aggression level.

Initiative: Robotic units operating with an SRCS must resolve their Initiative rolls separately from all human-operated units, remote drone units, and even other friendly robotic units that use a Caspar or Caspar II control system. Only other friendly robotic units using either the basic SRCS or the shielded aerospace SRCS may share the same Initiative roll, which receives a modifier of –4, regardless of how many such units are combined.

Hyperspace Travel: Although not as unstable when exposed to hyperspace as more sophisticated AI systems, robotic units equipped with a basic SRCS are still overwhelmed by the sensory and data surge that accompanies a jump through hyperspace. Any robotic unit driven by a basic SRCS that goes through a K-F jump without first being deactivated will arrive at the destination point in a shut down state, and will need to be restarted by orders from a friendly command unit or boarding action.

Smart Robotic Control System (SRCS) Construction Rules

For all units weighing less than 10 tons in total mass, the robotic control system adds no weight beyond that of the unit's existing control systems.

For units 10 tons and over, the SRCS adds extra weight to the basic cockpit and/or control systems already installed on the unit. This additional weight is determined as a percentage of the unit's total weight (or, in the case of JumpShips, the unit's remaining weight after the installation of its K-F drive), as shown in the Smart Robotic Control Systems Table. Also shown in the table are the Gunnery and Piloting/Driving Skills the unit will receive, based on the percentage of the unit's mass spent on the SRCS.

For mobile structures and static buildings designed to use a SRCS, assign steerage-class crew quarters for the minimum required crew needs of a manned version of the same unit. This tonnage is considered to be the unit's SRCS instead.

Improvements: Robotic BattleMechs, combat vehicles, aerospace fighters, small craft, DropShips, JumpShips, and space stations may improve their Gunnery and Piloting Skill numbers (by 1 point each) by assigning an additional 2 percent of the unit's total mass (or leftover

mass on JumpShips) to their SRCS equipment. This improvement modifier may only be applied once, and the robotic control system must be noted as "Improved" on the unit's record sheet. For units less than 10 tons in total mass, this same effect is accomplished by spending 1 ton on additional control system weight, rather than an added 2 percent.

Note: If the unit requires weight to be spent on life-support systems (typically represented as crew quarters or cockpits), the drone unit is *not* exempt from this requirement (see *Add Control/ Crew Systems* pp.188, *TM* and pp. 149, *SO*), as such systems reflect a mix of accommodations for any short-term maintenance crews to work in, or necessary heating, cooling, and ventilation required of the unit's computers and electronics. This tonnage is also required to help identify the robotic units Marine Point values in the event the unit is targeted by boarding actions.

SHIELDED AEROSPACE SMART ROBOTIC CONTROL SYSTEMS

Introduced: 2755 (Terran Hegemony)
Extinct: 2780 (Inner Sphere), circa 2850 (Clans)
Recovered: 3077 (Word of Blake)

To combat the potential dangers of electronic interference, Hegemony scientists debuted a shielded form of the smart robotic control system for use with drone fighters and other small spacecraft during the mid-2750s. While the technology was never adapted for use with ground units, it worked well in conjunction with the SDS networks defending many Terran Hegemony worlds, with notable examples like the Mk 39 *VoidSeeker* series of robotic fighters often working in massed squadrons to take down hostile ships.

As part of their efforts to improve the Caspar II Drone system, the Word of Blake was able to duplicate the original Star League era shielding technology. They had only just begun experimenting with squadron of *Hive*-class fighters when Devlin Stone's allied coalition liberated Terra. Fortunately, Republic scientists were able to piece together the Word's research data and began fielding their own prototypes by the late 3080s, allowing for shielded robotic fighters to augment Terra's defenses once more.

SMART ROBOTIC CONTROL SYSTEMS TABLE

Unit Type	Gunnery	Piloting/Driving	Mass*
IndustrialMech	7	9	5%
BattleMech	5	9	5%
Combat Vehicle	5	6	5%
Support Vehicle	6	6	5%
Conventional Fighter	5	6	5%
Aerospace Fighter	5	6	5%
Small Craft	5	6	5%
Satellite	5	6	5%
DropShip	5	6	7%
JumpShip	5	6	10%**
Space Station	5	6	7%
Mobile Structures/Buildings	5	6	†
Improvement Modifiers			
Standard SRCS (Improved)	–1	–1	+2%††
Shielded Aerospace SRCS (Improved)	–1	–1	+1%‡
Shielded Aerospace SRCS (Elite)	–2	–2	+3%‡

*Round all weights up to the nearest .5 tons.
**For JumpShips, the mass of the SRCS is based on the free mass left over after assigning tonnage to the vessel's K-F drive system, rather than the tonnage of the entire vessel (see Advanced Aerospace Units Construction p. 142, SO).
†Mobile Structures and Buildings treat all crew quarters required for a manned version of the same unit as the SRCS tonnage instead.
††Available only to robotic BattleMechs, Combat Vehicles, Aerospace Fighters, Small Craft, DropShips, JumpShips, and Space Stations; Maximum of 1 SRCS improvement allowed; For units weighing less than 10 tons, 1 ton of additional control system weight is required to achieve the same effect.
‡Available only to robotic Aerospace Fighters, Small Craft, Space Stations, and Satellite Support Vehicles; Maximum of 1 Shielded Aerospace SRCS improvement (of either type) allowed; Units weighing less than 10 tons may only make one improvement (at –1 per Skill) by applying 1 ton of additional weight to the control systems.

Shielded Aerospace Smart Robotic Control System (SA-SRCS) Game Rules

Rules Level: Experimental
Available to: AF, SC, SV (Satellites only), and SS
Tech Base (Ratings): Inner Sphere (D/EXFF), Clan (D/XEEF)

The shielded aerospace smart robotic control system (SA-SRCS) presented here follows all general rules for robotic control systems described on pp.134-141, with the specific modifications noted below.

Changing Aggression: If a Control Unit directs a unit operating with a shielded aerospace SRCS to change to a new Aggression level, the change will not take effect until after the second Initiative Phase following the End Phase in which the order was given. During the intervening turn, the robotic unit will maintain its previous Aggression level.

Initiative: Like standard SRCS-controlled robotic units, those operating with a shielded-aerospace SRCS must resolve their Initiative rolls separately from all human-operated units, remote drone units, and even other friendly robotic units that use a Caspar or Caspar II control system. Only other friendly robotic units using either the shielded aerospace SRCS or the basic SRCS may share the same Initiative roll, which receives a modifier of –4, regardless of how many such units are combined.

Electronic Warfare: As aerospace units, robotic units using a shielded aerospace SRCS are unaffected by ECM mounted on ground units. If the electronic warfare rules from *Strategic Operations* are in play (see pp. 110-113, *SO*), these robotic units receive the equivalent benefits of having a Guardian ECM suite, even if they do not actually possess such equipment. This, in turn, enables the shielded aerospace units to make use of the advanced ECM and ECCM rules found there.

Hyperspace Travel: Although not as unstable when exposed to hyperspace as more sophisticated AI systems, robotic units equipped with the shielded aerospace SRCS are just as overwhelmed by the sensory and data surge that accompanies a jump through hyperspace as units using the standard SRCS. As such, a robotic unit driven by a shielded aerospace SRCS that goes through a K-F jump without first being deactivated will arrive at the destination point in a shut down state, and will need to be restarted by orders from a friendly command unit or boarding action.

Shielded Aerospace Smart Robotic Control System Construction Rules

The shielded aerospace SRCS follows the same construction rules used to mount a standard SRCS in any equivalent aerospace unit type. This includes the use the Smart Robotic Control Systems Table (see p. 141) to determine the base weight of the robotic controls, and the requirement for steerage-class quarters to be assigned as appropriate for the vessel's minimum required "crew" and "gunners", but improvements are handled differently, as described below. Shielded aerospace SRCS equipment can only be installed on aerospace fighters, small craft, satellite support vehicles, and space stations.

Improvements: Unlike the basic SRCS, a unit with shielded aerospace SRCS may improve its base Gunnery and Piloting target numbers by as much as –2 each. For an additional 1 percent of unit mass assigned to the control systems, "Improved" shielded aerospace SRCS provides a –1 base target modifier to both skills. To achieve the –2 base target modifiers of "Elite" shielded aerospace SRCS instead, apply an additional 3 percent of unit mass to the control systems instead.

Robotic units that weigh less than 10 tons in total mass can only improve their base Gunnery an Piloting Skills by 1 point, at a cost of 1 ton of additional control weight (instead of the added 1% described above).

SDS (CASPAR) DRONE CONTROL SYSTEM (SDS-DCS)

Introduced: 2695 (Terran Hegemony)
Extinct: 2780 (All)
Recovered: N/A

Amid its efforts to produce a far more flexible, effective, and sophisticated defense network for its core worlds, Star League scientists made astounding breakthroughs in the development of artificial intelligence. Based on the first complete and successful "mental map" of a human brain, these computers were capable of fast and intuitive thinking that easily trumped the structured programming of older robotic control systems. Verging on true sapience, combined with the experience of one of the Hegemony's greatest naval strategists, the AIs that resulted could out-think all but the greatest military minds of the Star League. When mated with the hulls and firepower of the Terran Hegemony's Space Defense System (SDS) ships, the "Caspar" drone control system became the pinnacle of Star League technology—and, as fate would have it, its own deadly Achilles' Heel.

While rumors persist of other applications of the Caspars' underlying AI technology—including predictive analysis computers that allegedly forecasted Stefan Amaris' coup right down to the very day—the science that made it all possible was tightly controlled by the Hegemony, and lost in the savage fighting between Emperor Amaris and Kerensky's SLDF. Furthermore, given the fact that even the most perfect artificial intelligence ever created proved easy to turn against its own makers by the mere flip of a switch, few of the realms that survived the Star League's fall were willing to expend serious efforts in replicating such technology.

SDS (Caspar) Drone Control System (SDS-DCS) Game Rules

Rules Level: Experimental
Available to: SC, DS, WS, and SS
Tech Base (Ratings): Inner Sphere (F/EXXX)

Units mounting the SDS Drone system operate per the standard rules for their unit type. To reflect their extremely sophisticated intelligence, robotic units driven by a SDS (Caspar) drone control system do not use the Robotic Independent Command Rules. Instead, they function exactly like human-operated units, except as noted below.

Piloting and Gunnery: Like other robotic units, an SDS drone's Piloting and Gunnery Skill is determined by its unit type and how much mass is devoted to its control system during the unit's construction (see the *SDS Drone Control System Equipment Table*, p. 144).

Initiative: In game play, all SDS drones operate on their own Initiative roll. Even if friendly non-drone units, remote-controlled units, or other (SRCS-based) robotic unit types are in play, all SDS drones will roll their own team Initiative and are counted as a separate force from their allied human-operated units for Initiative purposes. This Initiative roll receives no modifier.

Movement and Combat Basics: SDS drones may maneuver and make weapons attacks as a human-operated unit, but because they are robotic units, they ignore any pilot damage checks required for making high-G maneuvers, or exposure to hazardous environments of any kind.

SDS drones may execute high-G maneuvers at will, regardless of the target's range or the SDS unit's current SI value.

SDS drones may target multiple targets in a turn with a reduced penalty. The first 2 targets a SDS drone attacks in a turn will receive no to-hit modifiers for secondary targeting; the third and all subsequent targets will receive only a +1 to-hit modifier for secondary targeting.

SDS drones making evasive maneuvers (see p. 77, *TW*) only suffer a +1 to-hit modifier when making weapon attacks, rather than the usual +2.

If an SDS drone has received more than three critical hits of any kind (not including destroyed weapons) or has lost more than 50% of its starting weapons (Capital weapons for WarShips), it may conduct ramming attacks (see p. 241, *TW)*, on a Control Roll of 6 or higher. This roll is made at the start of the movement phase and before any movement is made. If the roll is failed, the drone may perform another action per the normal rules.

SDS drones may not initiate a hyperspace jump under any circumstances (see below).

Heat: SDS drones are allowed to overheat during play at the player's discretion, so long as they do so in accordance with the unit type's standard rules for heat management.

Critical Hits: Critical hits against SDS drones that would normally stun or wound the pilot/crew will have no noticeable effect on drones, but must be tracked nevertheless. Once a SDS drone suffers a critical hit that would kill its pilot/crew, that critical hit destroys the drone's ability to send or receive communications from a friendly unit using an ATAC system. Also at this point, the SDS drone will continue to operate, but no longer does so as part of any larger force of SDS drones. Instead, the drone must make its own individual Initiative roll, with a –2 modifier applied to the result. The distributed nature of their SDS drone control system allows such units to continue operating until destroyed or deactivated.

Electronic Warfare: If using the electronic warfare rules in *Strategic Operations* (see pp. 110-113, *SO*), SDS drones follow the standard ECM/ECCM rules and ignore the interference effects that can affect other robotic units mounting SRCS-type systems. Furthermore, as a byproduct of its communication systems, the radius of a SDS drone's ECM zone of effect is increased by 1 additional hex over the normal radius of a unit of equal class. Thus, SDS drone WarShips would have an ECM field that extends up to 3 hexes away, while SDS drone DropShips have a 2-hex ECM radius, and SDS drone small craft can blanket all adjacent hexes in ECM.

Anti-Ship Electronic Warfare Missiles: If an ASEW missile successfully strikes a SDS drone (see p. 358, *TO)*, the attacking player must roll 2D6. If the result is 12, the SDS drone will shut down for a period of 5 turns, starting with the End Phase in which the unit was struck. After the fifth End Phase of the unit's shut down, it will restart and function normally.

On any other roll result, the drone will lose its contact with any connected ATAC unit for a period of 1D6 ÷ 2 turns (round down). Like a SDS drone that has suffered a crew killed effect, SDS-controlled robotic units in this situation will continue to operate, but must roll their own individual Initiative at a –2 result modifier for the duration of this effect.

Afterwards, the interference ceases and the SDS drone returns to normal. Additional ASEW missile hits will not change the Initiative modifier or stack its duration of effect on the unit.

Control Units: SDS drone units may only receive commands by a friendly Control Unit using an ATAC system (see *Autonomous Tactical Analysis Computer*, p. 145).

Human Controls: SDS drones with human internal controls follow the same general robotic unit game rules for direct human operation as SRCS-equipped units (see pp. 140-141).

Boarding Action: Except for the different base Marine Point value, SDS drones follow the same general robotic unit game rules for boarding actions as SRCS-equipped units (see pp. 140-141).

Hyperspace travel: The artificial intelligence that drives Caspar drones is extremely sensitive to hyperspace travel, and lacks the resiliency of the human brain to cope with the transit across a K-F jump. As a result, SDS drones that are not properly shut down and carried through a jump by direct human-controlled means almost invariably become disoriented and revert to an almost "feral" self-perseveration mode.

To reflect this, any time a SDS Caspar drone is not shut down prior to a hyperspace jump, its controlling player must roll 2D6 against a target number of 12 once the unit arrives at its destination. If this roll fails by a margin of 8 or more, the drone will initiate a self-destruct sequence upon arrival, and will ignore all commands from outside sources, regardless of affiliation. If the drone fails this roll by a margin of 7 or less, it will instead go "rogue", and treat all units as hostile, regardless of affiliation. Rogue SDS drones lose all higher command functions and function as a standard robotic unit with an Aggression level of Aggressive. Resolve all actions by a rogue SDS drone using the Robotic Independent Command Rules, but ignore any outside commands by Control Units of all kinds; a rogue SDS Caspar's rampage unit can only be stopped through the unit's destruction or a successful capture in a boarding action. If the 2D6 roll of 12 is made upon the SDS Caspar drone's arrival, the unit will simply shut itself down, and can only be restarted by a friendly human boarding party.

Note that these effects were well known to the creators of the SDS Caspar drones, and as a result, all SDS units equipped with Kearny-Fuchida drives were built with fail-safes specifically designed to prevent a jump with the Caspar's AI still active. Thus, a functional SDS Caspar drone can never jump while its AI is active. In order to successfully initiate its K-F drive, the Caspar WarShip must first be given a deactivation command from a friendly, human-controlled unit equipped with an ATAC system, and then given a "prepare for boarding" command. A human crew must then board the vessel and manually engage the ship's K-F drive, before restarting the robotic control systems on the other side.

Shut Down: SDS drones follow the same rules for shut down as SRCS-equipped robotic units (see pp. 140-141), but with the following exception. The internal defenses of an SDS drones remains active unless the unit has received a valid "Prepare for Boarding" command from a friendly Control Unit equipped with an ATAC system. Thus, shutdown does not alter the Marine Point value of a SDS drone.

SDS DRONE CONTROL SYSTEM EQUIPMENT TABLE

Unit Type	Gunnery	Piloting	Mass*	Notes**
Small Craft	5	6	5%	Additional 2% tonnage will increase skills to 4/5
DropShip	5	6	4%	Additional 4% tonnage will increase skills to 4/5
Space Station	4	5	8%	Additional 4% tonnage will increase skills to 3/4
WarShip†	4	5	6%	Additional 4% tonnage will increase skills to 3/4

*Round all weights up to the nearest applicable weight increment (see p. 184, TM for Small Craft and DropShips and p. 145, SO for Space Stations and Warships).

**Craft with a standard control system are indicated by the modifier "standard" in front of their equipment listing, while those with upgraded gunnery and piloting are indicated by the modifier "improved"

†The maximum tonnage an SDS WarShip may be is 800,000 tons

SDS (Caspar) Drone Control System Construction Rules

SDS (Caspar) drone control systems can only be installed on small craft, DropShips, WarShips, and space stations. The base weight for the control system itself is found using the SDS Drone Control System Equipment Table, which defines the extra percentage of the vessel's weight that must be added to its standard control system equipment.

In addition to this, SDS drones must also devote tonnage to steerage-class quarters for a minimum number of required crew (including officers, gunners, and crew). This represents various automation and internal maintenance support components, as well as access ways and temporary housing for visiting technical teams. To find this minimum "crew support" complement, first consult the appropriate rules for the unit's class and found in *TechManual* (for small craft and DropShips; see pp. 188-190, *TM*) and *Strategic Operations* (for WarShips and stations; see pp. 149-150, *SO*). After determining the minimum number of crew and gunners for an equivalent human-operated vessel of equivalent type and capabilities, divide that number in half, rounding up to the nearest crewman, to find the number of "quarters" that must be installed on the SDS drone.

Improvements: As indicated in the SDS Control Systems Equipment Table, applying additional vessel mass to the basic SDS control systems will improve the unit's Gunnery and Piloting Skills. An improvement may only be applied once per vessel class.

CASPAR II ADVANCED SMART ROBOTIC CONTROL SYSTEM

Introduced: 3064 (Word of Blake)
Extinct: 3078 (All)
Recovered: 3082 (Republic of the Sphere)

Unable to replicate the truly autonomous nature of the Star League's SDS drone control system, the Word of Blake instead diverted its attention toward substantial improvements in the older smart robotic control systems (SRCS).

Dubbed the "Caspar II" system, this advanced smart robotic control system created a more suitable combat platform by mating independent command subroutines with human-controlled tactical operations. While the resulting system lacked the true autonomy possible with the Star League version, robotic units driven by an advanced SRCS could now adjust their missions on the fly, making them much more effective in a battle.

Caspar II Advanced Smart Robotic Control System Game Rules

Rules Level: Experimental
Available to: SC, DS, WS, and SS
Tech Base (Ratings): Inner Sphere (E/XXFX)

Units equipped with the Caspar II advanced smart robotic control system follow all general robotic unit game rules described on pp. 134-140, with the specific modifications noted below.

Switchable Command Rules: The Caspar II system is a hybrid of a modified smart robotic control system and tele-operated control via human operators using a DTAC system. As such, Caspar II robotic units will operate under the Robotic Independent Command Rules (see pp. 149-153) only when not specifically receiving commands from a DTAC-equipped Control Unit (see pp. 146-174). When receiving commands from a DTAC-equipped Control Unit, the Caspar II drone will follow orders in accordance with that equipment's rules.

Caspar II Skill Ratings: A Caspar II drone's Piloting and Gunnery Skill target numbers are determined by the unit's type as well as how much of its mass has been devoted to its control system (see the Caspar II Advanced SRCS Equipment Table, p. 145). The Caspar II unit's Skills remain the same whether or not it is receiving commands directly from a human operator, or working independently.

Caspar II Initiative: Caspar II drones roll Initiative differently depending on whether they are operating independently or under the direct control of human operators using a DTAC system. When operating independently, all allied Caspar II drones must roll a separate Initiative from the other forces in play, applying a –2 modifier to this roll. When operating under direct command from a human-controlled unit using a DTAC system, all allied Caspar II drones are treated as part of the DTAC Control Unit's force for the purposes of Initiative; they thus do not make a separate Initiative roll, or apply modifiers to the same.

Using Weapons and Equipment: Caspar II drones operating independently follow the same rules for weapons and equipment use as standard SRCS drones (see p. 140).

If operating under direct command from a human-operated Control Unit using a DTAC system, Caspar II drones may employ weapons and select munitions in the same fashion as a human-controlled unit. The Caspar II drone may also be instructed by a friendly Control Unit to conduct ramming attacks at will, and do not require a roll to "gather the nerve" for such a ramming action (see p. 241, *TW*).

Heat: Caspar II drones operating independently follow the same rules for heat as standard SRCS drones (see p. 140).

If operating under direct command from a human-operated Control Unit using a DTAC system, Caspar II drones will manage heat in the same manner as a human-controlled unit of equivalent type.

Electronic Warfare: If using the electronic warfare rules in *Strategic Operations* (see pp. 110-113, *SO*), Caspar II drones follow the standard ECM/ECCM rules and ignore the interference effects that can affect other robotic units mounting SRCS-type systems. Furthermore, as a byproduct of its communication systems, the radius of a Caspar II drone's ECM zone of effect is increased by 1 additional hex over the normal radius of a unit of equal class. Thus, Caspar II drone WarShips would have an ECM field that extends up to 3 hexes away, while Caspar II drone DropShips have a 2-hex ECM radius, and Caspar II drone small craft can blanket all adjacent hexes in ECM.

Anti-Ship Electronic Warfare Missiles: If an ASEW missile successfully strikes a Caspar II drone (see p. 358, *TO)*, the attacking player must roll 2D6. If the result is 10 or higher, the Caspar II drone will shut down in the End Phase immediately after the unit was struck. A Caspar II drone shut down by an ASEW missile will remain shut down until reactivated by a command from a DTAC-equipped Control Unit.

On any other roll result, the drone will lose its contact with any connected DTAC-equipped Control Units for a period of 1D6 ÷ 2 turns (round down). If the drone was already operating independently, no further effect occurs, beyond the unit being unable to receive commands from its Control Unit during that time frame. If the drone was under direct control at the time of the ASEW attack, the attacker must roll 1D6. If the result is 6, the Caspar II drone will maintain its course and acceleration for the duration of the interference effect, retreating from play if doing so sends it off the edge of the playing area. On a result of 5 or less, the unit will revert to independent control.

Movement and Terrain Restrictions: Caspar II drones operating independently follow the same rules for movement and terrain restrictions use as standard SRCS drones (see p. 140).

If operating under direct command from a human-operated Control Unit using a DTAC system, Caspar II drones will execute all maneuvers commanded by their human operators, but remain subject to all terrain restrictions for their unit type.

Caspar II Control Units: Caspar II drone units may only be issued commands by a friendly, human-controlled unit equipped with a Direct Tactical Analysis Computer (DTAC) system (see pp. 146-147).

Shutdown Caspar II Units: Caspar II drones follow the same rules for shutdown as SRCS-equipped drones (see p. 140), with the following exception. The internal defense systems within Caspar II drones remain active in the absence of a Prepare for Boarding command issued by a friendly Control Unit. Thus, unless such a command is issued and received by the unit, the Caspar II drone maintains its full Marine Point value. If a valid Prepare for Boarding command is issued and received from a friendly Control Unit, the Caspar II drone's base Marine Point value will drop to 0 (until the unit receives an Activate command).

Independent Command Rules: Caspar II drones operating independently must note their Aggression level at the start of game play. This Aggression level will not change unless specifically commanded by a friendly Control Unit.

If no such change is ordered during the period in which the Caspar II drone is under direct command, and the drone becomes independent due to disruption or destruction of its Control Unit, the Caspar II drone will operate under its last-known Aggression level.

Caspar II Advanced Smart Robotic Control System Construction Rules

Consult the Caspar II Equipment Table below for the weight of the equipment to be installed, based on the unit type and the desired Gunnery and Piloting target numbers. Caspar II controls add extra weight to the unit's standard control systems, based on a percentage of the unit's total weight. For WarShip-sized units, this additional base control system weight will not exceed 400,000 tons, but more tonnage will be required as indicated below.

Caspar II drones must still devote tonnage to steerage-style quarters for all required minimum crew (officers, gunners, and crew), representing various automation and internal maintenance units and access ways (see *Add Control/Crew Systems*, pp. 188, *TM*, and 149, *SO*). To find this minimum crew requirement for a Caspar II drone, start by calculating the normal minimum crew needed for a human-operated unit of equivalent type and gunnery needs, disregarding any bay personnel. Divide this result by half—rounding up to the nearest whole number—to find the number of "crew quarters" the Caspar II will require.

Although the Advanced SRCS (Caspar II) control system is installed in addition to the vessel's standard control systems, it occupies no additional critical slots. Its presence must still be noted on the unit's record sheet, to clearly differentiate a Caspar II drone from its human-crewed analogs.

Aside from the weight costs for the control system and "crew quarters", a unit built with an Advanced SRCS may be constructed normally.

CASPAR II ADVANCED SRCS EQUIPMENT TABLE

Unit Type	Gunnery	Piloting	Base Weight
Small Craft	5*	6*	6%
DropShip	4**	5**	8%
Space Station	4**	5**	10%
WarShip	4**	5**	12%

*For an additional 2% of the unit's total mass, the Caspar II will increase this unit's skills to Gunnery 4, Piloting 5.
**For an additional 4% of the unit's total mass, the Caspar II will increase the unit's skills to Gunnery 3, Piloting 4.

AUTONOMOUS TACTICAL ANALYSIS COMPUTER (ATAC)

Introduced: 2705 (Terran Hegemony)
Extinct: 2780 (All)
Recovered: N/A

Comprising a sophisticated array of neural networks and simulation engines designed to encapsulate the strategic and tactical thinking of generations of Terran Hegemony admirals, the ATAC system could coordinate the actions of an entire fleet of drone spacecraft. Often overlooked, next to the miracle of its drones' near-sentience, the ATAC was a key part of what made the Star League's SDS network even deadlier than the sum of its drones. A single ATAC system could transform the already effective Caspar drones from a pack of brutal, but independent-minded predators into a polished and professional battle fleet.

Autonomous Tactical Analysis Computer (ATAC) Game Rules

Rules Level: Experimental
Tech Base (Ratings): Inner Sphere (E/FXXX)
Available to: DS, WS, SS

The autonomous tactical analysis computer (ATAC) is required for a unit to serve as a Control Unit over robotic units equipped with the SDS Caspar drone control system, and also works with robotic units driven by SRCS and shielded aerospace SRCS equipment. It will not work in conjunction with units operated by a Caspar II advanced SRCS.

The ATAC may be mounted on human-controlled vessels or on robotic drones equipped with a SDS Caspar drone control system. The ATAC's functions replace the normal Control Unit rules found under the general robotic unit game rules as follows:

Networks: Control Units using an ATAC system, like other robotic Control Units, need only relay periodic commands as needed to modify their drones' behavior, but the units assigned to an ATAC network must be assigned prior to the start of the scenario. Only one ATAC may be linked to a friendly, compatible, robotic unit (or drone fighter squadron) at any time.

Control Unit Requirements: The weight of a Control Unit's ATAC system directly determines the number of SDS Caspar drones and SRCS-based fighter squadrons that may be combined in the Control Unit's network. SRCS-driven robotic fighters cannot be controlled by an ATAC system on an individual basis; they must always receive commands as a squadron "unit".

ATAC Initiative, Piloting and Gunnery Modifiers: Units operating as part of an ATAC-coordinated group receive modifiers to their group Initiative rolls and Piloting and Gunnery Skills. This reflects the command and control nature of the network, which enables all networked units to share combat data. These bonuses degrade with the distance the drones operate away from their ATAC-equipped Control Unit as shown in the ATAC Modifier Table.

ATAC MODIFIER TABLE

Distance from Control Unit	Piloting/Gunnery	Initiative
0-50 hexes	–1	+4
51-100 hexes	–1	+2
Over 100 hexes (or Off-Map)	–0	+0

Relaying ATAC Commands: ATAC Control Units relay their commands during their Weapon Attack phase, and may only relay commands to friendly robotic units within their line of sight. An ATAC Control Unit has a maximum relay range is 9,000,000 kilometers (500,000 space hexes), and may even be located off the map, though ATAC Control Units must be on the map and within 100 hexes of their drones to provide the Initiative and Skill modifiers indicated above.

An ATAC Control Unit may only relay 1 command to a given friendly robotic unit at a time, and a robotic unit may only receive 1 command per turn from a designated ATAC Control Unit. For the purposes of these rules, robotic aerospace fighters must be arranged into fighter squadrons to receive commands from an ATAC Control Unit; all other compatible robotic units must be commanded one at a time. All commands relayed to friendly robotic units do not take effect until the start of the turn after the command was relayed.

Unlike the general robotic Control Unit rules, the use of an ATAC to relay commands will not reduce the number of firing arcs the Control Unit may use while sending commands to its drones.

Legal Commands: Eight commands can be issued to a robotic unit by a Control Unit using an ATAC: Activate, Shut Down, Navigate to Position, Prepare for Boarding, Leave Network, Join Network, Share Target Data, and Destruct:

- **Activate:** Activates a robotic unit that has been shut down by a previous shutdown or prepare for boarding command, or by a hyperspace jump effect. The robotic unit will activate at the start of the next combat turn.
- **Shut Down:** Deactivates an active robotic unit. The robotic unit will shut down at the start of the next combat turn. If in space, the unit will continue drifting along its previous course and velocity. If in flight where gravity has influence, the unit will begin to fall toward the ground at a rate of 1 High-Altitude Map hex per turn (or 3 Low-Altitude Map altitudes per turn), and will crash if they reach ground hex row/altitude in this fashion. Robotic units equipped with a SDS Caspar drone control system or SDS self-destruct system will leave all internal defenses active even when given a shut down command, and thus maintain their normal base Marine Point value, while the self-destruct system remains live. A Prepare for Boarding command is required to shut down these secondary defenses.
- **Navigate to Position (Direct or Patrol):** Navigation commands the drone to a specific location in space. If the command is issued as "Direct Navigation", the drone will travel to its destination, but will only defend itself if attacked. With a "Patrol Navigation" command, the drone will engage any hostile targets if it detects any en route.

- **Prepare for Boarding:** This command can only be given to a SDS Caspar unit by a friendly Control Unit with an ATAC system. This command disables any self-destruct equipment on the drone, as well as all internal defenses on the drone, thus reducing its base Marine Point value to 0. Such a command is required before an SDS drone unit can be taken through hyperspace, and must follow a command to shut down the drone in such a case.
- **Leave Network:** This command releases the selected drone from its ATAC network. In the turn following this command, the drone unit operates in accordance with its normal control system rules. Drone fighter squadrons that leave an ATAC network will return to the Robotic Unit Independent Command Rules.
- **Join Network:** This special command can only be issued to a compatible, friendly SDS drone unit (or SRCS-based drone fighter squadron) that is not already part of another ATAC network, and which is within 100 hexes of the ATAC-equipped Control Unit. The command can only be issued if the ATAC network has enough capacity to take on the robotic unit.
- **Share Targeting Data:** This special command can only be relayed to SDS Caspar-controlled units. See *Drone Fire-Control Network* for more information.
- **Destruct:** A fail-safe command more than anything, this command initiates the auto-destruct protocol for the selected drone. If the unit in question is equipped with a Booby Trap or SDS Self-Destruct System, that item's rules are followed; otherwise, the unit will use the standard self-destruct rules found on p. 78 of *Tactical Operations*.

ATAC Fighter Squadrons: When an ATAC-equipped unit is used to direct a robotic fighter squadron, the robotic fighter squadron is treated as a fully intelligent game unit, and does not follow the Robotic Unit Independent Command Rules (see pp. **149-153**). If the ATAC control unit is destroyed or the robotic fighter squadron's connection to it is otherwise disrupted, the fighter squadron will revert to Robotic Unit Independent Command Rules until the connection is re-established.

Drone Fire-Control Network: The ATAC provides the same abilities as a Naval C^3 to all of its drones that also possess an SDS Caspar control system (see p. 332, *TO*). While part of their designated ATAC network, up to 6 such drones can be linked together to share targeting data, as long as the drones are not in an ECM field generated by a large craft. These can either be 6 distinct SDS drones in the same network, or 5 SDS drones and their ATAC-equipped Control Unit. Sharing targeting data in this fashion counts as a special command to all drones that are doing so.

Electronic Warfare: If using the Electronic Warfare rules from *Strategic Operations* (see pp. 110-113, *SO*) ECM effects will interfere with a robotic unit's drone's ability to communicate with its ATAC-equipped Control Unit, as described below.

In the End Phase of each turn, the SDS drone checks its line of sight to its ATAC-equipped unit. If there is a hostile ECM field between the SDS drone and the ATAC equipped unit, make an immediate ECCM roll by the ATAC equipped unit and apply any ECCM modifiers to hostile ECM as if it were targeting the SDS drone. If the ATAC equipped unit counteracts the hostile ECM, the SDS drone operates normally.

If the drone enters a zone where ECM interference provides a +1 to-hit modifier, then the drone will also suffer a –1 Initiative modifier and an additional +1 to-hit modifier for all attacks made at its Extreme range bracket starting in the next turn (regardless of any C^3 effects from the drones' fire-control network). If the ECM interference provides a +2 to-hit modifier, these modifiers change to a –2 to Initiative, and an extra +1 to-hit at the Long and Extreme range brackets. If the ECM effect creates a +3 to-hit modifier, the affected drones suffer a –3 Initiative roll modifier and an extra +1 to-hit modifier at any range bracket. If the ECM effects produce a +4 to-hit modifier, the drones are severed entirely from the ATAC network and will function independently, with the same attack and Initiative modifiers for being in a +3 ECM interference zone.

These effects will persist as long as the ECM interference lingers, but the effects must be checked during each Weapon Attack Phase, after rolling ECCM again, to find the to-hit modifiers that will apply for that turn.

If the ATAC-equipped Control Unit is located off-board, then its line of sight to it is considered obstructed if a hostile ECM comes between the controlled unit and the center hex of the drone units' home map edge.

Autonomous Tactical Analysis Computer (ATAC) Construction Rules

The ATAC has a base weight equal to 2 percent of the equipped unit's weight, to a maximum tonnage of 50,000 tons. For each SDS drone it is intended to direct (of any size), 150 tons is added to this weight. ATACs may be installed in human-crewed ships, or in a WarShip-sized SDS drone. On human-crewed ships, 1 crewman is required for every 3 drones the ATAC can direct.

The ATAC does not occupy a critical slot, but its presence must be noted on the unit's record sheet.

DIRECT TACTICAL ANALYSIS CONTROL (DTAC) SYSTEM

Introduced: 3072 (Word of Blake)
Extinct: 3078 (Inner Sphere)
Recovered: 3082 (Republic of the Sphere)

The Direct Tactical Analysis Control (DTAC) system was the Word of Blake's attempt to produce a manually-operated version of the Star League's ATAC system for use with their own Caspar II technology. Essentially a supersized tele-operations control system, the DTAC system combined with components of the Draconis Combine's Naval C^3 technology to transform their Caspar II control ships into even more effective tactical command hubs.

Leaving the core functions of their drones to the advanced Caspar II control systems, the DTAC made it easier for human operators on their control ships to act as tactical guides, while also providing the sensor- and data-sharing abilities that made the ATAC so fearsome.

Direct Tactical Analysis Control (DTAC) System Game Rules

Rules Level: Experimental
Available to: DS, WS, SS, MS
Tech Base (Ratings): Inner Sphere (F/XXFF)

The direct tactical analysis control (DTAC) system is *not* required for a unit to serve as a Control Unit over robotic units equipped with the Caspar II advanced robotic control system, but it works with those robotic units, as well as any other driven by SRCS and shielded aerospace SRCS equipment. It will not work in conjunction with units operated by a SDS Caspar drone control system.

The DTAC may only be mounted on human-controlled vessels, as it requires a crew to operate. When in use, the DTAC's functions modify those of the normal Control Unit rules found under the general robotic unit game rules as follows:

Networks: Control Units using a DTAC system, like other robotic Control Units, need only relay periodic commands as needed to modify their drones' behavior. Robotic and drone units assigned to a DTAC network must be assigned prior to the start of the scenario. Only one DTAC may be linked to a friendly, compatible, robotic unit (or drone fighter squadron) at any time.

Control Unit Requirements: The weight of a Control Unit's DTAC system directly determines the number of Caspar II drones and SRCS-based fighter squadrons that may be combined in the Control Unit's network. SRCS-driven robotic fighters cannot be controlled by an DTAC system on an individual basis; they must always receive commands as a squadron "unit".

DTAC MODIFIER TABLE

Distance from Control Unit	Piloting/Gunnery	Initiative
0-50 hexes	–1	+4
51-100 hexes	–1	+4
Over 100 hexes (or Off-Map)	–0	+0

*Apply an additional –4 for non-Caspar II SRCS-controlled units; –2 for Caspar II-controlled units.

DTAC Piloting, Gunnery, and Initiative Modifiers: DTAC units use their own modifier table, but otherwise follow the same rules as ATAC units for bonuses to Initiative, Piloting and Gunnery (see p. 145). Furthermore, these modifiers must also apply the normal Initiative modifiers that come with the robotic units' control systems (–4 for SRCS and shielded aerospace SRCS units; –2 for units using Caspar II equipment).

Relaying DTAC Commands: DTAC-equipped Control Units relay their commands during their Weapon Attack phase in the same fashion as an ATAC system does for its drones (see pp. 145-146), but only have an effective command relay range of 4,500,000 kilometers (250,000 space hexes). As with ATAC-equipped Command Units, DTAC-equipped Command Units may even be located off the map, but being present and within a distance of 100 hexes will provide Initiative and Skill modifiers to their drones (see below).

DTAC Fighter Squadrons: DTAC equipped units may direct robotic fighters following the same rules as for human-controlled ATAC units (see p. 145).

Drone Fire-Control Network: DTAC units possess the same ability to network Caspar II-equipped drones as ATAC units do to network SDS Caspar drones (see p. 146). This includes the ability to share targeting data with up to 6 networked Caspar II drones.

Direct Control: DTAC-equipped units use the same rules as ATAC-equipped units for issuing direct control orders to a Caspar II drone (see p. 145).

Electronic Warfare: DTAC-equipped units use the same rules as ATAC-equipped units for Electronic Warfare (see p. 146). All robotic units that become separated from a DTAC-equipped Control Unit will revert to the Robotic Independent Command Rules in the following turn.

Direct Tactical Analysis Control (DTAC) System Construction Rules

The DTACS has a base weight equal to 3 percent of the equipped unit's weight. For each Caspar II drone it is intended to direct (of any size), 150 tons is added to this weight. The DTACS may only be installed in human-crewed ships, and requires 1 crewman per drone, up to the maximum number of drones that the system can direct.

The DTACS does not occupy a critical slot, but its presence must be noted on the unit's record sheet.

ADVANCED ROBOTIC TRANSPORT SYSTEM (ARTS)

Introduced: 2609 (Terran Hegemony)
Extinct: 2804 (Inner Sphere)
Recovered: 3068 (Word of Blake)

The ability of Star League-era *Caspar* drone systems to perform their own launch and recovery operations, and even perform basic maintenance such as ammo loading and refueling, was built upon earlier advances in robotic warehouse technologies. The Terran Hegemony's SDS network took this to the point where entire robotic space stations could help support the SDS drone network.

Robotic transport bays took this ordinarily land-bound technology and applied it to larger space-going vessels. While their use greatly streamlined shipping and reduced crew sizes on Hegemony ships, the system never replaced crews completely, and quickly succumbed to the Star League's fall.

Advanced Robotic Transport (ART) System Game Rules

Rules Level: Advanced
Available to: SC, DS, SS, and WS
Tech Base (Ratings): Inner Sphere (E/DXFF), Clan (E/XEEF)

A unit equipped with this system requires no bay personnel to perform launch/recovery, ammunition loading and unloading, or small craft/fighter refueling. Drone units equipped with an ART system may launch and recover small craft and fighters (drone or human-controlled) as though they were a normally crewed unit.

If a human-controlled small craft or aerospace fighter lands in an ART system-modified bay on board a robotic drone unit, the human crew may not safely exit their craft unless the drone's internal defense system deactivated. If the system is active, the humans must conduct a boarding action (see pp. 188, *TO* and pp. 36, *SO*).

Repair facilities equipped with an ART system are capable of performing basic maintenance on all aerospace craft of DropShip size or larger that are docked within them, using the repair rules and times from the *Maintenance, Repair, Salvage and Customization* rules (see pp. 166-187, *SO)*. The ART system can make the following repairs at Veteran skill rating (a base target number of 6):

- Replace any damaged armor.
- Repair units with less than 25 percent Structural Integrity damage. (For example, an M-5 has an SI of 50. If its SI is between 37 and 49 points, the ART system can fix it. If the M-5's SI was 36, it would need to be repaired at a standard, human-crewed shipyard.)
- Repair 1 critical hit to the following systems: Avionics, CIC, Sensors
- Repair up to 2 critical hits to Thrusters or Engines.
- Replace all heat sinks.

Advanced Robotic Transport (ART) System Construction Rules

ART systems may be installed in place of standard small craft or fighter transport bays, or as a replacement for a standard (pressurized or unpressurized) repair facility. ART system bays are indicated on the unit's record sheet by placing "ARTS" before the name of the bay's type. The ART system increases the transport bay's normal weight by an additional 25 percent over its standard version (rounded up to the nearest half-ton), so an ART system fighter bay would weigh 187.5 tons, while an ART system small craft bay would weigh 250 tons, and a 5,000-ton standard repair facility would increase to 6,250 tons.

As automated components, ART system bays do not add bay personnel to a unit's construction.

SDS SELF-DESTRUCT SYSTEM

Introduced: 2695 (Terran Hegemony)
Extinct: 2780
Recovered: N/A

In the time of the Star League it was thought the SDS self-destruct system was put in place after a tragic episode in 2694. A squadron of M-2 *Hector* drones became non-responsive and destroyed three civilian transport JumpShips because their IFF beacons were broadcasting out of sync. In reality, files recovered from ComStar archives reveal the true reason for the self-destruct system was Jonathan Cameron's fear of the SDS technology falling into the hands of the other Member States.

The self-destruct system was little more than a massive bomb fitted into, or in some cases around, the engine compartment. In the event the ship was disabled or otherwise compromised, the destruct system would engage and scuttle the ship, reducing all the proprietary technology to slag. When combined with the SDS drones' programming to ram enemy combatants if critically damaged, this also turned the self-destruct system into a powerful suicide weapon.

SDS Self-Destruct System Rules

Rules Level: Experimental
Available to: SC, DS, WS, and SS
Tech Base (Ratings): Inner Sphere (C/DFXX)
Game Rules: The SDS self-destruct operates identically to the booby trap rules in *Tactical Operations* (see p. 297, *TO*), with the following exceptions:

If a unit equipped with a SDS self-destruct successfully rams another unit, its self-destruct is triggered automatically, and will deliver additional damage directly to the rammed unit's Structural Integrity. This extra damage is equal to the Drone's Safe Thrust multiplied by its tonnage, to a maximum of 500 points of Structural Integrity damage.

The SDS self-destruct can be accidentally set off if the equipped vessel is damaged from the rear. On any critical hit to the aft section of a unit equipped with a SDS self-destruct system, the attacker resolves critical hits normally, and then rolls another 2D6. If the result is 12 or higher, the self-destruct system activates, destroying the engine and applying the self-destruct system's damage directly to its own ship's Structural Integrity.

An SDS drone will otherwise activate its self-destruct if any of the following event triggers occur: All engine criticals are destroyed; the vessel loses 98 percent or more of its Structural Integrity (round up); the drone loses "control" during a boarding action; or the drone receives a Destruct command from a friendly, human-operated ATAC system.

Construction Rules: The SDS self-destruct system requires 10 percent of the drone unit's weight (rounded up to the nearest whole ton), to a maximum weight of 10,000 tons. The system is located in the unit's engine section, but occupies no critical slot space on the unit's record sheet.

SLDF SDS JAMMER SYSTEM

Introduced: 2776 (SLDF)
Extinct: 2780
Recovered: N/A

As the war to liberate Terra wore on, the SLDF was able to gather more and more data on the super-secret Terran Hegemony controlled SDS Network. Analysis showed that drones would lose their coordination and suffer a loss in accuracy when exposed to heavy ECM interference. To capitalize on this weakness, dozens of SLDF WarShips filled their cargo decks with multi-kiloton jamming systems. These ECM arrays allowed Kerensky's troops to blanket hundreds of kilometers with jamming waves that disrupted the SDS drones, and crippled their ability to form the devastatingly cohesive formations they had used to great effect in earlier confrontations.

SLDF SDS Jammer Rules

Rules Level: Experimental
Available to: WS
Tech Base (Ratings): Inner Sphere (E/FFXX)
Game Rules: A ship equipped with an SLDF SDS Jammer system may activate it in the End Phase of any turn. Once activated, the system extends a jamming field out to 50 hexes. If an ATAC-equipped unit is located within this jamming field, the jammer generates a +4 ECM modifier for the sole purpose of determining if an SDS drone also in the jamming field can network with that ATAC equipped unit (see *Electronic Warfare,* p. 146).

If the ATAC-equipped unit is located outside the SDS jamming field, it is automatically incapable of communicating with any friendly SDS units operating inside the jamming field. For all intents and purposes, the jamming field blocks line-of-sight for all C^3-style network effects into the jammed area. SDS drones inside the jamming field thus may not spot for any friendly units outside the field, and all SDS units outside the field will not "see" any units within the jamming field for the purposes of delivering attacks. In order for an SDS drone to target and attack any ships inside a jamming field, it must first enter the field.

Unless under direct human command (such as from a human-operated, ATAC-equipped unit), an SDS drone must roll an 8 or higher on 2D6 during the unit's Movement Phase before attempting to enter an SDS jamming field. If the roll fails, the drone may not intentionally enter the jamming field, and must instead attempt to maneuver around it, maneuver away from it, or come to a halt outside the field.

Construction Rules: The SLDF SDS Jammer weighs 30,000 tons. It may be hard-mounted during the WarShip's construction, or carried "unmounted" within a WarShip's cargo bay (provided the bay is large enough to fit the item) without any other modifications to the WarShip.

WORD OF BLAKE DRAGON'S BREATH MULTI-MISSILE LAUNCH SYSTEM

Introduced: 3077 (Word of Blake)
Extinct: 3078
Recovered: N/A

An attempt to devise a capital-scale launch rack similar to a 'Mech's SRM launcher, the Dragon's Breath multi-capital missile (MCM) launch system was a non-mounted weapon system, designed to fire a mix of nuclear and electronics-based warheads at a single target. Its intent was to obliterate or incapacitate enemy WarShips in a single volley, while generating sufficient ECM to confuse the target's point-defenses and guarantee a kill. Hastily built by the Word of Blake when the invasion of Terra became imminent, these weapons could not be mounted properly on vessels and platforms quickly enough, and thus posed nearly as much of a potential danger to their users as to their targets.

Thanks to its flaws, the Dragon's Breath proved to be a literal one hit wonder. Of the ten such launch systems built and deployed in the Terran system, only one operated as designed. The remaining systems failed in various fashions, their missiles either failing to launch, or to avoid hitting each other while en route to their targets.

Dragon's Breath Rules

Rules Level: Experimental
Available to: WS, SS
Tech Base (Ratings): Inner Sphere (E/XXFX)
Game Rules: The Dragon's Breath is an automated weapon that may only attack aerospace units of DropShip size and larger, with a designated weight range that must be determined prior to the start of the scenario.

If a hostile unit of the designated weight (or higher) enters the weapon's Medium capital range bracket, roll 2D6. On a result of 8+ the system will attack, targeting the nearest unit that falls within its designated target weight range and the weapon's firing arc. If more than one target is equidistant from the Dragon's Breath, use the *Bearings Launch Capital Missile* rules for target selection (see p. 102, *SO*).

If a hostile unit of DropShip size or larger—regardless of weight—enters the Dragon's Breath's Short capital range bracket, the weapon will automatically attack that target.

The attack from a Dragon's Breath launcher consists of 10 modified Killer Whale missiles. Four of these missiles are ECM-tipped, while the remaining 6 are tipped with either standard warheads or Peacemaker nuclear warheads (see *Nuclear Weapons*, pp. 169-177).

To execute an attack, the controlling player must first roll 2D6 against a target number of 8+. If this roll fails, the system fails to fire and all circuits burn out, rendering the Dragon's Breath inoperative for the remainder of the scenario. If the roll succeeds, the Dragon's Breath will successfully launch its full arsenal at its designated target.

Once the missiles are launched, the attacker rolls another 2D6 against a target number of 9+. If this second roll fails, the missiles veer wildly, colliding with one another and detonating prematurely. Otherwise, the attack continues.

The four ECM-tipped missiles in a Dragon's Breath volley will attempt to generate ghost targets. To resolve this, the controlling player makes a third 2D6 roll against a target number of 9. On a failed roll, no ghost targets are generated (and, if this roll result is 2 or 3, the rest of the attack will automatically fail as well due to the ECM accidentally frying the targeting systems of its own companion warheads). On a result of 9 or 10, each of the 4 ECM-tipped missiles generates 2 ghost targets. On a roll of 11 or 12, each ECM missile generates 5 targets each.

Whether or not ghost targets are generated (and as long as the missiles have launched and not been destroyed or disabled en route), the remaining 6 missiles in a Dragon's Breath volley will finally resolve their own attacks in accordance with all normal rules for capital missile fire. Each missile resolves its attack independently, using the same to-hit number based on the attacking unit's Gunnery rating. For any missiles that hit, resolve damage in three phases: For the first three 3 missiles that hit, resolve damage and critical hits normally, and apply all effects immediately. For the next 2 that hit, resolve damage and critical effects as if the damage from the previous missiles struck in a previous combat phase. Finally, if the sixth missile successfully hits, apply its damage and critical effects as if all the other missiles delivered their effects in a previous phase.

Point Defense fire against an incoming Dragon's Breath volley will always "hit", but may target a sensor ghost instead of the missiles themselves. To determine this, add the total number of sensor ghosts generated by the Dragon's Breath's ECM warheads to the number 6. This is the number of missiles the point-defense will attempt to engage. For each point-defense system that fires on an incoming Dragon's Breath volley, determine at random which missile (or ghost target) the point-defense weapon engages before resolving the missiles' fire. Modifiers for point-defense weapons will only affect those missiles the point-defense system successfully engages.

Due to the unmounted nature of the launch systems, any successful Dragon's Breath launch will automatically deliver 20 points of capital-scale damage to the Structural Integrity of the unit within which the weapon is mounted, applying any critical hits normally.

Construction Rules: The Dragon's Breath system is an unmounted weapon, and thus may only be placed and fired from an open, unpressurized repair facility with a weight capacity of 5,000 or more. The Dragon's Breath itself weighs 5,000 tons (including its ammunition payload of 10 modified Killer Whale missiles). The weapon cannot be installed with additional ammunition. As an automated weapon system, the Dragon's Breath launcher requires no gunners to operate.

ROBOTIC INDEPENDENT COMMAND RULES

Rules Level: Advanced

Available to: Units mounting SRCS, shielded aerospace SRCS, or Caspar II control systems (see pp. 140, 141, and 143, respectively)

The following rules are used to reflect the artificial intelligence structure of any robotic or drone units in game play when they are not operating under the direct control of a human-driven Control Unit (or an SDS Caspar drone equipped with the ATAC system). As such, these rules apply to any units mounting smart robotic control system (SRCS), shielded aerospace SRCS, or Caspar II advanced SRCS equipment.

Command Tree: Each Robotic Independent Command (RIC) Decision Tree consists of Events, which are made up of Events Triggers and Orders based on the unit's "Aggression level" (described below). During the End Phase of every turn that a robotic unit is operating independently, it will begin to determine its actions for the next turn by beginning at the top of the Decision Tree. If an Event's Trigger is valid, the robotic unit will execute the order for that Event. If the Event's Trigger is not valid, the robotic unit proceeds to the next Event in the Decision Tree. If the active robotic unit proceeds through the entire Decision Tree without encountering a valid Event Trigger, it will perform no new actions in the following turn, and will instead carry on its last task.

Note that there are two main RIC Decision Trees that will apply to robotic units, based on whether they are aerospace units (operating either in space or in atmospheric combat), or ground-based units. In addition to these trees, there are some secondary decision trees that are called upon under select circumstances. These include the Transport RIC Decision Tree (applicable to aerospace units assigned to transport missions), the Ground Movement Decision Tree (applicable to resolving the nuances of ground-level unit navigation), the Hostile Unit Selection Tree (also used by ground units), and the Heat Management Decision Tree (usable by all robotic units that track heat levels).

Aerospace and Ground Decision Trees: Aerospace units (including airborne mobile structures) use the Aerospace Operations RIC Decision Tree (see p. 150). Ground units (including VTOLs and WiGE vehicles) use the Ground Operations RIC Decision Tree (see p. 154).

Aggression Levels: When an Event Trigger occurs, the robotic unit will execute its Orders based on the unit's Aggression level. The Aggression levels a robotic unit may be set to are: Aggressive, Neutral, and Defensive. Each robotic unit must have an Aggression level assigned to it at all times, which will apply to all Event Orders the unit carries out (unless an Event Order specially overrides this). Aggression levels are set at the start of game play for all robotic units that begin deployed on the playing area, while units not deployed need not have their Aggression levels set until the turn in which they are deployed on the map.

A robotic unit's Aggression level may only be changed by a designated Control Unit, which may only do so during the Control Unit's Weapon Attack phase in any given turn. If a Control Unit commands a robotic unit to change its Aggression level, the change will not take place until the start of the following turn.

Illegal Movement: Space stations, satellites, and fixed structure (building) robotic units ignore all movement orders. All other robotic units may only execute movement orders in accordance with the capabilities of their unit types.

Robotic Large Craft: When using these rules, mobile structures and buildings are counted as robotic large craft, along with DropShips, space stations, and WarShips.

Valid Targets: When using these orders, references to large craft targets includes not only DropShips, space stations, JumpShips, and WarShips, but also covers Large-size support vehicles, mobile structures, and buildings.

Caspar Drones: Caspar II drones are considered robotic units for the purposes of these rules, but SDS Caspar drones are so sophisticated that they do not work within so rigid a framework. Unless specifically called out, drone WarShips will follow all of the same orders as a robotic DropShip or other large craft.

Launching/Recovering, Landing and Liftoff: Robotic units follow the normal rules for *Launching/Recovering* (see p. 86, *TW*) and *Landing and Liftoff* (see p. 87, *TW*) with no additional modifiers.

Mission Orders: In addition to an Aggression level, aerospace robotic units must select a primary mission at the start of gameplay. This mission can effect which Event Orders apply on their RIC Decision Tree. The missions are as follows:

- **Space Operations:** The robotic unit is tasked with offensive or defensive combat operations outside of a planetary atmosphere.
- **Atmospheric Operations (Combat Air Patrol):** The robotic unit is tasked with offensive or defensive combat operations within a planetary atmosphere, directed exclusively against other aerospace units.
- **Atmospheric Operations (Ground Attack):** The robotic unit is tasked with offensive combat operations within a planetary atmosphere, directed exclusively against ground targets. Note that a robotic aerospace unit given a Ground Attack mission cannot be assigned a Defensive level of Aggression. Furthermore, robotic units assigned to Ground Attack missions while on an Aggression level of Neutral will be restricted to bombing attacks only; robotic aerospace units with an Aggressive level of Aggression may use all air-to-ground attack options.
- **Transport:** The robotic unit is tasked with simply traveling from one point to another, possibly while carrying cargo or troops. Transport operations modify the normal Aerospace Operations RIC Decision Tree.

Facing Changes and Special Maneuvers (Atmospheric Operations Only): Fuel economy is less of a concern for robotic units set to an Aggression level of Aggressive. Thus, unless noted otherwise in the Aerospace Operations RIC Decision Tree, only robotic aerospace units that are Aggressive may expend Thrust Points to make additional facing changes in atmospheric combat (see p. 84, *TW*); Neutral and Defensive aerospace units will not burn fuel to force a potentially hazardous mid-air facing change.

In addition, robotic aerospace units with an Aggression level of Neutral or Aggressive may use any special maneuvers allowed to their unit type during combat (see pp. 84-85, *TW*), if doing so will aid them in executing their current Event Orders. Robotic aerospace units with a Defensive level of Aggression will only use the Half-Roll and Split-S special maneuvers as necessary.

AEROSPACE OPERATIONS RIC DECISION TREE

The following rules apply to aerospace robotic units mounting one of the various SRCS systems (including Caspar II units). If the rules refer to a specific system, those rules only apply to a unit mounting that system.

Overriding Orders

These orders will take effect whenever conditions are met, regardless of any other Event Triggers. As with the Event Triggers, these overriding orders are processed in their listed order.

Target of Opportunity: If a hostile large craft (DropShip, Large-size fixed-wing Support Vehicle, mobile structure, fixed structure, space station, JumpShip, or WarShip) lies within the robotic unit's forward arc, is within Short or Medium weapons range, and the robotic unit did *not* attack another target the previous turn, it will attack that Large Craft with all available weapons.

Large Craft Priority Target: Large craft robotic units are programmed to target other large craft as a priority. When selecting a valid target, large craft robotic units will always choose the nearest hostile large craft in range, unless overridden by another event. If more than one large craft is equidistant from the robotic unit, use the *Bearings Launch Capital Missile* rules for target selection (see p. 102, *SO*).

No Large Craft Targets: Large craft robotic units that find no valid, hostile large craft in range will fire on any valid hostile target, starting with the closest one. This is in addition to any action required by an Event.

Remaining Weapons: If, after firing all valid weapons at its primary target, a large craft robotic unit has unfired weapons, sufficient heat sinks to fire them, and another valid target is within range of an appropriate fire arc, the robotic unit will fire on the nearest hostile target, regardless of its size or class.

Ground Attack: Robotic aerospace units on a ground-attack mission (see Mission: Ground Attack) will select primary targets from among ground units first. They will thus target ground-based large craft (landed DropShips, mobile structures, large-size support vehicles, and armed buildings) as their primary targets. If such targets cannot be found in the combat area, or damaged by the robotic unit's weapons, the unit will instead attack the largest hostile ground target that can be damaged by its available weapons.

If targeted by hostile aerospace, a robotic unit performing a ground-attack mission will temporarily switch missions to combat air patrol for the following turn (see Mission: Combat Air Patrol). The robotic unit will remain on combat air patrol for 2 full turns before attempting to resume its ground-attack mission.

Out of Ordnance: Robotic aerospace units set to a Neutral aggression level on a ground-attack mission will conduct a Forced Withdrawal (see p. 258, *TW*) once they have dropped all external payloads.

Transport: Robotic units performing a transport mission (see Mission: Transport) follow a unique sub-tree unless otherwise noted by that tree. See *Transport RIC Decision Tree*, p. 153.

1. EVENT: Omega

Event Trigger: Robotic unit is crippled (see *Crippling Damage*, p. 258, *TW*).

Orders (Aggressive): Unit will accelerate at Maximum Thrust toward the nearest hostile unit of equal or larger size class that lies within its forward arc. While closing, the robotic unit will fire all weapons at this target, and will attempt to ram the hostile unit once it reaches its position. No roll is required to "gather the nerve" to make this ramming attack.

If on a ground-attack mission, the robotic unit will instead target the largest concentration of hostile ground forces in its flight path. Robotic DropShips will attempt to land near these hostile units and conduct ground-to-ground attacks if successful, while all other robotic units will intentionally crash into the largest available hostile ground target.

AEROSPACE OPERATIONS RIC DECISION TREE (CONTINUED)

Orders (Neutral): The robotic unit will attempt to keep all hostile large craft at Long range, protecting its most damaged components. If unable to do this, it will attempt to stay at Long range from the *largest* hostile craft, while attempting to attack the nearest hostile large craft. If a hostile target of any kind is at Short or Medium range, the robotic unit will also conduct evasive maneuvers.

Robotic units on a ground-attack mission will cease its mission immediately and switch to combat air patrol, and follow the neutral orders above.

Orders (Defensive): Robotic unit will conduct a Forced Withdrawal (see p. 258, *TW*) using legal special maneuvers as Thrust permits. Once the unit reaches the edge of the playing area, it flees the battlefield, and remains out of play for the remainder of the game.

2. EVENT: Collision

Event Trigger: Robotic unit is in danger of colliding with another object or the ground. For Robotic aerospace, conventional fighters and Small Craft units, treat the Aggression level of "Aggressive" as "Neutral" for this Event.

Orders (Aggressive): If the possible collision is with any small craft, aerospace or a non- friendly object that will do less than 20 percent of the robotic unit's total starting armor value in damage to the robotic unit, the robotic unit will ignore the possible collision threat and proceed to next Event in its Decision Tree. Otherwise, treat as response as indicated below for an Aggression level of "Neutral."

Orders (Neutral): Robotic unit will use all available Thrust to avoid collision, while continuing to target hostile units and attempting to maneuver so as to remain within combat range with these units.

Orders (Defensive): Robotic unit will use all available Thrust to avoid collision, forgoing all other actions until it is no longer in danger of collision.

3. EVENT: Boarding (Space Operations Only)

Event Trigger: If any hostile small craft, ground unit operating in Zero-G (see pp. 24-26, *SO*), or VTOL enters the same or adjacent hex as the robotic unit and ends its movement there with a velocity within 4 points of the robotic unit's own, the robotic unit will interpret this as a possible boarding attempt. If the robotic unit is of a type that cannot be targeted by boarding actions (such as an aerospace fighter or BattleMech), it will ignore this Event Trigger.

Note: Airborne mobile structures and space stations that respond to this Event Trigger will follow the Defensive Orders for this event, regardless of their actual Aggression level.

Orders (Aggressive): The robotic unit will not attempt to avoid the unit.

Orders (Neutral): The robotic unit will spend its next Movement Phase expending up to its Maximum Thrust to either increase the distance between itself and the possible boarding unit, or to increase difference in velocities between them to 5 points or more.

Orders (Defensive): The robotic unit will act as per Neutral orders, and will also make the possible boarding unit its primary target during the next Weapon Attack Phase, firing all available weapons at it.

4. EVENT: Swarm

Event Trigger: A hostile large craft (or a small craft, if the robotic unit is a fighter, satellite, or small craft) lies crippled and within 12 hexes of the robotic unit (6 hexes, if the hostile is 200 tons or less). A robotic unit will considers any target crippled if it fits the criteria defined in *Crippling Damage* (see p. 258, *TW*).

Note: WarShip and airborne mobile structures with an Aggression level of Aggressive will respond to this event as if they have a Neutral Aggression level instead.

Orders (Aggressive): If the hostile unit is a large craft, the robotic unit will immediately attempt to ram. Otherwise, the robotic unit will close to its Short range bracket and fire on the target—angling its attack for the facing with the lowest current armor rating, if possible.

Orders (Neutral): In its next Movement Phase, the robotic unit will close on the crippled target using Safe Thrust only. While doing so, it will shift fire from any active target and attack the crippled unit for the next Weapon Attack phase, angling its fire at the facing with lowest current armor rating, if possible.

Orders (Defensive): A robotic unit in Defensive mode will ignore a crippled unit and move on to the next Event Trigger.

5. EVENT: Target Locked

Event Trigger: The robotic unit is still within weapons range of an active, hostile large craft that it fired upon in the turn immediately before now.

Orders (Aggressive): The robotic unit will attempt to close to its Short range bracket, using Maximum Thrust, if necessary. In the next Weapon Attack, it will fire all of its available weapons upon the target, angling for the facing with the lowest current armor rating, if possible.

Orders (Neutral): The robotic unit will maintain its current range bracket with the target, using Maximum Thrust, if necessary. It the next Weapon Attack, it will attempt fire all of its available weapons upon the target, angling for the facing with lowest current armor rating, if possible.

Orders (Defensive): The robotic unit will maintain its current range bracket with the target, using no more than its Safe Thrust. It the next Weapon Attack, it will attempt fire all of its available weapons upon the target, angling for the facing with lowest current armor rating, if possible.

6. EVENT: Support

Event Trigger: The robotic unit is not currently engaged with a hostile large craft, and a friendly unit (robotic or non-robotic) is in active combat with a hostile large craft that lies within the robotic unit's Long or Extreme range brackets.

Orders (Aggressive): The robotic unit will attempt to close to within Short range of the friendly unit's target, while firing at it with any available weapons.

Orders (Neutral): The robotic unit will attempt to engage the friendly's unit's target while trying to maintain its current weapons range bracket. If the target moves beyond the range band at which the robotic unit began its attack, the robotic unit will pursue to maintain its previous distance.

Orders (Defensive): The robotic unit will engage hostile unit but will not change its current course or range band. It will make no attempt to pursue the friendly unit's target, even if it moves away.

AEROSPACE OPERATIONS RIC DECISION TREE (CONTINUED)

7. EVENT: Engaging Target

Event Trigger: The robotic unit is not engaged with a hostile large craft, and a hostile large craft is within range of any weapons mounted in the robotic unit's forward arc.

Note: For robotic units weighing less than 200 tons, any hostile craft that enters weapons range will trigger this event.

Orders (Aggressive): The robotic unit will attempt to close to within its Short range bracket using any Thrust necessary, while firing whatever weapons are available.

Orders (Neutral): The robotic unit will engage the hostile unit while attempting to maintain the current range bracket between them. If the target moves away, the robotic unit will pursue it to maintain the range bracket.

Orders (Defensive): The robotic unit will engage any hostile unit in range, but will not pursue it if it moves away, and will not actively move to change the range between them.

8. EVENT: Target at Range

Event Trigger: The robotic unit is not engaged with a hostile large craft, but a hostile large craft is within 50 hexes of the robotic unit's current position.

Note: For robotic units weighing less than 200 tons, any hostile craft that lies within this distance will trigger this event.

Orders (Aggressive): The robotic unit will move towards the nearest hostile unit at its Maximum Thrust, and will begin attacking as soon as its modified to-hit number for an attack is 12 or less for any weapon. Once the modified to-hit number falls to 10 or less, return to the start of the unit's Decision Tree.

Orders (Neutral): The robotic unit will move towards the nearest hostile unit at its Safe Thrust rate, and will begin attacking as soon as its modified to-hit number for an attack is 12 or less for any weapon. Once the modified to-hit number falls to 9 or less, return to the start of the unit's Decision Tree.

Orders (Defensive): The robotic unit will move towards the nearest hostile unit while using evasive maneuvers, and will not exceed its Safe Thrust rating while doing so. Once the modified to-hit number for an attack by any of the unit's weapons falls to 9 or less, return to the start of the unit's Decision Tree.

9. EVENT: Target Acquired

Event Trigger: The robotic unit is not engaged with a hostile large craft, but a hostile large craft is within 100 hexes of the robotic unit's current position.

Note: For robotic units weighing less than 200 tons, ignore this event.

Orders (Aggressive): The robotic units will move towards the nearest hostile target at Maximum Thrust. If the target's starting Maximum Thrust is higher than that of the robotic unit, it will choose the next closest target instead. If no target can be intercepted in this fashion, move to Event Trigger 10, unless specifically commanded otherwise by a Control Unit (see p. 139).

Orders (Neutral or Defensive): The robotic units will move towards the nearest hostile large craft at Safe Thrust. If the target's starting Maximum Thrust is higher than the Safe Thrust of the robotic unit, it will choose the next closest target instead. If no target can be intercepted in this fashion, go to Event Trigger 10 unless specifically commanded otherwise by a Control Unit (see p. 139).

10. EVENT: Minimal Threat

Event Trigger: No hostile target lies within 100 hexes of the robotic unit that has a starting Maximum Thrust equal to or greater than the robotic unit's current Maximum Thrust rating.

Orders (Aggressive, Space Operations Only): If the robotic unit is a large craft, it will move at its Maximum Thrust in the direction of the nearest hostile large craft. If the robotic unit's Max Thrust is insufficient to intercept, it will instead expend Safe Thrust to lower its velocity to 0 (and thus try to maintain its current position). Robotic units under 200 tons in mass will expend Safe Thrust to lower their velocity to 0 in all cases, unless specifically commanded otherwise by a Control Unit (see p. 139).

Orders (Aggressive, Atmospheric Operations Only): In atmosphere, the robotic unit will move at its Maximum Thrust in the direction of the nearest hostile large craft (or any nearest hostile craft if the robotic unit is a fighter or small craft). If the robotic unit's Max Thrust is insufficient to intercept, it will instead enter combat patrol pattern based on its unit type and altitude, as described below.

Spheroid DropShips, spheroid small craft, and airborne mobile structures at any altitude will reduce their lateral velocity to 0 before rising to their maximum atmospheric altitudes to hover in place. These units will maintain their hover until a new Event Trigger overrides this action or they run critically low on fuel. If a robotic unit runs down to less than 10 points of fuel while hovering, it will descend to land. Otherwise, it will return to the start of its Decision Tree.

Aerodyne DropShips, aerodyne small craft, and fighters on the High Altitude Map will expend Safe Thrust to move in a straight line while maintaining their current altitude. On the next turn, they will continue to use Safe Thrust to turn and fly in the opposite direction. They will continue to do this, reversing course every turn, until a new Event Trigger overrides this action or the unit runs critically low on fuel. If a robotic unit runs down to less than 10 points of fuel while flying back and forth in this manner, it will descend to land. Otherwise, it will return to the start of its Decision Tree.

Aerodyne DropShips, aerospace small craft, and fighters on the Low Altitude will begin a hexagonally-shaped patrol pattern at their current altitude by proceeding the minimum number of hexes in a straight line before taking their next free facing change to the right (see p. 77, *TW*). They will continue this pattern, always turning to the right, to produce a continuous loop, until a new Event Trigger overrides it of the unit runs critically low on fuel. If a robotic unit runs down to less than 10 points of fuel while circling in this manner, it will attempt to return to base—or attempt a landing as close as possible to its base, if unable to reach it. Otherwise, it will return to the start of its Decision Tree.

Orders (Neutral): The robotic unit will follow the same procedures outlined for an Aggression level of Aggressive, but will only expend Safe Thrust in its attempt to close with the hostile target.

Orders (Defensive): The robotic unit will expend Safe Thrust to lower its velocity to 0 (thus attempting to maintain its current position). If the robotic unit is a fighter or small craft and a friendly unit with empty fighter/small craft cubicles lies within 250 hexes of its position, the robotic unit will move toward that unit at Safe Thrust, to dock with the allied unit for refueling and rearmament, unless specifically ordered by a Control Unit not to do so. Otherwise, the robotic fighter or small craft will maintain a velocity to 0, awaiting further instructions or another Trigger event.

AEROSPACE OPERATIONS RIC DECISION TREE (CONTINUED)

11. EVENT: Bingo Targets

Event Trigger: No hostile targets lie within the immediate combat area (555 hexes for robotic large craft; 55 hexes for robotic fighters, satellites, and small craft).

Orders (Aggressive): The robotic unit will follow the same movement orders defined for Aggressive units in Event 10. While doing so, the unit will make an active Radar (Object) Detection Roll (see p.119, *SO*) every turn. If a hostile large craft is detected and the robotic unit is itself a large craft, return to the top of the Decision Tree. If a hostile unit of any type is detected within 50 hexes by a robotic fighter, satellite or small craft unit, go to Event Trigger 8. For all other cases, return to the start of the unit's Decision Tree.

Orders (Neutral or Defensive): The robotic unit will follow the same movement orders defined for Defensive units in Event 10. While the unit is loitering, it will conduct passive sensor sweeps for hostile targets. If a large craft is detected in this manner, return to the start of the unit's Decision Tree. If, on the other hand, the robotic unit is a fighter or small craft within 250 hexes of a friendly unit that possesses empty fighter/small craft cubicles, it will expend Safe Thrust to intercept the allied unit and dock (unless specifically commanded otherwise by a Control Unit). If a robotic unit is in atmosphere when a Bingo Targets event is triggered, the unit will attempt to land at the nearest friendly airfield or—if none exist—the largest concentration of friendly forces within its detection range. In all other cases, return to the start of the unit's Decision Tree.

12. EVENT: Hibernation

Event Trigger: Robotic unit is a large craft (DropShip, WarShip, or airborne mobile structure) with no hostile targets found within its radar detection range (5,555 hexes).

Orders (Aggressive, Space Operations Only): The robotic unit will conduct a patrol of the area, moving 1,000 hexes in a random direction by accelerating for the first 500 hexes, then decelerating until it reaches a Velocity of 0. If no hostile large craft are detected, the unit will return to its original position and repeat the above process in a new direction. If, while doing this, the unit detects a hostile large craft at any point, return to the start of the unit's Decision Tree.

Orders (Aggressive, Atmospheric Operations Only): Robotic units operating in atmosphere will perform the same actions described in Event 10 (Minimal Threat) for units with an Aggression level of Aggressive.

Orders (Neutral): The robotic unit will attempt to land at the nearest friendly airfield or dock with the nearest friendly large craft that possesses a suitable landing/recovery system for the unit's type. If no such option is present, the unit will follow the protocols for an Aggressive unit under this event trigger. If a hostile large craft is detected at any point in this process, return to the start of the unit's Decision Tree.

Orders (Defensive): The robotic unit will attempt to land at the nearest friendly airfield or dock with the nearest friendly large craft that possesses a suitable landing/recovery system for the unit's type. If no such option is present, the unit will rise to orbit (intentionally crossing the interface layer), and enter a safe orbit before shutting down. The unit will remain inactive, but with any internal defenses still running, until it receives further orders from a valid Control Unit. While shut down, the robotic unit will cease to process Event Triggers until reactivated

TRANSPORT RIC DECISION TREE

The following is a modification for the normal Aerospace Operations RIC Decision Tree, applicable to robotic aerospace units operating under Mission: Transport. They are used in conjunction with the Aerospace Operations Robotic RIC Command Decision Tree (see pp. 150-153).

Overriding Orders

These orders will take effect whenever conditions are met, regardless of any Event Triggers that are met. As with the Event Triggers, these overriding orders are processed in list order.

Targeting:

If a hostile large craft enters the robotic transport unit's forward arc at Short or Medium weapons range, and the robotic transport unit did not attack another target the previous turn, it will attack that large craft with all available weapons.

Navigating:

Based on the Aggression level, set prior to the start of the mission, their behavior will be:

Aggressive: If Event 8: Target Acquired is triggered, the drone will cease active navigation and engage the standard Aerospace Operations RIC Decision Tree protocols with an Aggression level of Aggressive and will continue to use the standard Decision Tree until Event 9: Minimal Threat is triggered. Once Event 9 is triggered, the transport unit will return to its previous course.

Neutral: If Event 8: Target Acquired is triggered, the drone will attempt to evade the hostile units it has detected. While attempting to evade, the drone unit must move closer to its destination at least 1 turn out of every 3 turns spent engaging in evasinve maneuvers.

If Event 7: Target in Range is triggered, the drone will cease its active navigation and engage the Aerospace Operations RIC Decision Tree protocols using an Aggression level of Neutral, continuing such operations until Event 9: Minimal Threat is triggered. Once Event 9 is triggered, the robotic transport unit will return to its previous course.

Defensive: If the robotic transport unit detects any hostile targets within its sensor range, it will attempt to avoid the hostile target by any means necessary.

If fired upon, the robotic transport unit will return fire, so long as this does not prevent it from continuing to evade its target.

If Event 1: Omega is triggered, the transport drone will cease its active navigation and engage the standard Aerospace Operations RIC Decision Tree with an Aggression level of Aggressive, and continue to use those protocols until Event 9: Minimal Threat is triggered. Once the threat has abated, the robotic unit will return to its previous course.

GROUND OPERATIONS RIC DECISION TREE

The Decision Tree for ground-based robotic units is somewhat more involved than that found for aerospace units. Where Aggression levels remain a key component of these decisions, mission parameters are more nuanced, and the greater impact of local terrain and movement options will further influence what a robotic unit can do at this level of play.

The following rules apply to ground-based robotic units mounting one of the various SRCS systems. If the rules refer to a specific control system, those rules only apply to units mounting that system.

Tiered Decision Trees

To address the more diverse variables and constraints that face them, ground-based robotic units (including VTOL and WiGE vehicles) operate under a tiered set of Decision Trees, capped by an overriding set of mission orders. The mission orders define the drone's overall operational parameters, providing it an overall objective, constraints, primary targets, and movement profiles. The robotic unit then uses a Movement Decision Tree to determine how it traverses the battlefield, and a Hostile Target Selection Tree to determine which targets it will attack at any given time.

Prior to combat, the controlling players of all ground-based robotic units must select a Primary Mission for such units, define all Mission Variables, and select the units' Aggression levels.

Ground Unit Missions

Each Mission is made up of a number of variables that define the robotic unit's overall goals and parameters the unit will work toward during combat. These missions, as defined under *Ground-Based Robotic Unit Missions* (see pp. 156-157), feature the following key variables:

Mission Objective: This is the robotic unit's overriding objective. Unless it has triggered an Event: Omega, the robotic unit will always work to achieve this objective. If a robotic unit is given more than one mission objective, these objectives are prioritized in the order they are written.

Mission Objectives may not be changed during the scenario, but Control Units may relay periodic modifications via their normal rules, including changes to the units' Aggression levels or assigning priority targets (see *General Robotic Game Rules*, pp. 134-140).

Primary Target: During combat, ground-based robotic units must determine which specific hostile unit to target based on its threat level (see *Hostile Target Selection Tree*, p. 158). By designating pre-set primary targets, the controlling player establishes any targets that might override the standard selection tree.

As with Mission Objectives, mission-based Primary Targets may not be changed once set before the scenario, but an active Control Unit can assign priority targets during game play.

Target Exclusions: By default, robotic ground units will adhere to a "Standard" level of target exclusion. Under Standard target exclusion, ground-based robotic units will ignore DropShips, mobile structures, buildings and Large-size support vehicles (including trains and naval vessels). In addition to these basic exclusions, the controlling player may instruct his robotic units to ignore certain steps of the *Hostile Target Selection Tree* (See p. 158), to eliminate other "invalid" targets.

Any target exclusions from the Standard that a robotic unit will recognize throughout a scenario must be set prior to the start of gameplay, but Control Units may also issue commands for short-term commands in accordance with the rules for such Control Units under the General Robotic Unit Game Rules (see pp. 134-140). This last option enables the Control Unit to assign priority targets, if need be, by effectively adding a "Step 0" to the Target Selection Tree.

There are two types of Target Exclusions: Total Target Exclusion and Primary Target Exclusion. Under Total Target Exclusion, the robotic unit will not target any of the unit types found in its exclusion list, even if they are hostile or engaging in attacks against friendly units; as a result, only a command sent from a human-operated Control Unit will direct the robotic unit to attack an excluded target. Under Primary Target Exclusion, the robotic unit will *only* fire on an excluded target if no valid, Primary Targets exist in sensor range at all (and the non-Primary excluded target is hostile).

> *Chris will be playing the Word of Blake in the Devils Tower track from* Jihad Hotspots Terra. *He will be fielding several* Revenant *robotic BattleMechs (see p. 153,* JHS: Reckoning*). Chris wishes to task his* Revenants *specifically with targeting infantry and light armor, freeing his forces for bigger game. At the start of gameplay, he sets his* Revenants *to Primary Target Exclusion, with only conventional infantry, battle armor, and combat vehicles of equal or lighter weight class set as Primary Targets. Throughout the battle, his* Revenants *will only attack their Primary targets—infantry, battle armor, and light vehicle units—ignoring all other hostile unit types unless they can no longer find any hostile infantry, battlesuits, and light vehicles within their weapons range.*
>
> *Dan, meanwhile, is deploying a robotic Demolisher tank on a battlefield set within a rail yard full of civilian equipment. He knows the assault tank is ill-equipped to handle conventional Infantry, and does not want it wasting ammunition on such low priority targets or the abundance of non-combat vehicles that surround it. He thus notes that his robotic Demolisher will set its Target Exclusions to Total Target Exclusion mode for all conventional infantry and support vehicle units. During the battle to come, the Demolisher will ignore those unit types entirely, even if the only hostiles within range are enemy foot soldiers.*

Optimal Weapon Range: During combat, a ground-based robotic unit will try to keep its target at the most optimal range for its weapon systems. To determine a robotic unit's optimum weapon range, first look at the Medium range brackets for all of its ranged weapons, adding together the damage values for any overlapping range brackets (such as multiple medium lasers, or medium lasers and SRM launchers together). The range bracket that delivers the greatest damage potential will become the unit's optimal weapon range.

For example, a robotic *Grasshopper* carries 1 large laser, 1 LRM 5 launcher, and 4 medium lasers. Looking at the range brackets for this 'Mech, the large laser's medium range bracket (6 to 10 hexes) has a maximum damage potential of 8 points; the LRM 5's medium range bracket (8 to 14 hexes) has a maximum damage potential of 5 points; and the medium lasers' range bracket (4 to 6 hexes) has a maximum damage potential of 20 points (5 points x 4 medium lasers = 20). Because the medium lasers can deliver the most potent damage at their medium range, that range bracket—4 to 6 hexes—becomes the Grasshopper's optimal weapon range bracket.

Preferred Range: By default, a robotic unit's Preferred Range is the same as its optimal weapon range. Sometimes, however, a robotic unit's optimal range can put it in an overly aggressive position, risking the unit to deadly return fire. For case where optimum range is not desired, the robotic unit's controlling player can set can set an alternate preferred range band for the robotic unit to engage its target from. This Preferred Range bracket is the range which the robotic unit will attempt to maintain between itself and all hostile units it engages in combat.

A given preferred range bracket can be set strictly as a number of hexes applied to all robotic units equally, or can be defined as a range band relative to the weapons used to determine the particular unit's optimum weapon range. These more relative preferred-range brackets are defined in the Preferred Range Bracket Suggestions Table.

PREFERRED RANGE BRACKET SUGGESTIONS TABLE

Range Bracket	Definition
None/Medium	Default setting: Use the unit's optimum weapon range bracket.
Short	Use the short range bracket for the unit's optimum range weapons.
Far-Short	Use the maximum short-range hex for the unit's optimum range weapons.
Medium-Short	Combine the short and medium range brackets for the unit's optimum range weapons.
Far-Medium	Use the 2 farthest hexes of the medium range bracket for the unit's optimum range weapons.
Medium-Long	Combine the medium and long range brackets for the unit's optimum range weapons.
Long	Use the long range bracket for the unit's optimum range weapons.
Far-Long	Use the farthest 3 hexes of the long range bracket for the unit's optimum range weapons.
Extreme	Use the extreme range bracket for the unit's optimum range weapons (see p. 85, TO).

If a ground-based robotic unit is outside of its preferred range bracket for more than 2 consecutive Weapon Attack Phases, it will make all attempts to return to its default optimal range, so long as this does not otherwise violate its mission objectives.

As with other mission parameters, the controlling player must set the mission's preferred range prior to the start of gameplay. Once set, the unit's preferred range may not be changed, even under orders from a Control Unit.

Ground-Based Robotic Unit Movement Basics

How a robotic unit moves in a scenario depends on both its mission parameters and its Aggression level. As each mission provides a basic set of objectives to work toward, some may also cover movement variables, such as designating navigational waypoints the unit must routinely patrol, or which serve as "home base" in the event of a need to retreat.

In addition to using the Ground Movement Decision Tree to resolve movement actions by a ground-based robotic unit (see p. 156), the following details general rules for how Aggression level plays into robotic movement protocols.

Defensive: A ground-based robotic unit set to a Defensive Aggression level will work to preserve itself and remain operational, in addition to any other mission orders. All of its movement actions will thus be based on this underlying survival drive, as follows:

The robotic unit will not engage in an action that will knowingly require a Piloting skill roll (such as entering a building, or turning on pavement while running).

If it is a 'Mech, the robotic unit will use Careful Stand (see p. 24, *TO*) if its target number to stand is greater than 4.

The robotic unit will always maximize its to-hit modifier for target movement, even if doing so will result in to-hit numbers of 12 or higher to attack its current target. (However, the robotic unit will try to maintain its preferred weapon range.)

The robotic unit will only use jump jets to retreat from combat. When jumping, the robotic unit must always land farther away from the hostile unit it has currently engaged than when it started, and may also not end up closer to any other hostile unit at the end of their jump.

Neutral: A robotic unit set to a Neutral Aggression level will choose a balanced approach to protecting its own safety while ensuring it can still present a hostile target to its opposition, as follows:

When advancing to its preferred range, the robotic unit will not take actions that would knowingly require a Piloting skill roll or result in damage to itself.

Once within its preferred range, the robotic unit will seek to generate the highest to-hit modifier for target movement that it can, up to the point where it creates to-hit numbers of 10 or more to attack its current target.

Aggressive: A robotic unit set to an Aggression level of Aggressive has a primary mission to destroy all designated hostile units, regardless of any concerns for its own safety. To reflect this, its movement actions will be tailored for offensive maneuvers at the expense of defense, as follows:

Once a target is selected, the robotic unit will maneuver to its preferred range as fast and as directly as it can, employing any movement mode to do so, even if it means risking a Piloting Skill roll to accomplish this (for instance, by using Jumping MP, moving through buildings, running over icy terrain, and so forth).



The Revenant *drone BattleMech operates in mindless swarms that seek their target's destruction.*

Once within its preferred range, the robotic unit will always seek the lowest to-hit numbers possible when attacking its primary target. This may even involve reducing its speed to Cruising/Walking rate, or even becoming stationary.

Robotic units with physical attack abilities (other than ramming/charging) will also close to physical attack range if the opportunity presents itself—but only if doing so gives the potential physical attack a to-hit number of 6 or less.

MOVEMENT DECISION TREE (GROUND UNITS)

The following protocols outline the priority of movement decisions for ground-based robotic units. Unlike the aerospace Decision Trees, these protocols do not wait for triggers and events. Instead, they rely on an assessment of the unit's mission parameters and pre-programmed tactical considerations. These maneuver decisions are modified by the basic maneuvering protocols (see *Ground-Based Robotic Unit Movement Basics*, pp. 155-156).

Step 1: Mission vs. Target Priorities

Offensive Mission: In an offensive mission, Primary targets take automatic priority over other physical objectives. If a Primary target is within range and between the robotic unit and its physical objective, the robotic unit will make the Primary target its main objective until the target is destroyed.

Defensive Mission: In a defensive mission, the physical objectives take priority over other Priority targets. The robotic unit will make defending or achieving its physical objective its primary mission, and thus will not pursue hostile units that move out of range, if doing so means leaving the primary objective unguarded

Step 2: Avoid Deadly Physical Contact

If a hostile unit has not yet moved, the robotic unit will not enter the potential movement range of that unit, but only if it assesses that the damage from a physical attack by that hostile unit would be enough to cripple or destroy the robotic unit. (This assessment only covers the effects of raw physical attack damage versus the robotic unit's armor and structure; it does not cover "lucky" hits, such as those that may result from a Hit Location roll of 2.)

Exception 1: For the purposes of this step, robotic 'Mechs treat their head location as the sum of both armor and internal structure for purposes potential damage, and will avoid closing with a target that can potentially deliver enough damage to destroy their head in a single punch attack without the use of physical enhancements like triple-strength myomers. (Thus, a robotic unit which has a total of 10 points of armor and structure in its head will not close with a hostile 'Mech weighing 100 tons or more, but may not recognize the threat of a 50-ton 'Mech equipped with triple-strength myomer.)

Exception 2: Robotic units ignore this restriction if the hostile unit is a hovercraft, VTOL, hydrofoil vessel, aerospace unit, or fixed-wing support vehicle.

Step 3: Keep Front toward Enemy

A robotic unit will always attempt to end its movement with its rear arc facing away from all hostile units. If this is not possible, it will attempt to face the hostile unit with highest starting Battle Value.

Step 4: Get to Enemy's Rear

A robotic unit will attempt to end its movement in the rear arc of any Primary target hostile units. If this is not possible, move on to the next step.

Step 5: Stay at Preferred Range

The robotic unit will attempt to maintain its preferred weapon range.

Step 6: Seek the Highest To-Hit Target Modifier

A robotic unit will attempt to generate the highest possible to-hit modifier against potential enemy fire by using its own movement and terrain to generate those modifiers. Note that this step may be overridden by the robotic unit's Aggression level (see *Ground-Based Robotic Unit Movement Basics*, pp. 155-156).

Step 7: Seek the Lowest To-Hit Attack Modifier

The robotic unit will attempt to attain the lowest possible to-hit modifier for its own attacks against its first valid Primary target. Once again, this step may be overridden by the robotic unit's Aggression level (see *Ground-Based Robotic Unit Movement Basics*, pp.155-156).

GROUND-BASED ROBOTIC UNIT MISSIONS

Mission: Take and Hold (Offensive)

The robotic unit has been assigned to secure a specific physical objective or location on the map.

Setup/Rules: Prior to the start of gameplay, the defending player designates a section of the game map as the objective for the assault. The targeted location may be no more than 3 hexes by 3 hexes in size per combat unit in the attacking player's force (so a target area for a lance of attacking units can be as large as 12 hexes wide, by 12 across). The target area need not be a single structure of any type; it could be a cluster of buildings, or merely be a section of terrain surrounding a single point of interest.

The objective area must be located on the Defender's half of the map and reachable by at least 25 percent of the Attacking force.

Objectives:

1. Enter any portion of the objective area. Once this objective is achieved, the robotic unit will not exit the objective area of its own accord, and will not willingly leave the area for longer than 1 turn. The robotic unit may exit the objective area only if doing so will enable it to generate higher target to-hit modifiers for defensive purposes (see *Movement Decision Tree*, above), but the unit will then attempt to return in the subsequent turn.
2. Cripple or destroy all hostile units within the objective area.

Priority Targets: Any hostile unit within the designated objective area.

Target Exclusions: Standard

Suggested Preferred Range: Medium

GROUND-BASED ROBOTIC UNIT MISSIONS (CONTINUED)

Mission: Assault (Offensive)

The robotic unit has been assigned to attack all hostile units within a specific physical objective or location.

Setup/Rules: The assault mission uses the same setup rules as Take and Hold Mission.

Objectives:

1. Cripple or destroy all units within the objective area.

Priority Targets: Any hostile unit within the designated objective area.

Target Exclusions: Standard

Suggested Preferred Range: Medium

Mission: Defend (Defensive)

The robotic unit has been assigned to defend a specific physical objective or location.

Setup/Rules: Prior to the start of gameplay, the defending player designates a section of the game map or a single friendly unit as the defense objective. If a fixed location, the targeted location may be no more than 3 hexes by 3 hexes in size, per combat unit in the attacking player's force. The objective area must be on the Defender's side of the map, and reachable by at least 25 percent of the Attacking force.

Objectives:

1. A robotic unit performing a Defend mission will not willingly spend more than 2 consecutive turns outside of its objective area. It may move out of the area only if doing so will allow it to generate a higher target to-hit modifier (see *Movement Decision Tree*, p. 156), but the unit will then attempt to return in the subsequent turn.

Priority Targets: Any hostile unit within the objective area. If no hostile units are within the objective area, any hostile unit within the mission's preferred range, as measured from the center of the objective area.

Target Exclusions: Standard

Suggested Preferred Range: Far-Medium (Minimum: 0 hexes; Maximum: Long range)

Mission: Recon (Offensive)

The robotic unit's primary mission is to gather information on a specific objective or location.

Setup/Rules: Regardless of the map's set up, the robotic unit will attempt to close to scanning range of any and all Priority targets (and any buildings within the battle area) to scan them.

To attempt a detailed scan, the robotic unit must ends its Movement Phase within 3 hexes of the target unit or building (5 if the unit is equipped with any form of active probe equipment), for 2 consecutive turns. If the unit is forced to break away or loses its line of sight to the target, the scan is interrupted and must be attempted again.

A robotic unit attempting this detailed scanning action may not fire any weapons or make physical attacks during the time it takes to complete a scan if it lacks an active probe of any type.

Objectives:

1. If buildings exist on the playing field, the robotic unit will attempt to scan each building.
2. The robotic unit will attempt to achieve LOS with all hostile units and buildings in the battle area, and scan them as well.

Priority Target: Closest hostile combat unit. If more than one, target the highest BV first.

Target Exclusions: Standard

Suggested Preferred Range: Long (to a Minimum range of 2 hexes)

Mission: Harass (Defensive)

The robotic unit's primary mission is to maintain a given distance with a specific set of opposing combat units.

Setup/Rules: At the start of game play, the controlling player must identify which units in the hostile force are the robotic unit's opposing force. This may be as few as 1 unit, or as many of the opposing force's units as there are presently on the map.

During each weapons attack phase, the robotic unit will attempt to fire on as many targets as are within its range. It will fire its highest-BV weapon at its Primary target, then it will attempt to fire its next-highest BV weapon at the nearest hostile unit that is not its primary target, and so on. This dispersed firing process can only be overridden to enable focused fire on a single target by a command from a friendly Control Unit.

Objectives:

1. Stay within weapons range of at least one hostile unit at all times

Priority Targets: Closest unit of the opposing force.

Target Exclusions: Standard

Suggested Preferred Range: Far-Medium, (Minimum: 12 hexes, Maximum: Long range)

Mission: Hunt (Offensive)

The robotic unit's primary mission is to destroy a specific set of opposing combat units, designated as its opposing force.

Setup/Rules: Follow the same rules for selecting the opposing force as defined in Mission: Harass.

Objectives:

1. Destroy all units in the opposing force.

Priority Targets: Whichever opposing units deliver the highest level of potential damage (of those that lie within the robotic unit's weapons range).

Target Exclusions: Standard

Suggested Preferred Range: Medium

Mission: March (Defensive)

The robotic unit's primary mission is to move through a series of specified map points in order.

Setup/Rules: At the start of game play, the controlling player must designate each robotic unit's route. This is done by establishing a series of numbered waypoints. Up to 2 waypoints may be set per individual *BattleTech* mapsheet (16 x 17 hexes). Any waypoint on a valid exit edge of the map (as determined by the scenario) may be designated as an exit waypoint. A robotic unit that starts its movement on this exit waypoint will leave the playing field in that turn.

During game play, the robotic unit will travel from waypoint to waypoint, based on its designated movement profile.

Objectives:

1. Travel through each waypoint in order, and exit the map via the final waypoint.

Priority Targets: None

Target Exclusions: Standard

Suggested Preferred Range: Long, Min-6, Max-None

HOSTILE TARGET SELECTION TREE (GROUND UNITS)

At the start of each Weapons Attack Phase, a robotic ground unit must determine its potential targets by using the Hostile Unit Selection Tree, modified as necessary by any Preferred Target and Target Exclusion mission variables.

As with other Decision Trees, the robotic unit selects its target by starting at the top of the tree and proceeds through each step until a valid target is identified by the corresponding criteria. The robotic unit will then fire at the target with all weapons that can possibly hit it. Robotic units will not attack targets that are out of range, or which the robotic unit determines are impossible to hit (i.e., the line of sight is blocked, or the to-hit number to attack it comes to 13 or more). Only targets that can be hit—even if it requires a to-hit roll of 12 to do so—are valid targets to a robotic drone.

Starting BV: If assessing a target's priority based on Battle Value, use only the base BV for that unit type and variant. Do not include modifiers for pilots, special munitions, or other similar BV modifications.

Multiple Matches: If more than one hostile target exists that fits the listed criteria, and no additional instructions exist to determine the target (such as a mission objective), the robotic unit will fire at the target with the lowest to-hit modifier. If this still leaves more than one option that fits the listed criteria, the robotic unit will determine its target at random.

Step	Criteria
1	Any Primary Target units which has a modified to-hit roll of 5 or less to attack (regardless of range), and which is of equal or lower weight class to the robotic unit.
2	Any Primary Target units which has a modified to-hit roll of 5 or less to attack (regardless of range), and which is of any weight class.
3	Any target fired at in the previous 2 turns of play, as long as the target has a modified to-hit roll of 9 or less to attack.
4	Any Primary Target which has a modified to-hit of 9 or less to attack, regardless of range and weight class.
5	Any target actively engaged by other units in the robotic unit's lance or platoon, and which is also within the robotic unit's optimal range. (Optimal range is any range bracket where the robotic unit receives its lowest possible range-based attack modifiers.)
6	Any target that has a modified to-hit roll of 5 or less, regardless of range and weight class. Exception: Conventional infantry and Small-size support vehicles are ignored in this step.
7	Any aerospace or conventional fighter that is currently conducting a strafing, striking or bombing attack on the mapsheet that the robotic unit occupies. If more than one such unit exists, the robotic unit will target the largest unit. If more than one exists at the same weight, randomly select which is targeted. Exception: If the robotic unit lacks any weapons with a range of 10 hexes or more, skip this step.
8	Any BattleMech of the same or lower weight class as the robotic unit. If multiple possible targets exist, the robotic unit will start with any targets of equal weight class to itself, moving down to the next weight class if none exist. If more than one target of a valid weight class exists, the robotic unit will target the one with the highest starting BV.
9	Any Combat Vehicle (Tracked, Wheeled, Naval Displacement, Naval Submarine) of the same or lower weight class as the robotic unit. Follow the process in Step 8 for multiple weight classes or units of the same weight.
10	Any Primary Target Combat Vehicle (Hover, VTOL, WiGE, Naval Hydrofoil) of the same or lower weight class. Follow the process in Step 8 for multiple weight classes or multiple units of the same weight. Note: Treat VTOLs weighing 25 to 50 tons as medium weight class for the purposes of this selection process.
11	Any IndustrialMech, of any weight class, that is equipped with heavy (vehicle-scale) weapons. If there is more than one such unit to choose from, the robotic unit will target the one with highest starting BV.
12	Any BattleMech of high weight class than the robotic unit. If multiple possible targets exist, the robotic unit will start with any targets of equal weight class to itself, moving up to the next weight class if none exist. If more than one target of a valid weight class exists, the robotic unit will target the one with the highest starting BV.
13	Any Combat Vehicle (Tracked, Wheeled, Naval Displacement, Naval Submarine) of the higher weight class than the robotic unit. Follow the process in Step 12 for multiple weight classes or units of the same weight.
14	Any Primary Target Combat Vehicle (Hover, VTOL, WiGE, Naval Hydrofoil) of higher weight class than the robotic unit. Follow the process in Step 12 for multiple weight classes or multiple units of the same weight. Note: Treat VTOLs weighing 25 to 50 tons as medium weight class for the purposes of this selection process.
15	Any ProtoMech or battle armor. If multiple targets exist, the priority order is: ProtoMechs 7 tons and up, assault-class battle armor, ProtoMechs 5 to 6 tons, heavy-class battle armor, ProtoMechs weighing 4 tons, medium-class battle armor, ProtoMechs 2 to 3 tons, light-class battle armor, and finally PA(L)s and/or exoskeletons.
16	Any Medium-size Support Vehicles (of any weight class) which are also equipped with heavy (vehicle-scale) weapons. If there is more than one such unit, the robotic unit will target the one with highest starting BV.
17	Any Conventional Infantry. If more than one conventional infantry unit exists, the robotic unit will target the one with the highest starting Battle Value.
18	Any grounded aerospace fighters, conventional fighters, small craft, fixed-wing support vehicles, or airship support vehicles. If more than one such unit exits, the robotic unit will target aerospace fighters first, then small craft, conventional fighters, fixed-wing support vehicles, and airship support vehicles—in that order.
19	Any IndustrialMech of any weight class.
20	Any Medium- or Small-size support vehicle, of any type.

HEAT MANAGEMENT DECISION TREE

The Heat Management Decision Tree applies only to units that can track heat and exceed their normal safe limits during gameplay—specifically, BattleMechs, IndustrialMechs, and aerospace fighters. As all other units cannot overheat by design, heat management decisions do not apply to them.

Aggressive:

- **BattleMechs and IndustrialMechs:** These units may voluntarily overheat by up to 9 points in a given turn. If the unit's excess heat exceeds 13 points during any End Phase, the robotic unit may perform no other action beyond basic movements at Walking or Running rates during all subsequent turns, until the excess heat levels fall below 5 points.
- **Aerospace Fighters:** These units may voluntarily overheat by up to 9 points in any given turn. If the unit's excess heat exceeds 14 points in any End Phase, the robotic unit can perform no other action beyond basic movements at a Safe Thrust rate, until its heat level drops below 5 points.

Neutral:

- **BattleMechs and IndustrialMechs:** These units may voluntarily overheat by up to 7 points in a given turn. If the unit's excess heat exceeds 13 points during any End Phase, the robotic unit may perform no other action beyond basic movements at Walking or Running rates during all subsequent turns, until the excess heat levels fall below 5 points.
- **Aerospace Fighters:** These units may voluntarily overheat by up to 4 points in any given turn. If the unit's excess heat exceeds 9 points in any End Phase, the robotic unit can perform no other action beyond basic movements at a Safe Thrust rate, until its excess heat level drops to 0 points.

Defensive:

- **BattleMechs and IndustrialMechs:** These units may voluntarily overheat by up to 2 points in a given turn. If the unit's excess heat exceeds 7 points during any End Phase, the robotic unit may perform no other action beyond basic movements at Walking or Running rates during all subsequent turns, until the excess heat levels fall below 0 points.
- **Aerospace Fighters:** These units may not voluntarily conduct any actions that will cause them to overheat. If the unit exceeds 4 points of excess heat during any End Phase, it can perform no other action in all subsequent turns, beyond basic movement at a Safe Thrust rate, until its heat levels have returned to 0.

SUPERHEAVY 'MECHS (MULTIPLE ERAS)

Introduced: 2940 (Free Worlds League [Superheavy IndustrialMech]), 3076 (Word of Blake [Superheavy BattleMech])

Although numerous attempts were made to break through the "hundred-ton barrier" ever since the earliest years of BattleMech use, these efforts were long stymied by the practical limitations in chassis, myomer, and actuator demands, coupled with the skyrocketing weight-to-power ratios of combat-grade fusion engines. While a few specialized industrial-grade superheavy 'Mechs did emerge over the centuries, the first real success even in this venture—Brooks, Incorporated's *Three-Man Digging Machine*—did not appear until the early 2900s, and was specifically designated for use in low-gravity environments where its oversized mass was less crippling.

Meanwhile, the failures of superheavy BattleMech concepts throughout the ages were legion. By far the most infamous of these was the *Matar*, the template for the original Clan *Behemoth* 'Mech, which was developed under the brief reign of Stefan Amaris in the final years of the original Star League. Also known as "Amaris' Folly", that superheavy 'Mech attempt never even made it past the prototype stage.

The *Matar*'s legendary failure would live on through the Succession Wars, and was most often cited example of why no BattleMech could ever break the hundred-ton barrier. Then, in 3078, the Word of Blake unveiled its deadly *Omega*-class BattleMechs during their final defense of Terra. Far from a prototype, the *Omega*s drew on post-Clan Invasion technology advancements that finally put BattleMechs as heavy as two hundred tons within the realm of practicality.

SUPERHEAVY 'MECH GAME RULES

Rules Level: Advanced
Available to: BM, IM
Tech Base (Ratings): Inner Sphere (D/XFFF [Superheavy IndustrialMechs]); Inner Sphere (E/XXFF [Superheavy BattleMechs])

Superheavy BattleMechs and superheavy IndustrialMechs are available in two-legged (biped) and four-legged (quad) body types, just like standard 'Mechs. (Tripod superheavy 'Mechs are also possible, but the additional features of three-legged 'Mechs are covered instead under tripod 'Mechs, and thus will not be fully discussed here; see pp. 163-165 for more information on tripod 'Mechs.)

In game play, superheavy 'Mechs function in accordance with the standard rules for a 'Mech of their type, but with the following modifications:

Movement Phase

Superheavy 'Mechs modify the standard movement rules for BattleMechs as indicated below:

Unit Height: Superheavy 'Mechs are considered to stand 3 levels (18 meters) tall for line of sight purposes. When prone (or hull down), a superheavy 'Mech is treated as if it stands 2 levels high for line of sight purposes. Superheavy 'Mechs do not receive any cover modifiers for terrain that stands 2 levels or more below their current height. Thus, a superheavy 'Mech standing upright in Depth 1 water, or behind a Level 1 building would receive no partial cover benefits, but if the same unit stood in Depth 2 water, or behind a Level 2 hill, partial cover rules *would* apply.

Stacking Limits: Superheavy 'Mechs are so massive that no other vehicles or 'Mechs may share the same hex as they occupy. Even friendly vehicles and 'Mechs must maneuver around a superheavy 'Mech's hex during the Movement Phase. (Infantry—including battle armor—remain unimpaired, and treat a superheavy 'Mech as a standard 'Mech for stacking limits.)

Movement: Superheavy 'Mechs reduce by 1 the MP cost for the following terrain types: Woods, Jungle, Rough, Rubble, and Buildings. All other terrain types and conditions (including elevation changes and lateral movement for quads) cost the same number of MPs as they do for standard-size 'Mechs.

Combat Phase

Superheavy 'Mechs modify the standard combat rules for BattleMechs as indicated below:

Attack Modifiers: All weapon and physical attacks against a superheavy 'Mech receive a –1 to-hit modifier, to reflect the target's larger silhouette. All physical attacks performed by a superheavy 'Mech suffer a +1 to-hit modifier, to reflect the reduced agility of their outsized actuators and structure. If a physical attack between two units includes a superheavy 'Mech on a different level, consult the Different Levels Table (Superheavy 'Mechs) below. This table adds to the one found in *Total Warfare* (see p. 150, *TW*).

Infantry: Anti-'Mech infantry attacks against superheavy 'Mechs receive a –2 to-hit modifier, to reflect the greater ease of such attacks due to the superheavy 'Mech's sheer size and lower range of motion. Despite its greater size, however, a superheavy 'Mech may not be subjected to more than one anti-'Mech swarm attack at any one time.

Mechanized Infantry: Even though superheavy 'Mechs are substantially larger than normal 'Mechs, they may not carry more than one battle armor squad per 'Mech under the Mechanized Battle Armor rules.

Critical Hits: Although items in the arms, legs, and torsos of a superheavy 'Mech effectively compress 2 critical slots' worth of items for every 1 superheavy slot, a critical hit to any item on a superheavy 'Mech's record sheet is always treated as a "single" critical hit, unless the slot stores ammunition or heat sinks.

If a critical hit on a superheavy 'Mech strikes an ammunition slot, *all* ammunition in that superheavy 'Mech slot is affected, even if it contains two standard slots' worth of munitions. Likewise, a critical hit to any slots that contain multiple heat sinks (as may occur in the case of standard or compact heat sinks) will destroy *all* of the sinks in that superheavy critical slot.

As with normal rules, critical hits to a superheavy critical slot that has been previously marked off will have no further effect and must be re-rolled.

Gyro Hits: Even though superheavy 'Mechs make use of a specially-modified "superheavy gyro", this system is just as prone to damage as a standard gyro type. It therefore only takes 2 critical hits to destroy a superheavy 'Mech's gyro.

Compact Engines: If the superheavy 'Mech mounts a compact fusion engine, the engine is considered destroyed at 2 critical hits, rather than 3.

Additional Superheavy 'Mech Rules

Superheavy 'Mechs apply the following additional rules in game play:

Buildings: Superheavy 'Mechs cannot climb buildings. When entering or exiting a building, superheavy 'Mechs apply a +4 target number modifier for all Piloting rolls made to determine if the structure sustains damage.

Advanced Movement and Piloting: If using the advanced *Taking Damage* rules (see p. 23, *TO*), superheavy 'Mechs apply a –4 Piloting Skill target modifier for their weight class. If using any Bog Down special rules (see p. 62-63, *TO*), superheavy 'Mechs apply an additional +1 Piloting Skill target modifier to avoid bog down effects.

Transporting Superheavy 'Mechs: Superheavy 'Mechs may be transported by DropShips, but because dedicated superheavy 'Mech cubicles do not currently exist, they must be transported as bulk cargo and cannot be dropped from airborne transports.

SUPERHEAVY 'MECH CONSTRUCTION RULES

Superheavy BattleMechs and superheavy IndustrialMechs are available in two-legged (biped), three-legged (tripod), and four-legged (quad) body types, just like standard 'Mechs. The construction of a superheavy 'Mech follows the rules for designing a standard-size 'Mech of equivalent type (IndustrialMech or BattleMech), but with the following modifications:

Record Sheet

Superheavy 'Mechs use the Superheavy 'Mech Record Sheets appropriate to their body configuration. Note that while the slots and locations on these record sheets are identical to those found on standard 'Mech record sheets, the much larger interior capacities are taken into consideration in the rules for Superheavy Critical Space (see p. 163).

Step 1: Design the Chassis

The following modifications for superheavy 'Mechs apply to Step 1 of 'Mech construction (designing the chassis):

Choose Technology Base: Superheavy BattleMechs and superheavy IndustrialMechs are available only to the Inner Sphere Tech Base under these rules. The Clans do not produce superheavy 'Mechs, having abandoned the concept during their formation.

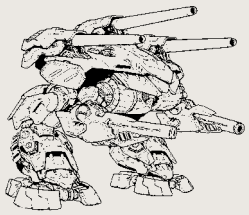
Choose Weight (Tonnage): Superheavy 'Mechs weigh from 105 tons to 200 tons in total mass, increasing in 5-ton increments.

Configurations: Superheavy 'Mechs may be constructed as two-legged, three-legged, or four-legged designs. Superheavy BattleMechs may be constructed as OmniMechs, but superheavy IndustrialMechs may not.

DIFFERENT LEVELS TABLES (SUPERHEAVY 'MECHS)

Target is:	Allowed Physical Attack (Hit Location Table Used)
Standing Superheavy 'Mech 1 level higher	Charge, Punch, Club, Physical Weapon (All on Kick Table)
Standing Superheavy 'Mech 1 level lower	Charge, Punch, Kick, Club, Physical Weapon (Use Default Tables)
Standing Superheavy 'Mech 2 levels lower	Charge, Kick, Club, Physical Weapon (All on Punch Table)
Prone Superheavy 'Mech 1 level higher	Punch, Club, Physical Weapon (Use Default Tables)
Prone Superheavy 'Mech 1 level lower	Charge, Punch, Kick, Club, Physical Weapon (Use Default Tables)
Prone Superheavy 'Mech 2 levels lower	None

Fred decides he's going to build a superheavy 'Mech. He knows it can only have an Inner Sphere Tech Base and so settles on making it a Word of Blake design used during the defense of Terra towards the end of the Jihad.



While he's tempted to go straight for 200 tons, Fred decides to try a mid-sized superheavy first, and settles on 150 tons.

Superheavy Internal Structure

To support their massive weight, superheavy 'Mechs use an enhanced form of internal structure known as Superheavy Structure. Superheavy internal structure is available in industrial (for superheavy IndustrialMechs only), as well as standard, endo steel, and endo composite (for superheavy BattleMechs only).

Industrial Superheavy Structure: Industrial superheavy structure takes up 40 percent of the superheavy IndustrialMech's total weight (rounded up to the nearest half ton), and occupies no slots on the superheavy IndustrialMech's Critical Hits Table.

Standard Superheavy Structure: Standard superheavy internal structure takes up 20 percent of a superheavy BattleMech's total weight (rounded up to the nearest half ton), and takes up no critical space on the superheavy BattleMech's Critical Hits Table.

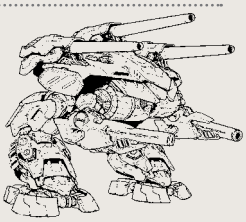
Superheavy Endo Steel Structure: Superheavy endo steel structure takes up 10 percent of a superheavy BattleMech's total weight (rounded up to the nearest half ton), and occupies 7 slots on the superheavy 'Mech's Critical Hit Table (the equivalent of 14 critical slots on a standard BattleMech).

Superheavy Endo Composite Structure: Superheavy endo composite structure, a hybrid of standard and endo steel design, takes up 15 percent of a superheavy BattleMech's total weight (rounded up to the nearest half ton), and occupies 4 slots on the superheavy 'Mech's Critical Hit Table (the equivalent of 7 critical slots on a standard BattleMech).

Other Structure Types: Under these rules, no other internal structure types are available to superheavy 'Mechs. Tripod superheavy 'Mechs add 10 percent to the internal structure weight of a superheavy 'Mech.

Structure Points: To find the number of points of structure per location that a superheavy 'Mech's structure provides, consult the Superheavy 'Mech Structure Table. Note that even the head location on a superheavy 'Mech will possess more internal structure than found on normal-size 'Mechs, increasing from 3 points on 'Mechs under 105 tons in total weight, to 4 points for 'Mechs over 100 tons. (Likewise, the maximum number of armor points the superheavy 'Mech's head can support is also increased, from 9 points to 12.)

Fred settles on using superheavy endo steel. He reviews the Superheavy 'Mech Structure Table to determine that for a 150-ton superheavy 'Mech the structure weighs 15 tons and will take up 7 critical slots. At this stage, after another review of that table, he marks the internal structure on the record sheet down to 4 in the head, 45 in the center torso, 32 in the left and right torso, 25 in each arm and finally 32 in each leg.



SUPERHEAVY 'MECH STRUCTURE TABLE

Total 'Mech Mass	Superheavy Structure Weight				Internal Structure Points by Location				
	Standard	Endo Composite	Endo Steel	Industrial	Head	Center Torso	R/L Torso	Each Arm	Each Leg
105	21	16	10.5	42	4	32	22	17	22
110	22	16.5	11	44	4	33	23	18	23
115	23	17.5	11.5	46	4	35	24	19	24
120	24	18	12	48	4	36	25	20	25
125	25	19	12.5	50	4	38	26	21	26
130	26	19.5	13	52	4	39	27	21	27
135	27	20.5	13.5	54	4	41	28	22	28
140	28	21	14	56	4	42	29	23	29
145	29	22	14.5	58	4	44	31	24	31
150	30	22.5	15	60	4	45	32	25	32
155	31	23.5	15.5	62	4	47	33	26	33
160	32	24	16	64	4	48	34	26	34
165	33	25	16.5	66	4	50	35	27	35
170	34	25.5	17	68	4	51	36	28	36
175	35	26.5	17.5	70	4	53	37	29	37
180	36	27	18	72	4	54	38	30	38
185	37	28	18.5	74	4	56	39	31	39
190	38	28.5	19	76	4	57	40	31	40
195	39	29.5	19.5	78	4	59	41	32	41
200	40	30	20	80	4	60	42	33	42

Step 2: Install Engines and Control Systems

The following rules modifications for superheavy 'Mechs apply to Step 2 of 'Mech construction (installing engines and control systems):

Install Engine: The Engine Rating for a superheavy 'Mech is computed as normal. Superheavy IndustrialMechs may only use standard and large fusion engine types, while superheavy BattleMechs can use any fusion engine type (including Compact, Standard, Light, XL, XXL, and Large). The weights for fusion engines may be found in their appropriate engine tables in *TechManual* (see p. 49, *TM*) or *Tactical Operations* (see p. 308, *TO*). Non-fusion engine types lack the power to keep a superheavy 'Mech mobile, and so such engines may not be selected, regardless of the superheavy 'Mech's nature.

The critical slot space requirements of a superheavy 'Mech's engine are half of those normally required in a similar standard BattleMech (rounded up). See *Step 5: Add Weapons and Equipment*, p. 163, for more information.

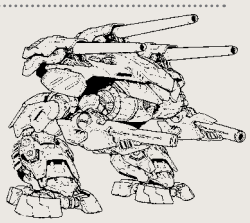
Add Gyroscope: Regardless of their type, all superheavy 'Mechs *must* employ a superheavy gyro. All other gyro types lack the durability and stress tolerances necessary to keep these oversized machines balanced. A superheavy gyro weighs as much as a heavy-duty gyro of equal capacity, and thus can be calculated by dividing the 'Mech's Engine Rating by 50 (and rounding up to the nearest whole number).

On a superheavy 'Mech, the superheavy gyro occupies only two critical slots in the center torso.

Determine Jump Jets (or Underwater Maneuvering Units): The challenges of supporting and balancing a superheavy 'Mech as it stands, walks, or runs have proven so significant that no jump jet systems have been devised yet that are capable of safely providing Jump MP for these machines. Superheavy 'Mechs thus may not mount jump jets, improved jump jets, jump boosters, or partial wings of any type.

Likewise, no UMU equipment has been developed that can safely propel and maneuver a superheavy 'Mech underwater. Underwater maneuvering units thus may not be installed in a superheavy 'Mech.

Fred wants to pile on the weaponry for his massive ride and so decides on an XL. But he also knows that you simply can't make such a big machine fast; and it doesn't need to be, as it's a mildly mobile weapons platform. He decides on a Walking MP of 2. That means the machine will require a 300-rated engine. After checking the Master Engine Table in TechManual*, he allocates 9.5 tons to the engine. He knows there are some space rules he'll need to deal with surrounding critical slot allocation, be he holds off on that part until later. That creates a running total of 24.5 tons.*



Since a Superheavy Gyro is the only option, Fred assigns 6 tons to that (Engine Rating 300 ÷ 50 = 6); as with the engine, he decides to assign critical slots later. Fred now has a 30.5 tons running total.

Because of its mass, Fred notes that his superheavy 'Mech cannot employ jump jets or other alternative motive systems.

Add Cockpit: The cockpit assembly for a superheavy 'Mech is reinforced, and provides 4 points of internal structure in the head location, with a maximum potential armor level of 12 points. The weight of this reinforced cockpit is 4 tons.

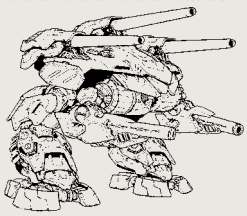
Under these rules, superheavy 'Mechs cannot use standard-size 'Mech cockpits, Small Cockpits, Torso-Mounted Cockpits, Interface Cockpits, or Drone Cockpit types. Superheavy 'Mechs with a biped or quadruped chassis configuration can install Command Consoles, however.

As a special exception, superheavy tripod 'Mechs must use the 5-ton superheavy tripod cockpit instead of the standard superheavy 'Mech cockpit. Because the superheavy tripod cockpit duplicates features of the Command Console, superheavy Tripod 'Mechs cannot make use of a separate Command Console.

Physical Enhancements: In order to meet the incredible demands of their design, superheavy 'Mechs use larger actuators and thicker, hardier myomer bundles to provide the strength, flexibility, and resilience they need. This musculature is incompatible with all forms of MASC, Triple-Strength Myomers, and the Actuator Enhancement System.

For similar reasons, superheavy 'Mechs also cannot make use of Superchargers.

Fred knows the only options for the cockpit is the unique 4-ton design used for superheavy 'Mechs and so allocates that tonnage. This gives him a running total of 34.5 tons.



Step 3: Add Additional Heat Sinks

Superheavy 'Mechs mount heat sinks just like their standard-weight counterparts. This includes the ability to select any heat sink type available to the unit's Tech Base, as well as receiving 10 heat sinks free with the 'Mech's fusion engine.

The number of heat sinks that must be allocated on the superheavy 'Mech's record sheet are also computed in the same fashion as standard-size 'Mechs, but depending on the heat sink type chosen, the unique critical space rules for superheavy 'Mechs may impact how many heat sinks can be placed per critical slot. See *Step 5: Add Weapons and Equipment*, p. 163, for more information.

Step 4: Add Armor

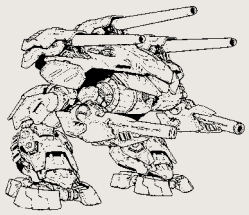
The following rules modifications for superheavy 'Mechs apply to Step 4 of 'Mech construction (add armor):

Aside from the exceptions noted here, superheavy BattleMechs can use any and all types of armor available to BattleMechs, while superheavy IndustrialMechs can use any and all types of armor available to IndustrialMechs. As with standard-sized 'Mechs, the maximum armor points per location is equal to twice the location's internal structure value, and all torso locations must divide this armor between front and rear facings. A superheavy 'Mech's head location may carry up to 12 points of armor.

Modular Armor: Under these rules, superheavy 'Mechs may not install modular armor.

Armored Components: Under these rules, superheavy 'Mechs may not use armored components.

Stealth Systems: The sheer size of a superheavy 'Mech's profile renders it unable to use stealth armor and other stealth systems effectively. Thus, BattleMech stealth armor, the Chameleon Light Polarization Shield, the Null-Signature and Void-Signature Systems all have no effect when mounted on a superheavy 'Mech. (ECM Suites still function normally, however.)



As a walking pill-box, Fred decides he wants this armored to the gills. However, he doesn't max out the armor, but comes close, assigning 27 tons of standard armor. He marks the excess circles off the record sheet as he assigns the armor points as follows: 12 to the head, 60 to the front center torso (20 to the back), 45 to the front right and left torsos (19 to both rears), 44 to each arm and finally 62 to each leg. The running total is now 61.5 tons.

Step 5: Add Weapons and Equipment

The following rules modifications for superheavy 'Mechs apply to Step 4 of 'Mech construction (adding weapons, ammo, and other equipment):

Aside from the restrictions noted earlier, superheavy 'Mechs mount weapons just like their standard-weight counterparts. In addition to this, a superheavy 'Mech can also mount artillery weapons ordinarily denied to standard-weight 'Mechs, as long as the unit has the tonnage and space to do so.

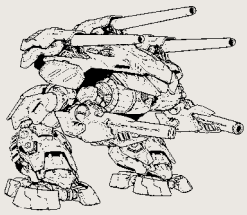
Superheavy Critical Space: The immense size of the superheavy chassis provides ample internal space in the torsos, arms, and legs, but simultaneously requires heavier and bulkier actuators to function. As a result, all equipment mounted in a superheavy 'Mech—other than arm and leg actuators, sensors, life support, and the cockpit—effectively occupies half of its ordinary critical slot space (rounded up). This rule includes all non-actuator and non-internal structure critical slots, including those for armor, weapons, ammunition, heat sinks, and engines.

Except for ammunition and heat sink slots (as specifically described below), critical slots may not be shared between different items. For example, if a Superheavy 'Mech were to carry two autocannon/10s (7 critical slots each, when mounted on a standard-size 'Mech), each autocannon would occupy 4 slots on the superheavy 'Mech (7 ÷ 2 = 3.5, round up to 4), for a total of 8 slots occupied—*not* 7 slots for the two combined.

Additional Weapon Rules: Superheavy 'Mechs may ignore the torso-only mounting restrictions applied to Heavy Gauss Rifles (standard and improved), and may place these items in the arms if desired. Superheavy 'Mechs may also mount up to two items of industrial equipment per body location (see pp. 241-249, *TM*), even if the item normally has a one-per-location limit.

Ammunition: In the case of ammunition bins, every critical slot of ammo placed in the torsos, arms, or legs of a superheavy 'Mech may carry up to two slots of ammunition. This rule does not change the number of shots provided per ton of ammunition; it merely reflects the number of ammo slots that may be "doubled up" in one critical space. Only ammunition of the same weapon type may be combined in this fashion, but if the weapon in question uses multiple ammo types, the different types (by ton) can be combined in the same Superheavy critical slot. (In such a case, the controlling player must always keep track of the different ammo types that are sharing the slot.)

Heat Sinks: Superheavy 'Mechs may carry as many heat sinks per critical slot as will fit into two critical hit slots on a standard 'Mech. This means that a superheavy 'Mech can fit up to 2 standard (single) heat sinks per critical slot, or 1 Clan double heat sink (if using Mixed-Tech rules), or 4 compact heat sinks. Inner Sphere double heat sinks require two critical hits on a Superheavy 'Mech, but cannot share critical slots. When noting the location of slots where more than one heat sink is present, the number of heat sinks occupying the slot must be identified in the critical hit table.



It's now time to assign weaponry, and Fred comes up with the following:

2 LB 10-X ACs for 22 tons

4 tons of LB-X ammo

3 Gauss rifles for a total of 45 tons

10 tons of Gauss ammo

4 CASE II for 4 tons

An Improved C³ Computer for 2.5 tons

That generates a total of 88.5 tons. Since all his weaponry is so heat efficient, Fred decides he doesn't need to add any more heat sinks beyond the 10 that come with the engine. Combined with the 61.5 tons running total, he's now got a complete 150-ton design.

Now it's time to tackle the space rules to finish filling out his record sheet. Reviewing the rules again, Fred knows that all weapons, ammunition and equipment take up half the usual number of slots, rounding up. With that in mind, he assigns the follow:

In each arm: 3 LB 10-X AC slots, a single LB 10-X AC ammo slot which contains 20 shots, and finally a CASE II slot.

In each side torso: 2 XL Fusion engine slots, 4 Gauss rifle slots, 2 Gauss ammo slots with 16 shots each, a CASE II slot, and a Superheavy Endo Steel slot.

In each leg: two Superheavy Endo Steel slots.

In the center torso: he notes the 3 Fusion Engine Slots are XL, the 2 Superheavy Gyro slots are already assigned, then he allocates 4 Gauss rifle slots, 1 Gauss ammo slot with 16 shots, an Improved C³ CPU slot, and a CASE II slot.

In the head: a Superheavy Endo Steel slot.

He's now done. He names it the SHP-4X Omega*, and now it's time to try it out on the battlefield!*

TRIPOD 'MECHS (MULTIPLE ERAS)

Introduced: 2585 (Terran Hegemony [Standard sizes]); circa 3135 (Republic of the Sphere [Superheavy])

Remarkably enough, three-legged 'Mechs were first conceived and built long before the unveiling of the Republic of the Sphere's superheavy "Colossals". The first tripod BattleMech, known as the *Hedgehog*, was actually devised in the early days of the Star League. The configuration was relatively straightforward, but the counterintuitive structure and controls left these units a mere curiosity for centuries.

Tripod 'Mechs thus languished as fringe concepts, even rarer than ultralight BattleMechs, with the most recent example before the Colossals appeared being the *Three-Man Digging Machine*, a low-gravity WorkMech that also distinguished itself as being the first practical superheavy 'Mech.

Following the end of the Jihad, the founders of the Republic of the Sphere captured plans and samples of many experimental technologies from the Word of Blake. This included the superheavy *Omega*, the first battlefield-viable superheavy BattleMech. Decades later, the Colossals would be born after Republic engineers successfully mated this groundbreaking development with the tripod configuration and updated control systems based on the *Three-Man Drilling Machine*.

TRIPOD 'MECH GAME RULES

Rules Level: Advanced
Available to: BM, IM
Tech Base (Ratings): Inner Sphere (D/EEXE)

The following rules apply to three-legged (tripod) 'Mechs. While tripod 'Mechs can be made in standard weight classes, these rules will mainly presume that the tripod in question is a superheavy design, to account for those areas in which the rules for superheavy 'Mechs overlap.

Piloting/Gunnery Skills

Whether built as standard-weight 'Mechs or as superheavies, tripod 'Mechs require special cockpits that seat either two crewmen (for standard-weight Tripods), or three (for superheavies). One crewman in these cockpits serves as the unit's dedicated pilot, while another serves as the equipment/gunnery officer. In superheavy tripods, the third crewman serves as the unit's technical/tactical officer. Tripod 'Mechs may operate with as few as one pilot, but will incur penalties for operating in such a fashion, and will not receive the benefits of the dedicated crewmen noted below.

The following rules cover the effects of the dedicated crewmen in game play.

Non-Superheavy Tripod 'Mechs: The standard-weight tripod 'Mech cockpit seats only a dedicated pilot and equipment/gunnery officer, and thus does not offer the benefits of the dedicated technical officer.

Dedicated Pilot: A dedicated pilot applies a –1 target modifier to all Piloting Skill checks (including those made for Physical Attacks) when operating a tripod 'Mech. This modifier is cumulative with the normal modifiers for superheavy 'Mechs, as well as the normal –1 tripod 'Mech Piloting Skill modifier. If the dedicated pilot is disabled (i.e. unconscious or killed), the equipment/gunner officer or technical officer can pilot the 'Mech, but trades the dedicated pilot's benefit for a +2 target number modifier to all Piloting Skill checks (including those made for physical attacks).

Dedicated Equipment/Gunnery Officer: As long as the tripod has a dedicated gunner, it may select up to 3 primary targets per turn before incurring the secondary target modifier (see *Multiple Targets Modifier*, p. 109, *TW*). If the dedicated equipment/gunnery officer is disabled (i.e. unconscious or killed), the pilot or technical officer can pilot the 'Mech, but loses the dedicated gunner's ability to select more than 1 primary target, and suffers an additional +2 to-hit number modifier when making all weapon attacks.

Dedicated Technical Officer: Having a dedicated technical officer grants the superheavy tripod 'Mech a +2 modifier to all rolls made to avoid shutdown and ammunition explosions from excess heat. The technical officer also doubles as tactical support for his team, and awards a +1 Initiative modifier to the superheavy tripod's side in the scenario (+2 if the tripod is that force's designated command unit). This Initiative modifier is not cumulative if more than one superheavy tripod 'Mech is present. If the technical officer is disabled (i.e. unconscious, killed or absent), all these benefits are lost entirely; the pilot or equipment/gunner officer cannot take over the technical officer's abilities.

Movement Phase

As long as a tripod 'Mech possesses three undestroyed legs, it receives all of the benefits described below. Should one or more of a tripod 'Mech's legs be destroyed, it will immediately fall in accordance with standard rules for leg destruction, lose all of these movement benefits, and its remaining movement and piloting modifiers will be the same as those of a biped 'Mech that has suffered a destroyed leg (see p. 122, *TW*).

All other movement rules governing 'Mechs (and, if appropriate, superheavy 'Mechs) apply to tripod 'Mechs as well.

Tripod Facing Change: A tripod 'Mech spends only 1 MP to change its facing any number of hexsides, in any direction. This is because the tripod 'Mech's legs are designed to switch direction with a minimum of actual turning (instead, the torso rotates to the new facing, and the legs reorient as they go).

Tripod Piloting Skill Rolls: Apply a –1 target modifier to all Piloting Skill rolls made to avoid falls, or to stand up after falling or dropping prone.

Lateral Shift and Hull Down: A tripod 'Mech may execute a lateral shift exactly as a four-legged 'Mech, with the same MP cost (see p. 50, *TW*). Tripod 'Mechs may also perform the Hull Down maneuver available to four-legged 'Mechs (see p. 21, *TO*).

Combat Phase

In combat, tripod 'Mechs are treated as BattleMechs (or superheavy 'Mechs, as applicable), with the following additional special combat rules.

Tripod Firing Arcs: A tripod 'Mech can torso twist through 360 degrees. Any weapons not mounted in the legs are thus considered to be mounted in a turret for the purposes of rotating the firing arc (see *Rotating The Firing Arcs*, *Vehicles*, p. 106, *TW*). Because of the tripod 'Mech's unique design, its legs tend to realign while on the move, establishing and reestablishing leg-based firing arcs relative to the tripod 'Mech's torso facing. To reflect this, the tripod 'Mech always considers its central leg's facing to begin at the front hexside of the unit, with the left leg facing considered to begin two hexsides left of the front, and the right leg facing considered to begin two hexsides to the right of the front. These firing arcs radiate outward in the same manner as a foreward vehicle-based firings arcs (meaning that adjacent leg firing arcs may overlap).

Tripod Physical Attacks: Due to the unique balance and realignment system designed primarily for their stability while moving, tripod 'Mechs actually lose a degree of flexibility when it comes to physical combat. To reflect these limitations, tripod units may only engage in physical attacks against targets that lie within their front firing arc—as defined by whichever direction their torso is rotated to at the time of the Physical Attack phase. This means that tripods may not attempt the "rear kick" option available to four-legged 'Mechs (see p. 147, *TW*), nor may they attempt punches or other physical attacks against targets in the tripods' side arcs.

Firing While Prone: Provided that it possesses all three of its legs, and has suffered no critical hits to its hips, a prone tripod 'Mech only applies a +1 to-hit modifier (in place of the standard +2 modifier) for its weapon attacks, and may use all weapons located in its torsos, head, and both arms. If the Tripod has suffered a hip actuator hit or the loss of at least one leg, it follows the standard rules for a BattleMech attacking while prone.

Leg Hit Locations: Hits against a tripod 'Mech use the appropriate BattleMech Hit Locations Table for bipedal 'Mechs, but every time a hit strikes any leg location on this table, roll 1D6, applying a +1 modifier if the attack direction is from the left side, or a –1 modifier if the attack direction is from the right side. On a modified result of

0-2, the attack strikes the tripod's right leg; on 3-4, the attack strikes its central leg; and on 5-7, the attack strikes the left leg. Excess damage to the center leg transfers directly to the center torso, while excess damage from either side leg transfers to its adjacent side torsos.

Pilot Damage: Only the tripod 'Mech's dedicated pilot (or whichever pilot is presently handling the Piloting Skill checks) will suffer damage as a result of ammunition explosions. Pilot hits due to heat effects and damage to the head, meanwhile, will apply to all crewmen in the tripod's cockpit.

In the event of a fall, each crewmen must make separate Piloting Skill checks to avoid taking damage, applying any modifiers appropriate to both the 'Mech and the crewman making the Piloting Skill check as appropriate.

If the dedicated pilot is killed or rendered unconscious, another crewman can automatically take over, provided at least one is present (see *Piloting/Gunnery Skills*, p. 164, for the modifiers that would apply to such a situation). If all crewmen in a tripod's cockpit are killed, or the Cockpit critical slot is destroyed, the tripod 'Mech is considered destroyed per the standard game play rules for cockpit destruction.

TRIPOD 'MECH CONSTRUCTION RULES

Tripod 'Mechs follow all the same construction rules as biped 'Mechs of equivalent weight and type (including superheavy 'Mechs), with the following modifications:

Record Sheet

The tripod 'Mech uses a unique record sheet that incorporates its third leg. Superheavy tripods have their own superheavy version of that same record sheet which features three pilot condition monitors as opposed to the standard one.

Internal Structure

A tripod 'Mech's third leg receives the same number of structure points as the 'Mech's other two legs. To reflect the additional limb and its required musculature, the total weight of a Tripod's internal structure—regardless of type—must be increased by 10 percent (rounding up to the nearest half ton).

Cockpit

Tripod 'Mechs weighing up to 100 tons must mount a special 4-ton cockpit, which seats its two crewmen. Superheavy tripod 'Mechs—which weigh from 105-200 tons—must mount a special, 5-ton advanced cockpit, which seats its three crewmen. These cockpit weights and seating capacity remain the same, regardless of whether the tripod is an IndustrialMech or a BattleMech, though IndustrialMech cockpits will lack the fire control and ejection systems of their BattleMech equivalents.

No other cockpit types are available to tripod 'Mechs under these rules. Tripod 'Mechs may not install Small Cockpits, Torso-Mounted Cockpits, Interface Cockpits, or Drone Cockpits, nor can they be constructed with a Cockpit Command Console.

If Design Quirks are in play, Tripod 'Mech cockpits may receive the Rumble Seat or Cramped Cockpit Quirks.

Despite the weight differences, all Tripod cockpits occupy the same number of critical slots on the unit's respective critical hit tables.

Weapons and Equipment

Tripod 'Mechs may mount weapons and equipment in accordance with the standard rules for a 'Mech of equal weight and size.

Distributed Equipment: For special equipment that needs to be spread across multiple body sections—such as stealth armor, the Blue Shield particle field dampener, and the Chameleon light polarization shield—the use of a tripod structure requires additional critical slots for those items. These extra slots must be allocated to the tripod's third leg in accordance with the item's construction rules.

THERMOBARIC WEAPONS (MULTIPLE ERAS)

Introduced: Pre-Spaceflight

Thermobaric weapons are not considered to be weapons of mass destruction, although some—most notably, high-yield fuel-air explosives (FAEs)—are often seen as such thanks to some of their visual effects (and a healthy dose of media hype). Essentially designed to aerosolize a high-combustible fuel source so that it mixes into the surrounding air before ignition, thermobarics derive their destructive force from both intense heat and the explosive force of this rapid, wide-area ignition. Because of this, such weapons are useless in low-atmosphere environments and vacuum, and have minimal effect against heavily fortified structures.

Incendiary LRM munitions are one of the most common types of thermobaric weapons used by the Inner Sphere and Clan forces, but other forms include fuel-air explosives available in both artillery and air-droppable formats.

FUEL-AIR MUNITIONS GAME RULES

Rules Level: Advanced
Available to: BM, IM, CV, SV, CF, AF, SC
Tech Base (Ratings): Inner Sphere (C/EFEE), Clan (C/XEEE)

Airborne units capable of dropping bombs (including those with internal bomb bays) may carry fuel-air munitions as bombs. All other unit types must employ them as an alternate ammo type for the appropriate artillery weapon system (including Long Tom, Sniper, Thumper artillery weapons, as well as the Arrow IV missile battery). Artillery Cannons (see p. 285, *TO*) can also fire fuel-air munitions. In all of these cases, fuel-air munitions deliver their attacks in accordance with the appropriate weapon system and unit type, with the following exceptions:

Damage Yield and Area of Effect: The base damage values and area of effect (in hexes) for all common Fuel-Air Munitions are given in the Fuel-Air Munitions Table.

Atmospheric Density: Fuel-Air Munitions (FAMs) deliver no damage effects in Very Thin, Trace, or Vacuum atmospheric levels, nor do they have any effects when deployed in space. If used in Thin atmospheres, the munition's damage values are reduced by half (rounding up).

Airborne Units: Airborne units (fighters, airships, VTOLs, and any other units equipped with either bomb bays or external ordnance hardpoints) may only employ Fuel-Air Munitions as bombs. These bombs come in a small and large size; the small FAM bombs occupy only 1 hardpoint, while the large FAM bombs count as 2.

Infantry: All Fuel-Air Munitions are considered area-effect weapons that deliver incendiary effects coupled with a powerful overpressure wave that is quite effective against softer targets. As a result, all infantry units caught within a FAM's area of effect will suffer twice the weapon's damage value in that hex (doubled again if the unit is in clear or open terrain). In addition to this,

FUEL-AIR MUNITIONS TABLE

Fuel-Air Munition Type*	Damage Type	Damage Values (Radius)
Fuel-Air Bomb (Small)	AE	20/10/5 (Radius: 2)
Fuel-Air Bomb (Large)	AE	30/20/10/5 (Radius: 3)
Fuel-Air Missile (Arrow IV)*	AE	20/10/5 (Radius: 2)
Fuel-Air Shell (Thumper, Thumper Cannon)	AE	10/5 (Radius: 1)
Fuel-Air Shell (Sniper, Sniper Cannon)	AE	20/10/5 (Radius: 2)
Fuel-Air Shell (Long Tom, Long Tom Cannon)	AE	30/20/10/5 (Radius: 3)

*All values are identical for Clan and Inner Sphere versions

all infantry units must also roll 2D6 and add their distance from the FAM's point of impact (in hexes) from the result. If this modified roll is 9 or less for a conventional infantry unit, or is less than 7 for a battle armor unit, the remaining troops in the unit are also destroyed. Fire-resistant armor offers no special protection against the blast of a Fuel-Air Munition in this case.

Buildings and Low-BAR Units: If a light building or a unit with a Barrier Armor Rating (BAR) of less than 10 lies within a Fuel-Air Munition's area of effect, multiply the damage sustained from the FAM's blast by 1.5 (rounding up). If a Castle Brian building lies within the FAM's area of effect, or if the building is armored (see pp. 115-119, *TO*), reduce the munition's blast damage by half (rounding down) before applying all other effects.

Fire: The incendiary effect of a Fuel-Air Munition is short-lived compared to that of gel-based incendiaries like Infernos, thanks to the rapid expansion and collapse of the weapon's blast wave. To reflect this, use the rules for setting intentional fires to all terrain, units, and buildings within the weapon's area of effect (see pp. 43-44, *TO*), but use the target number for a direct-fire energy weapon (7+), rather than that of other incendiary weapons. Fires set by a FAM follow the standard rules for spreading, smoke, and the like, as presented on pp. 45-46 of *Tactical Operations*.

Heat: Although Fuel-Air Munitions are incendiary by nature, units caught in the blast of a FAM weapon will receive no additional heat from the weapon unless they or their current terrain hexes are set ablaze (see *Fire*, above). Otherwise, the blast of a FAM is simply too fast for heat-tracking units to register.

WEAPONS OF MASS DESTRUCTION (MULTIPLE ERAS)

Introduced: Various (See Rules)

The use of weapons of mass destruction—ranging from chemical weapons and biological agents to tactical and strategic nuclear warheads—predates mankind's exodus from Terra itself. Throughout the history of the Inner Sphere, the use of such weapons has not been unknown. During the Age of War and early Succession Wars, many realms and forces had no compunctions about resorting to nuclear strikes as their opening move, while the century or so prior to the Jihad saw these weapons deployed as a last resort only (if at all). In the Jihad, the Word of Blake resorted to a broad range of nuclear, chemical, and biological attacks as a means of quickly shattering enemy infrastructure and military forces both as a psychological strategy as well as a means to preserve their limited conventional strength against the combined armies of the Inner Sphere.

For most, the use of "WMDs" has long been seen as the first act of a coward, the threshold where civilized warfare ends. These weapons have been outlawed by numerous international and interstellar laws and edicts, of which the defunct (yet most often cited) Ares Conventions are but one in a series of many. Realms or leaders who resort to deploying such weapons invariably face charges of committing crimes against humanity, and among some powers—such as the Clans—even the *existence* of these weapons as a deterrent is seen as abhorrent in the extreme. And yet, despite all of this, virtually every realm and minor power in all of human-occupied space not only maintains a basic capability to manufacture these weapons, but also keeps stockpiles of them, ready for use at any time.

GENERAL WEAPONS OF MASS DESTRUCTION RULES

By and large, weapons of mass destruction (WMDs for short) should never be used in game play, as even the lightest nuclear devices and lethal bio-chemical weapons can significantly alter the outcome of a scenario or a campaign. To reflect this, nuclear and biological weapons receive no Battle Value to speak of. Game scenarios that use BV as a balancing factor should thus not permit the use of any weapons of these items. More importantly, given the extreme nature of such weapons in standard game play, all players should read through these rules and agree to their use before play begins.

Individually, the game rules for using weapons of mass destruction are covered under *Nuclear Weapons* (see pp. 169-177), and *Biological and Chemical Weapons* (see pp. 178-182). The following general rules for acquiring and dealing with the consequences of WMD use, however, may be applied regardless of the weapons used.

Acquiring WMDs in Campaign Play

For campaign-level purposes, any military force may attempt to acquire functional WMDs; only the high level of authorization required for their deployment, and a general reluctance to employ such weapons prevents them from being commonplace. The ease with which any given force might obtain access to one or more weapons of mass destruction may be found determined by consulting the *General WMD Acquisition Table*. This table provides a generic listing of the most common tactical weapons found among the stockpiles of the various Inner Sphere and Periphery powers, broken down by the broad classes covered in each weapon type's rules.

To acquire a WMD in campaign play, a force's controlling player may make a 2D6 roll against the weapon's base target number twice per month. The TN is modified as appropriate for the force's experience, reliability, size, affiliation and equipment ratings, as well as the year in which the campaign is presently set and any willingness to pay double (or more) for the cost of these weapons if purchased. If any one or more conditions relevant to this roll are unknown, or if the players are using a force with conditions not specifically featured on the table (such as a force with a Veteran skill rating, or regular reliability), a value of +0 applies to the missing condition.

A roll result equal to or exceeding the target number indicates not only successful access to the desired weapon, but the availability of a number of such weapons equal to the roll's margin of success (to a minimum of 1, for a MoS of 0), which the force may then purchase at

GENERAL WMD ACQUISITION TABLE

Weapon Type	Base TN	C-bills (Warhead)	C-bills (Launcher)
Nuclear Weapons			
Custom Tactical	14 + (1 per 5 Kt Yield)*	1,000,000 x Kt Yield*	As Launcher
Custom Strategic	16 + (1 per 5 Mt Yield)*	10,000,000 x Mt Yield*	As Launcher
Type Ia "Davy Crockett-I"	15	500,000	1,000,000
Type Ib "Davy Crockett-M"	15	500,000	As Launcher
Type II "Alamo"	16	1,000,000	As Launcher
Type III "Santa Ana"	18	15,000,000	250,000
Type IV "Peacemaker"	19	40,000,000	500,000
Elias	14	10,000	N/A
AMW**	17	100,000,000	As Launcher
Chemical Weapons			
Class I (Non-Lethal)†	4	1,000 (per ton)	As Launcher
Class II	9	10,000 (per ton)	As Launcher
Class III	14	250,000 (per ton)	As Launcher
Class IV	16	1,000,000	As Launcher
Class V	18	5,000,000	As Launcher
Biological Weapons			
Class IV	16	5,000,000	As Launcher
Class V	18	50,000,000	As Launcher

*Round up; Nuclear yield values are in Kilotons (Kt) or Megatons (Mt) as appropriate
**Unavailable before 2790
†Multiply the number of available weapons of this class by 2D6 after making the availability roll

GENERAL WMD ACQUISITION MODIFIER TABLE

Condition	Modifier
Force Ratings	
Experience: Elite	–2
Experience: Regular	+1
Experience: Green	+3
Loyalty: Fanatical	–2
Loyalty: Questionable	+4
Equipment: A-B	–1
Equipment: D-F	+2
Force Size	
Per full 'Mech regiment	–1 (max –3)
Unit smaller than a regiment	+1
Force Affiliation	
Original SLDF	–3
Taurian Concordat/Calderon Protectorate	–3
Other Periphery (Non-Taurian)	–2
Word of Blake	–2
Draconis Combine	–1
Federated Suns	–1

Condition	Modifier
ComStar	+0
Free Worlds League	+1
Capellan Confederation	+2
Lyran Commonwealth	+2
Clans (All)	+4
Minor Power	+1
Independent (Non-Affiliated) World	+2
Era of Play	
Before 2400	–1
2401-2411	+0
2412-2570	+2
2571-2765	–1
2766-2850	–2
2851-2865	+0
2866-3067	+2
3068-3085	–1
3086-3150	+2
Cost	
Per each additional 1x cost spent	–2 (Max –6)

the price it named at the time of the roll. If the roll result is less than the modified target number, none of the desired weapons are available, but the force will still incur costs based on the search effort. These costs are expressed in C-bills for the purposes of these rules, but may be converted as desired by the agreement of all players.

Rolls made for larger commands may not be repeated for sub-forces (such as for a battalion within the same regiment) or vice versa (for each battalion and then the regiment they belong to) within the same month.

Anne commands a fanatical, regular-grade force with one 'Mech regiment from the Federated Suns. This force has an equipment rating of C, and is taking part in an action set during the FedCom Civil War (3062-3067). She is interested in obtaining Alamo-class nuclear weapons for her stockpile. The Alamos have a base TN of 17, and a base cost of 1,000,000 C-bills per warhead. (Anne is not interested in launchers; she plans to drop as bombs from fighters, if she uses them at all.)

The modified TN to obtain Alamos is thus 15 [16 (base TN) +1 (Regular) –2 (Fanatical) +0 (Equipment Rating C) –1 (1 'Mech regiment) –1 (Federated Suns affiliation) +2 (3062-3067 period) = 15]. Seeing as this would be an automatic failure, Anne declares that she is willing to pay 4 million C-bills per weapon—four times the base cost of these weapons, and thus a cost increase of three times over and above the base weapon price. This yields an extra modifier of –6 to her roll, so she now needs only a 9 to succeed.

Anne rolls and gets a result of 11—a margin of success of 2. There are two Alamo warheads available for purchase. Because she indicated her willingness to spend up to four times the weapon's costs, she must spend 8 million C-bills to purchase the two Alamos. (Had the roll failed, she still would have needed to spend 4 million C-bills, because she was willing to spend that much on one Alamo, but her effort had failed.)

She may attempt this roll again one more time during the current campaign month to increase her stockpile. Once again, Anne states she is willing to pay 4 million C-bills per Alamo, but this time the roll result is only 10, a MoS of 1. Anne can only purchase one more Alamo by the end of the month, bringing her force's stockpile to 3 Alamos, at a combined cost of 12 million C-bills (8 million for the earlier purchase, plus 4 million for the third weapon). Though she could have picked up some BattleMechs or armor for that money, Anne now has three five-kiloton nuclear bombs available for any last-ditch defense plans she might need…

Consequences of WMD Use

Per Articles I and VI of the Ares Conventions (and the various interstellar and regional laws of nearly every political entity in the Inner Sphere), the use of WMDs is considered a "crime against humanity". Thus, by the letter of the law, any force that uses said weapons should be branded rogue by every state, including that force's own government, unless particularly egregious mitigating circumstances apply (such as the use of nuclear weapons against an exclusively military spaceborne target like a WarShip).

In practice, ever since First Lord Ian Cameron suspended the Ares Conventions before the start of the Reunification War, thus absolving any Star League-affiliated force from penalty in the war to conquer the Periphery, universal enforcement of such conventions has fallen to a number of interstellar human rights organizations and the agencies of often-competing governments whose agendas vary with the politics of the day. Curiously enough, over the centuries, the forces most bound by the Conventions and their like have been mercenaries, whose likes have often been punished for any atrocity on the simple principle that their actions could always be disavowed by any governmental policies.

Because of the moral and legal complexities involved, players involved in a campaign where WMDs are deployed and used are largely left to their own devices on how to address any consequences of WMD use. Any reactions to WMD use should be considered based on era of play and the circumstances that led to the use of such weapons, as well as the type of force wielding the WMDs, the type of weapon used, the general level of WMD use by various opposing realms at the time, and so on.

If a more neutral arbitration is desired, players could also make use of the same process used to gain access to the WMD and repurpose it as a means of determining how much "fallout" affects the survivors of the force that employed such weapons. This process would use the TN of the weapon used, and apply all relevant modifiers to the force that used them (including the force's affiliation, experience, loyalty, and even equipment rating and extra cost spent—the latter factors suggesting legal expenses and/or political favors pulled to avoid repercussions).

If the roll succeeds, the survivors of the WMD-using force suffers no punishment or ill effects as a result of its transgression; otherwise, it will suffer a number of possible outcomes, based on the roll's margin of failure (MoF), as shown in the WMD Use Consequences Table (see below).

WMD USE CONSEQUENCES TABLE

Margin	Suggested Consequence
MoS 1+	No consequences
MoS 0	Slap on the Wrist. (Force suffers –1 Initiative for next 2 scenarios)
MoF 1-3	Morale Loss (Force suffers –MoF to Initiative for MoF x D6 scenarios)
MoF 4-7	Charges and Reprimands (Force reduced 1 step in Loyalty and/or Equipment Ratings)*
MoF 8-9	Severe Punishments (Force reduced 1 step in Loyalty, Equipment, and Experience Ratings)*
MoF 10+	Disbandment (Force is stricken from the rolls; all officers imprisoned or executed.)

*To minimum ratings (Questionable for Loyalty, F for Equipment, Green for Experience)



The last hope for any victory is lost as the heat and pressure of a nuclear blast will soon wash over these warriors.

NUCLEAR WEAPONS

Rules Level: Experimental
Available to: Various (See Rules)
Tech Base (Ratings): Inner Sphere (Variable, see Rules)

The best known (and most common) among modern WMDs, nuclear weapons come in a variety of yields and types. Used extensively throughout the Age of War prior the Ares Conventions, nuclear weapons remain an important tool within the arsenals of every major power, if only as a deterrent.

While the technology exists to make these weapons on virtually every industrialized world in the Inner Sphere, most nuclear arsenals are maintained by the larger interstellar nations, resulting in a curious standardization in warheads and delivery systems despite the sheer potential for variety. The vast majority of these weapons, fortunately, are tactical weapons, intended to end localized battles or wipe out small cities, military bases, or even individual WarShips at a single hit. Strategic weapons, capable of annihilating entire continents in just a few hits and rendering whole biospheres uninhabitable, are much fewer and far-between.

NUCLEAR WEAPONS GAME RULES

The methods for making an attack with a nuclear weapon can vary between delivery systems, with most dropped as bombs, fired from artillery weapons, or launched as capital-scale missiles. Some can even be delivered as mines or carried inside a target by infantry. The rules for several example weapons, including their typical delivery methods, are provided later, but all will follow the same rules upon detonation, as described here.

In general, the detonation of a nuclear weapon follows the basic pattern of an artillery strike from a capital missile launcher, delivering area-effect damage centered on a single point (hex) of the ground map, and radiating outward, losing damage strength over distance until it drops to zero. But between the sheer scale of these weapons—which can radiate for entire mapsheets in all directions and rise high enough to affect even airborne units several kilometers above the battlefield—and the secondary effects of electromagnetic radiation, heat, and fire, these weapons have a number of special effects rules that apply as well. These various effects will be detailed further below.

In space, nuclear weapons function like capital missiles, delivering damage on impact, followed by a potential critical hit. Once again, the scale and power of a nuclear weapon modifies these rules somewhat.

Game data for the most common tactical nuclear weapons in the *BattleTech* universe (mostly those of 500-kiloton yields or less) are listed in the *Standard Nuclear Weaponry Table*, but formulas to create custom "generic" nuclear weapons are provided as well, including those of strategic yields (1 megaton and up).

Each weapon listed has the following data:

Weapon Type (Nuclear Yield): This is the common name or type of nuclear device, and its destructive yield in kilotons (kt).

Base Impact Damage: This value is the number of standard-scale damage points the weapon delivers at the center of impact (also known as "Ground Zero"). Even though most targets are completely destroyed at this point, this value is used as a starting point from which all damage decreases as it radiates outward. Nuclear weapons on a ground map always deliver area-effect damage, so the impact damage applies equally to all units in the hex of impact.

Capital Damage (Crit Chance): These values apply when the nuclear device impacts the hull of a spacecraft while in vacuum or space. Because there is no atmosphere to carry the pressure wave and fireball, capital damage from a nuclear weapon is equal to only 1 percent (rounded down) of the weapon's normal impact damage.

If the weapon then scores a special critical hit—made by rolling 2D6 and meeting or exceeding the value presented under this column in parentheses—this damage also penetrates the armor and delivers 10 times its Capital Damage value directly to the spacecraft's SI. For instance, if a 5-kiloton Type II "Alamo" warhead hits a DropShip in space, it will deliver 10 points of capital-scale damage to the ship's hull, at which point the attacker makes a second 2D6 roll against a TN of 10+. If this roll is 9 or less, the DropShip has suffered only the hull damage and any normal damage effects that might come with it, but if the roll is 10+, the DropShip also sustains 100 points of capital damage directly to its SI, and rolls for critical effects against that (assuming the vessel has any structural integrity left).

Damage Reduction (Ground/Air): These values indicate the number of standard damage points a nuclear weapon loses for every 30-meter hex outward from the point of a ground-level impact (the value left of the slash), or an "air-burst" detonation (the value right of the slash). These numbers presume an air-burst is set off at its optimum altitude for ground damage, and thus still maintain a "ground zero" hex on the ground map that lies directly below the blast center.

Secondary Radius (Ground/Air): These values indicate the number of 30-meter hexes from the detonation point in which a unit may experience secondary effects from a ground-level impact (left of slash), or an air-burst detonation (the value right of the slash). As with damage reduction values, these numbers presume an air-burst is set off for optimum altitude for ground damage, and thus the secondary radius is based on a "ground zero" hex directly below the blast center. While the secondary effect radius is twice the radius of the area affected by any physical damage, these secondary effects will affect all units from the center point to the edge of the secondary radius.

Height (Blast/Secondary): Unlike conventional artillery attacks, nuclear weapons in atmospheres are powerful enough to affect airborne units as much as they can ground units. Thus, the height of a nuclear blast (in Low-Altitude Map Altitudes) is given here, relative to a ground-level detonation. The number to the left of the slash indicates the altitude where an airborne unit will experience heat and physical damage from the nuclear blast, and thus requires a Piloting skill roll to remain airborne (see *Airborne Units in the Blast Area*, p. 171). The number to the right indicates the maximum extent of the secondary effect radius.

Crater Depth: This value indicates the depth (in levels) a nuclear blast will reduce the terrain by at the center of the blast. Crater depth reduces by 1 level for every 2 hexes away from the detonation's center point, until it reaches a relative depth of 0. All terrain and units occupying hexes that would be reduced by a crater are automatically destroyed. Craters can only be formed by ground-level detonations; nuclear devices detonated by air-burst will not create a crater, though the damage produced will modify terrain features as normal.

RESOLVING A NUCLEAR DETONATION

The following rules apply to resolving nuclear weapon detonations, after the relevant attack rolls are made and the ordnance arrives on target.

Nuclear Attacks on and Above the Ground Map

When a nuclear attack takes place as either a ground-burst (defined here as a direct hit on the underlying terrain), or as an air-burst (above the ground, but at a low-enough altitude to maximize its area of effect against ground targets), the following rules apply to the detonation.

Ground Zero Hex: The Ground Zero Hex is defined as the target hex where a nuclear device strikes. If the attack is delivered as an air burst, the actual center of the detonation takes place on the Low Altitude map, in the hex centered above the ground map, but close enough in height to maximize its effect radius on the ground. Thus, a Ground Zero Hex on a *BattleTech* game board must be determined upon detonation of the air-burst as well, and is considered the ground point located most directly below the center of the air burst.

Any units and or buildings located within the Ground Zero Hex are completely annihilated if they do not possess enough armor (or CF points) to withstand the weapon's Impact Damage value in any single hit location.

Crater Area: Craters can only be produced by a nuclear attack that directly strikes the ground. Air-burst nuclear attacks will not produce a crater as indicated (though terrain damage may occur instead that reduces the terrain anyway). A crater caused by a nuclear ground blast instantly reduces the underlying terrain in the Ground Zero Hex by as many levels as are indicated in the weapon's Crater Depth rating. This crater becomes shallower by 1 level for every 2 hexes away from the Ground Zero Hex, until it reaches a crater depth rating of 0.

All terrain features, structures and units in terrain reduced by a crater effect are annihilated, and replaced by rubble.

For example, a Type III nuclear weapon, with a Crater Depth rating of 3, would reduce the Ground Zero Hex by 3 levels, dropping to 2 levels of crater depth at a distance of 2 hexes from the blast point,

STANDARD NUCLEAR WEAPONRY TABLE

Weapon (Nuclear Yield)	Base Impact Damage (Standard)	Capital Damage (Crit Chance)	Blast Radius* (Ground/Air)	Damage Reduction (Ground/Air)	Secondary Radius* (Ground/Air)	Height (Blast/Secondary)	Crater Depth
Elias (0.05 Kiloton)	10	0 (N/A)	9 / N/A	1 / N/A	18 / N/A	5 / 6	0
Type Ia (0.5 Kiloton)	100	1 (11+)	20 / N/A	5 / N/A	40 / N/A	6 / 8	0
Type Ib (0.5 Kiloton)	100	1 (11+)	20 / N/A	5 / N/A	40 / N/A	6 / 8	0
Type II (5 Kilotons)	1,000	10 (10+)	43 / 58	23 / 18	85 / 114	8 / 9	1
Type III (50 Kilotons)	10,000	100 (9+)	92 / 123	109 / 81	184 / 246	9 / 10	3
Type IV (500 Kilotons)	100,000	1,000 (8+)	198 / 264	504 / 378	397 / 529	10 / 10	5
AMW (3,000 Kilotons)	600,000	6,000 (N/A)	361 / 481	1,664 / 1,278	721 / 961	Row 1‡ / Row 2‡	9

*In ground hexes (1 mapsheet = 17 ground hexes/1 Low-Altitude Map hex)

**Type Ib weapons are launched only by Long Tom or Arrow IV artillery units; use the base range as indicated by the launcher

†Range in aerospace game play (Type II uses Detailed Weapon Range as AC/10; Type III, Type IV, and AMW as indicated capital missile)

‡ Effects extend into Row 1 or 2 on the High Altitude Map, as indicated.

and 1 level crater depth at 4 hexes from Ground Zero. At 6 hexes away from the center of the Type III's impact point, the terrain is no longer cratered, but all units and structures that once stood within 6 hexes of Ground Zero are destroyed.

Blast Area: A nuclear device's blast area is defined as the hexes on a playing map(s), radiating outward from the Ground Zero Hex, within which a nuclear device delivers direct damage. This physical damage mainly represents the intense heat and overpressure wave produced by the detonation, and does not include the additional effects outlined in *Secondary Effects* (see p. 171). Unless a unit, structure, or piece of terrain is annihilated at the Ground Zero Hex (or within a crater area), all such units, structures, and terrain within the blast area of a nuclear attack will suffer damage as outlined below. For units inside buildings, this damage strikes the building first, leaving any remaining damage to the units inside. Otherwise, the damage delivered by a nuclear device is considered to be area-effect in nature, and impacts all units within a hex at its full force.

To determine the damage done to a unit within the blast area, first check to see if there may be any terrain that could protect against the blast (see *Protecting Terrain*, below). If no terrain exists to stop the blast wave, find the distance between the unit and the Ground Zero Hex, then reduce the nuclear attack's Base Impact Damage value by a value equal to that number of hexes times the weapon's Damage Reduction. Be sure to use the Damage Reduction value appropriate to whether or not the weapon was a ground strike or an air-burst. (So, a unit standing 8 hexes from the Ground Zero hex of a ground-bursting Type Ia nuclear weapon would suffer 60 points of damage, rather than the full 100 the weapon generates at Ground Zero: 100 [Base Impact Damage] – [8 (hexes away) x 5 (Reduction by Hex, ground burst)], or 100 – 40 = 60.)

Distribute all damage from a nuclear weapon in 5-point clusters, using the attack direction that faces the Ground Zero Hex to determine which Hit Locations table to use.

'Mechs and vehicles within the Blast Area that survive the damage must make an immediate Piloting Skill Roll at a base +2 target modifier (plus any other applicable modifiers for damage and critical hits). 'Mechs that fail this roll immediately fall, while vehicles that fail this roll suffer random Motive System Damage. No roll is required for units without a Piloting Skill Rating.

Airborne Units in Blast Area: With a Blast Area, airborne units—including VTOLs, airships, low-flying aircraft and aerospace craft—will be subject to the same rules of the nuclear blast, but because of the differences in scale between the ground map and Low Altitude Map, the total affected Blast Area is dependent upon whether these units are operating on the standard ground map (including *Aerospace Units on Ground Map Sheets*, p. 242, *TW*), or if these are aerospace units operating on the Low Altitude Map.

For airborne units operating on the ground map sheet, determine the damage effects in the same way that ground units do: by counting the total number of ground hexes from Ground Zero, and computing damage accordingly. No additional distance is added for being airborne while operating on the ground map.

As with ground units, airborne units within a Blast Area that survive the damage must make an immediate Piloting Skill Roll (or Control Roll) with an additional +2 target modifier in addition to any modifiers caused by damage and critical hits. If this roll fails, the airborne unit immediately falls 2 Low-Altitude Map altitudes for every point by which the Piloting/Control Roll failed, and will crash if this drop places them on the ground row/altitude or lower.

Protecting Terrain: Only intervening hills or buildings strong enough to withstand the damage may block the effects of a nuclear ground burst. To gain the protection of such terrain, the "hiding" unit must be directly adjacent to (in inside) the hill or building, and the hill or building must be taller than the "hiding" unit's height *and* have sufficient CF or TF points to withstand the damage delivered against that hex by the nuclear blast. If all of these conditions are met, the "hiding" unit can make Piloting Skill check with a +4 target modifier. If this roll succeeds, the unit is successfully protected against all damage effects from the attack (but not secondary effects).

If the nuclear attack is delivered by air-burst, only units located underground, underwater, or inside a structure with sufficient CF to survive the blast damage, will be protected from damage effects.

Terrain Damage: Beyond the crater area, damage to terrain reduces all Woods and Jungle hexes by one level (from Super-heavy to Heavy to Light) for every 20 full points of damage inflicted against the hex. (This is different than the standard Terrain Conversion rules found in *Total Warfare* and *Tactical Operations* due to the fact that nuclear blasts send out a far more concentrated wave of heat, combined with a powerful overpressure wave, which dwarfs the destructive capacity of most conventional weapons.)

Woods or Jungle reduced below Light become Rough terrain, as does any non-water hex that suffers 200 points of damage or more.

Water terrain within a Blast Area—but not within a crater area—is reduced by one level for every 3,000 points of damage. Any "partially destroyed" water features immediately refill their lost space in the following turns based on the volume of water left to fill the area.

Any non-crater, non-water hexes within the Blast Area occupied by woods, buildings or units prior to a nuclear attack may be set aflame per the rules for Fire (see p. 43, *TO*); units set aflame are considered to be the target of a successful Inferno missile attack, with a duration lasting until the end of the scenario, or until the unit is submerged, whichever comes first. For purposes of this effect, consider this an attack on the terrain/building by an energy weapon. Non-Woods/non-Building hexes that qualify for this effect have a modifier of 0 for the roll.

Secondary Effects: The radioactive and electromagnetic effects of a nuclear attack disperse even farther than the blast wave. To reflect these combined effects, all units and structures that lie within a distance equal to twice the Blast Area radius (and that are not already destroyed by the initial blast) must make a 2D6 roll and consult the Secondary Nuclear Effects Table.

Regardless of the outcome, all units within the Secondary Effect Radius will suffer electromagnetic interference (EMI) for the remainder of the scenario, including a +2 to-hit modifier for all ranged weapon attacks, and a –2 modifier to all Cluster Hits Table rolls. No terrain protects against secondary nuclear effects, and all airborne units within the same radius and operating at or below the Secondary Effect Height value for the weapon (the value right of the slash in the weapon's Height column) are also affected.

Heat and Fire: In addition to the raw damage, the Blast Area of a nuclear detonation produces enough heat to start flash-fires. For any unit that tracks heat levels—including airborne units in the Blast Area of Secondary Effect Radius—raise the unit's heat scale by one-tenth of the damage the unit received from the explosion itself (to a maximum of +15 heat points).

Any flammable terrain (including non-hardened buildings) that has not been destroyed within the Blast Area and Secondary Effect Radius may catch fire (see p. 43, *TO*). To determine if this occurs, roll 2D6 for each terrain item that has not been destroyed within the Blast Area, and add one-tenth of the weapon damage value to the result. If this modified

SECONDARY NUCLEAR EFFECTS TABLE

Roll*	Results
2–4	Unit is Destroyed (crew/pilot/troopers all killed; engines shut down; all applicable unit types suffer 1D6 critical hits**)
5–6	Unarmored infantry outside buildings are killed; armored infantry/infantry within buildings suffer 50% casualties (round up); Conventional and support vehicles suffer two critical hits, plus one automatic Crew Killed critical hit; 'Mech and fighter units suffer two critical hits and must make a Shutdown Avoid Check at 10+ (Pilots of these machines suffer four hits).**
7–10	Unarmored infantry outside buildings suffer 50% casualties (round up); armored infantry and infantry within buildings suffer 25% casualties (round up); conventional and support vehicles suffer one critical hit, plus one automatic Crew Stunned critical hit; 'Mech and fighter units suffer one critical hit and must make a Shutdown Avoid Check at 6+ (Pilots of these machines suffer two hits).**
11+	Unit sustains no damage

*Add +2 to the roll for combat vehicles, 'Mechs, battle armor and aerospace craft, as well as an additional +2 for any unit within a hardened structure.

**Critical hits are resolved randomly, the locations determined for each by rolling on whichever side of the unit faces the Ground Zero Hex.

roll yields a 5 or higher, the terrain catches fire. For each hex of flammable terrain that lies beyond the Blast Area, but still exists within the nuclear attack's Secondary Effects Radius, a result of 9 or higher sets the terrain on fire.

Nuclear Weapons on the Low Altitude Map

For airborne units operating on the Low Altitude Map, damage is inflicted as long as the unit is within the blast area and is at or below the altitude of the nuclear weapon's Blast Height. To determine if an airborne unit on the Low Altitude Map is within the radius of a nuclear detonation, convert the Blast Radius corresponding to the weapon's detonation type (ground burst or air burst) to Low Altitude Map hexes by dividing it by 17 (and rounding up).

An airborne unit within the blast area and height of a nuclear detonation on the Low Altitude Map will modify the damage it sustains, compared to a unit on the ground map. To find the damage from blast areas on the Low Altitude Map, count the distance in Low Altitude hexes between the airborne unit and the hex corresponding to the weapon's detonation point. If this is 0 hexes (the airborne unit is in the same hex as the blast), treat the result as a minimum distance of 0.5. Then, multiply this Low Altitude Hex distance by 8.5 times the nuclear weapon's Damage Reduction value for an air burst. Round this final value up to the nearest whole number, and subtract it from the weapon's Impact Damage to find the damage sustained by the airborne unit.

Airborne units that sustain damage from a nuclear blast and survive must make a Piloting/Control Skill check with a +2 target modifier, in addition to all other applicable modifiers for damage and critical effects. If this roll fails, the airborne unit immediately falls 2 Low-Altitude Map altitudes for every point by which the Piloting/Control Roll failed, and will crash if this drop places them on the ground hex row/altitudes or lower.

> *For example, a* Stuka *aerospace fighter is at an altitude of 4 on the Low Altitude Map when a Type II/Alamo nuclear device, delivered by air-burst, detonates 3 hexes away from it. The Type II has a base Impact Damage of 1,000, a Blast Radius of 58 as an air burst, an air-burst Damage Reduction of 18 points, and a blast Height of Altitude 8. Because this radius, divided by 17, would cover Altitude 4 hexes (58 ÷ 17 = 3.41, round up to 4), the* Stuka *is within the radius, and its current altitude places it well within the blast zone. To determine the damage inflicted, the* Stuka*'s player multiplies the distance (3 hexes), by 8.5 x 18 (the Damage Reduction rate). This result—459 points—is reduced from the Type II's 1,000-point base damage, leaving 541 damage points that the* Stuka *will sustain. (The* Stuka *does not have that much armor in all of its hit locations put together, however, and will not survive the blast.)*

Nuclear Weapons in Space

In space, nuclear weapons must make actual contact to deliver their damage, as the effects of vacuum and the radiation shielding carried by all spacecraft sharply reduces their effectiveness. Furthermore, they must penetrate the target's armor sufficiently to make up for the loss of most of their yield in order to inflict any major damage. To reflect these effects, a successful nuclear attack against any aerospace unit in space inflicts the weapon's capital-scale damage value against the target, which is resolved as a single damage value against one hit location as per a regular weapon attack.

Like capital missiles, nuclear weapons may inflict additional damage upon a successful critical hit, and thus make a special critical check on every successful attack. The chance for a critical hit varies with each weapon type, and is represented by a value shown in parentheses under the Capital Damage column of the Standard Nuclear Weaponry Table. After the unit has recorded its damage from the strike itself, if the attack roll meets or exceeds this value on an unmodified 2D6 roll, a critical hit is scored.

Instead of inflicting a critical hit as listed on the damage location table, a critical hit from a nuclear weapon delivers additional damage to the unit equal to 10 times the weapon's normal capital-scale damage. This damage is applied directly to the target's structural integrity (SI), even if it has armor remaining. Moreover, however SI damage is inflicted by a nuclear device, this damage is never halved. If the target vessel is not destroyed by this effect, any additional critical hit effects resulting from damage to the vessel's structural integrity must be resolved normally.

Any target fortunate enough to survive the damage from a nuclear strike must make an immediate Control Roll with a +4 target modifier, but suffers no additional effects. Additionally, all units within a space hex in which a nuclear weapon was detonated will suffer electromagnetic interference (EMI) for the remainder of the scenario, including a +2 to-hit modifier for all ranged weapon attacks and a –2 modifier to all Cluster Hits Table rolls. No other nuclear weapons effects apply in space.

Nuclear Weapons at High Altitudes

On the High Altitude map, nuclear attacks against an aerospace unit use the same rules as those in space, but the attack roll suffers a –2 modifier, and any nuclear attack that hits its target automatically destroys it. If the attack occurs within 18 kilometers of the planetary

surface (the Ground Row of the High Altitude Map), resolve the attack instead as an airburst on the Low Altitude Map, and consult the relevant rules under *Nuclear Attacks on the Low Altitude Map* (see p. 172).

Special Conditions

A number of special conditions may further modify the outcome and effects of a nuclear attack or its aftermath. These special conditions are detailed below.

Alternate Environments: As demonstrated between the space, atmospheric and surface-burst effects described above, nuclear weapons have different effects based on the environment in which they are used. Underwater units may be caught in the blast radius; likewise, combat in caverns underground may lead to subsurface detonations that can affect other battlefield units in the vicinity.

While these rules do not specifically cover the numerous additional effects of detonations deep underground or underwater (many of which are left for the players to agree upon for the sake of brevity), the *Alternate Environments Table* lists the modifiers for existing nuclear weapon effects based on such conditions as underground detonations, effects on underwater units and variable atmospheric pressures.

ALTERNATIVE ENVIRONMENTS TABLE

Defending Unit is underwater and within the blast radius of…*	
(Nuclear Airburst)	Divide damage to submerged targets by their current depth x 10 (based on pre-blast depths)*
(Nuclear Ground Burst)	Divide Damage Degradation Rate by 2**
Nuclear Explosion is Subterranean…*	
(At/Within Max. Crater Depth)†	Use standard rules for ground-burst attack, centered over ground zero.
(Over 1x to 2x Max. Crater Depth)†	Treat blast as standard ground-burst attack, using only 10% of base damage at ground zero (damage degrades normally, centered over ground zero).
(Over 2x to 5x Max. Crater Depth)†	Treat area above the weapon's normal cratering area (radius of 2x crater depth, centered over ground zero) as a severe earthquake, imposing a +5 penalty on all rolls for the turn of detonation.
(Over 5x Max. Crater Depth)†	No effect.
Atmospheric Pressure‡	
Vacuum	Multiply Damage Degradation Rate by 10
Trace	Multiply Damage Degradation Rate by 3
Thin	Multiply Damage Degradation Rate by 1.5
Standard	Multiply Damage Degradation Rate by 1
High	Multiply Damage Degradation Rate by 0.67
Very High	Multiply Damage Degradation Rate by 0.5

*Units underwater and units subjected to the effect of subterranean explosions at deeper than 1x the weapon's maximum crater depth do not suffer secondary effects.
**Underwater units add 1 hex of distance from ground zero for each full 5 depths. A "ground burst" is considered to be any nuclear attack that occurs at or near the water's surface.
†Crater depth for Type I weapons is considered 1.
‡Relative to Terran standard; round up fractions.

Other effects, such as those for nuclear detonations made within alternative atmospheric compositions, may occur at the discretion of the gamemaster or with player agreement. (Fallout, another special atmospheric effect that can follow a nuclear ground-burst, is discussed below.)

Fallout: Players looking to cover even additional effects of a nuclear assault can mimic the effects of fallout in the wake of a ground-level nuclear strike, provided the impact has taken place within a planetary atmosphere density other than Vacuum or Trace (see pp. 54-55, *TO*).

Fallout represents radioactive contamination mixed with blowing ash and other particulate matter that generally follows a ground-level nuclear strike for some time afterward. This effect can be represented by combining the Blowing Sand weather condition (see p. 63, *TO*), and Toxic (Radiological) Atmosphere terrain condition (see pp. 56-57, *TO*), throughout any area within 2D6 times the nuclear attack's original Secondary Effect Radius. This condition will persist for up to 2D6 weeks, times the weapon's yield in kilotons, and may even drift further based on local weather conditions.

After this initial period, the Blowing Sand weather condition will dissipate, and the settled atmosphere will transition from Toxic (Radiological) Atmosphere to Tainted (Radiological) Atmosphere. The radiological taint conditions in the atmosphere will linger for another 2D6 months before the atmosphere returns to its previous (pre-detonation) conditions.

In addition to this, the radioactive effects of fallout may also produce persistent electromagnetic interference (EMI) in any area where fallout has occurred (see p. 55, *TO*). This EMI effect can linger for as long as 2D6 years after all other effects have dissipated.

Internal Detonations: On occasion, a boarding team, mutineer, or terrorist might detonate a nuclear weapon inside a vehicle, spacecraft, mobile structure, or building.

For spacecraft (small craft, space stations, DropShips, JumpShips, and WarShip), internal detonations are treated as an automatic critical hit per *Nuclear Weapons in Space* (see p. 172), even if the listed nuclear weapon does not normally have a critical hit chance (such as the Elias). If this detonation occurs while the target is in space, and the target's SI is completely destroyed as a result, the target is destroyed, as are all units docked with it, operating inside it, or standing upon the target's surface. Any extraneous damage or secondary effects to a spacecraft unit destroyed by an internal detonation in space is lost.

If the spacecraft unit is not in space when destroyed by an internal detonation, any damage exceeding the unit's SI value is multiplied by 10 and treated as the new Impact Damage value for the weapon before radiating outward from the unit's location, degrading at the weapon's normal rate.

For non-spacecraft units, divide the weapon's Impact Damage value equally among *all* of the unit's current internal structure locations (or, for the case of buildings, the structure's CF). If the damage destroys the unit, the total remaining damage is used as the weapon's new Impact Damage value before radiating outward. Any critical hits are resolved normally for units that are not destroyed by the internal detonation.

A nuclear weapon's Secondary Effect Radius will remain unaffected by an internal detonation as long as the target is destroyed. If a target is somehow not destroyed by a nuclear blast, the secondary effects will not radiate outward at all.

All other applicable rules for resolving an internal nuclear detonation apply normally.

Multiple Attacks: Multiple nuclear weapon attacks against a target area are resolved separately, and do not stack for purposes of determining Blast Area and secondary effects. In the wake of a nuclear attack, additional effects may be imposed on the affected region, including continuous EMI as well as nuclear fallout from ground-level detonations (see *Fallout*, above).

Salvage: Any unit destroyed by a nuclear weapon attack (be it on the ground, in atmosphere, or in space) is always considered to be unsalvageable. This applies whether the unit was annihilated in the Ground Zero hex or crater area, or was damaged to the point of destruction by blast damage.

Units crippled—but not destroyed—by the effects of a nuclear attack may be salvaged later, but will require decontamination performed on them before technicians can begin repairing and replacing parts. This decontamination cycle takes 24 hours and requires the supervising technician to make a successful, unmodified Skill check. If the roll fails, the decontamination will still succeed, but the cycle is extended by another 4 hours for every point by which the roll failed.

STANDARD NUCLEAR WEAPONS

The following rules describe several of the most iconic nuclear devices employed by the various factions in the *BattleTech* universe.

Elias

Introduced: 2792 (Federated Suns)
Available to: CI, BA
Tech Base (Ratings): Inner Sphere (E/FFFF)

The "Elias" is a modern version of the kind of decaton-yield demolition grenades that first debuted in the late twenty-first century. A rectangular device massing only 5 kilograms and capable of delivering an explosive yield of just 0.05 kilotons (5 decatons), the device could be deployed as a satchel charge by specially-equipped infantry units, or as a special landmine payload.

Game Rules: The "Elias" has no launcher or attack range to speak of, and is too small to deploy by any unit type other than infantry, or a special command-detonated landmine. The Elias always attacks as a ground-burst.

Infantry units carrying an "Elias" can deliver the weapon to their target by simply entering the target's hex and making a successful attack against it. An additional to-hit modifier of –2 applies to this attack—even if the attack chosen is that of an anti-'Mech Swarm or Leg Attack—since the Elias need not be precisely applied or jammed into vulnerable spots to do its damage. If the attack fails, the Elias fails to arm and the weapon is spent. A successfully-laid Elias arms itself immediately, and may be remote-detonated by its controlling infantry unit during any Attack Phase afterward, so long as no hostile ECM comes between the infantry unit and its armed Elias.

Elias mines use the same basic rules as a Command-Detonated Minefield (see p. 209, *TO*), for deployment and detonation purposes, but do not require a density value (since it only takes one Elias mine to deliver maximum effect).

Disarming an Elias requires a successful mine-clearing action in the hex where the Elias is presently deployed (see pp. 210-211, *TO*). An additional +2 target number modifier applies to this roll if the Elias has been placed on a mobile unit (rather than simply placed on static terrain, within a structure, as a landmine, and so forth).

Construction Rules: For infantry construction purposes, each Elias in an infantry unit is treated as a Support Weapon with a crew of 1 and 1 shot of ammunition. This means that a single squad may carry up to 2 Elias warheads at maximum. Battle armor infantry may carry 1 Elias per trooper as a special pop-up mine alternative, or delivered via a modified mine dispenser payload (which, again, can only deploy a single Elias per dispensing unit).

Type Ia/Davy Crockett

Introduced: 2412 (Terran Hegemony)
Available to: CI
Tech Base (Ratings): Inner Sphere (E/FFFF)

The versatile and compact Type Ia (also known as the Davy Crockett at various time periods) is an infantry support weapon designed to deliver a half-kiloton warhead via a heavily modified, single-shot, man-portable missile launcher. Though unpopular because even its improved range proved too limited to keep its users out of harm's way, it was most commonly mounted in light vehicles in the hopes that the added mobility could help the firing squad find an optimal firing position to launch from and then dart behind cover.

Game Rules: The Type Ia (or Davy Crockett) is a one-shot infantry-portable artillery weapon that includes a special launch system mounted on a towable cart for mobility. While the warhead itself is scarcely bigger than a single SRM, it features a heavier booster-rocket apparatus to give the weapon greater range. The weapon requires a full 7-man squad to deploy and fire, so platoons reduced to fewer than 7 troopers cannot fire a Type Ia weapon.

An infantry unit with a Type Ia may make a special attack with the weapon only once per scenario. The infantry unit must not have moved or executed an anti-'Mech attack in the same turn it fires its nuclear weapon, but the unit may make standard weapon attacks as normal. The Type Ia uses the rules for standard artillery to target a hex and fire from on- or off-board, including all relevant artillery rules for shell flight times and scatter.

A Type Ia/Davy Crockett weapon cannot be used to deliver an air-burst.

Construction Rules: The type Ia and its launch system may only be transported by a motorized or mechanized/wheeled conventional infantry units. Though the weapon counts as a support weapon with a crew requirement of 7, only one Type Ia may be carried by a single conventional infantry platoon. The mobile launcher and its warhead together add 3 tons to the base platoon weight.

Type Ib/Davy Crockett-M

Introduced: 2480 (Terran Hegemony)
Available to: BM, IM, CV, SV, AF, CF, SC, DS, MS
Tech Base (Ratings): Inner Sphere (E/FFFF)

The Type Ib uses the same half-kiloton warhead as the infantry-fired Ia version, but is designed to be delivered via heavy artillery ordnance instead of a small, short-range vehicle. Though it originally

debuted as an augment shell type for Long Tom artillery systems, its later adaptation for the Arrow IV missile battery gave it the eventual nickname of Davy Crockett-M.

Game Rules: The Type Ib is available for the Long Tom and Arrow IV artillery weapon systems. Both are treated as non-homing artillery, and possess the same range and attack methods as the standard rounds used by the weapon system that fires them. Both also apply the applicable artillery rules for their firing units with respect to shell flight times and the scatter effects of a missed shot.

Like the Type Ia, the Type Ib Davy Crockett-M cannot be used to deliver an air-burst.

Critical hits to ammunition slots containing Type Ib/Davy Crockett-M munitions will cause them to explode as a standard ammo rounds; they will not set off a nuclear detonation.

Construction Rules: Nuclear ordnance for Long Tom and Arrow IV artillery weapons are specially modified for their purpose. As a result, a ton of nuclear ordnance in either weapon provides only 1 shot. Beyond this, Type Ib munitions have no further impact on unit construction.

Type II/Alamo

Introduced: ca. 2200 (Terran Alliance)
Available to: CF, AF
Tech Base (Ratings): Inner Sphere (E/FFFF)

The Type II nuclear missile (later codenamed Alamo) is a special fighter-carried space-to-space (or air-to-ground) nuclear ordnance designed for use by aerospace and conventional fighters. With its five-kiloton payload, the warhead is powerful and fairly lightweight, which makes it equally useful in devastating sprawling ground fortifications as it is in wiping out or crippling all but the largest and most heavily armored WarShips in history. Indeed, during the Age of War, early Succession Wars, and the Jihad, the Type II and its modern equivalents often served as a weapon of choice in dealing with fleet assets and ground-based rallying points alike.

Game Rules: The Type II/Alamo nuclear missile is a special ordnance that can be carried by fighters like an external bomb, but which actually can be fired air-to-air (or space-to-space) as a single shot weapon. As external ordnance, a single Type II occupies 10 bomb slots, and imposes a corresponding loss of 2 Thrust Points. Units capable of using external ordnance may carry multiple Type II/Alamo missiles, as long as they have the bomb slots and Thrust to do so.

When fired air-to-air (or in space), the Type II/Alamo resolves its attack roll as if it were a capital missile weapon, but can only attack targets up to the medium standard-scale range bracket (if using detailed weapon ranges, the Type II has the range profile of a standard Autocannon/10). An additional –2 to-hit modifier applies for air-to-air attacks made with this weapon while on the High Altitude map. A Type II/Alamo missile cannot be fired across the space-atmosphere interface.

If advanced point defense rules are in play (see p. 96, *SO*), the Type II/Alamo may be engaged by point defenses as if it were a Barracuda capital missile, with 2 points of capital-scale armor. A successful attack by a Type II/Alamo in space, or while on the High Altitude map, is resolved as per the rules for a nuclear weapon in space. A successful attack in the air at low altitude will not only affect the airborne target in the same fashion as a target struck in space, but will also affect any targets directly below the airborne target's hex as if it were an air-burst detonation over the corresponding ground mapsheet. For simplicity, this air-burst is considered to be centered over said ground mapsheet.

When fired air-to-ground, the Type II/Alamo is treated as an artillery attack made from as many mapsheets away as the attacking unit was flying at the moment the weapon was fired. If the attacking air unit was directly over the mapsheet at the time, the attack is resolved as per the rules of an on-board artillery strike; otherwise, the missile is treated as an off-board artillery strike, with a shell flight time of 10 mapsheets per turn. Furthermore, at the time of firing a Type II/Alamo warhead air-to-ground, the attacker must designate whether the weapon is armed for an air-burst or ground-burst attack. (Type II/Alamo nuclear weapons fired at targets in flight, or in space, are always set for contact detonation.)

A missed shot by a Type II/Alamo in space has no further effect in gameplay. Missed shots against airborne targets on the High Altitude map will travel to the weapon's maximum range, and then detonate in the air at whatever altitude they were fired, affecting only the units in that hex (if any). Missed shots aimed at the ground, or fired on the Low Altitude map, will scatter as per a missed artillery attack.

Critical hits to bomb slots containing a Type II/Alamo missile will not set off a nuclear detonation.

Construction Rules: Type II/Alamo nuclear ordnance is treated as a 5-ton bomb that can be carried either in internalized bomb bays of equal or greater size, or on external hardpoints such as those that conventional and aerospace fighters automatically possess. Beyond this, Type II nuclear munitions have no further impact on unit construction.

Type III/Santa Ana

Introduced: ca. 2412 (Terran Hegemony)
Available to: SV, SC, DS, JS, WS, SS, MS
Tech Base (Ratings): Inner Sphere (E/FFFF)

The Type III nuclear device (also known today as the Santa Ana) is a modified form of the White Shark-class capital missile modified to carry a fifty-kiloton warhead. Ideal for use by WarShips and surface-to-orbit defense batteries, these missiles were considered "surgical strike nukes", and were among the most common WMDs employed throughout the early Succession Wars.

Game Rules: The Type III can be launched by any unit that carries a White Shark or AR10 capital missile launcher. The missile weighs as much as a standard White Shark, and follows all normal rules for executing attacks against other units or as orbit-to-ground fire. Against any ground targets, a Type III/Santa Ana must designate at the time of firing whether it has been armed for an air-burst or ground-burst attack. (Type III/Santa Ana nuclear weapons fired at targets in flight, or in space, are always set for contact detonation.)

An alternative surface-to-surface, long-range form of the Santa Ana also exists that consists of a single 40-ton missile and its 160-ton launcher mechanism. This launcher-based version resolves its attack as a non-homing artillery strike with a maximum effective range of 10,000 mapsheets (about 5,000 kilometers). The shell-flight times for these weapons are resolved as those of a cruise missile (taking 1 turn, plus 1 additional turn for every 5 full mapsheets traversed, before impact). As with the capital missile versions, the launcher version of the Type III must be declared as armed for either an air-burst or ground-burst attack at the time of firing.

If advanced point defense rules are in play (see p. 96, *SO*), the Type III/Santa Ana may be engaged by point defenses as if it were a White Shark capital missile, with 3 points of capital-scale armor. A successful attack by a Type III/Santa Ana in

space, or while on the High Altitude map, is resolved as per the rules for a nuclear weapon in space. A successful attack in the air at low altitude will not only affect the airborne target in the same fashion as a target struck in space, but will also affect any targets directly below the airborne target's hex as if it were an air-burst detonation over the corresponding ground mapsheet. For simplicity, this air-burst is considered to be centered over said ground mapsheet.

A missed shot by a Type III/Santa Ana in space has no further effect in gameplay. Missed shots against airborne targets on the High Altitude map will travel to the weapon's maximum range, and then detonate in the air at whatever altitude they were fired, affecting only the units in that hex (if any). Missed shots aimed at the ground, or fired on the Low Altitude map, will scatter as per a missed artillery attack.

Critical hits to ammo slots containing Type III/Santa Ana missiles will not set off a nuclear detonation.

Construction Rules: Type III/Santa Ana missiles may be loaded as alternative munitions for any White Shark or AR10 capital missile launcher. Each Type III nuclear missile weighs the same as a corresponding White Shark.

Type III/Santa Ana surface-to-surface launchers are one-shot weapons that can be mounted on support vehicles, DropShips, or mobile structures (or housed within static structures). The launcher and its missile, combined, weigh a total of 200 tons.

Type IV/Peacemaker

Introduced: ca. 2300 (Terran Hegemony)
Available to: SV, SC, DS, JS, WS, SS, MS
Tech Base (Ratings): Inner Sphere (E/FFFF)

The largest of the tactical nuclear weapons, the Type IV (sometimes known as the Peacemaker) is a bigger missile based upon the Killer Whale missile that shares much in common with the Type III weapon. Like the smaller Type III, this half-megaton nuclear device may be launched from ship- or ground-based capital missile launchers, or from a special strategic-range, surface-to-surface launcher. The convenience of making it usable with extant capital launchers made it as easy to deploy as a Type III in the early Succession Wars, but the missile was often reserved for orbital bombardment duty, rather than ship-to-ship combat.

Game Rules: The Type IV can be launched by any unit that carries a Killer Whale or AR10 capital missile launcher. The missile weighs as much as a standard Killer Whale, and follows all normal rules for executing attacks against other units or as orbit-to-ground fire. Against any ground targets, a Type IV/Peacemaker must designate at the time of firing whether it has been armed for an air-burst or ground-burst attack. (Type IV/Peacemaker nuclear weapons fired at targets in flight, or in space, are always set for contact detonation.)

An alternative surface-to-surface, long-range form of the Peacemaker also exists that consists of a single missile and a 210-ton launcher mechanism. This launcher-based version resolves its attack as a non-homing artillery strike with a maximum effective range of 20,000 mapsheets (about 10,000 kilometers). The shell-flight times for these weapons are resolved as those of a cruise missile (taking 1 turn, plus 1 additional turn for every 5 full mapsheets traversed, before impact). As with the capital missile versions, the launcher version of the Type IV must be declared as armed for either an air-burst or ground-burst attack at the time of firing.

If advanced point defense rules are in play (see p. 96, *SO*), the Type IV/Peacemaker may be engaged by point defenses as if it were a Killer Whale capital missile, with 4 points of capital-scale armor. A successful attack by a Type IV/Peacemaker in space, or while on the High Altitude map, is resolved as per the rules for a nuclear weapon in space. A successful attack in the air at low altitude will not only affect the airborne target in the same fashion as a target struck in space, but will also affect any targets directly below the airborne target's hex as if it were an air-burst detonation over the corresponding ground mapsheet. For simplicity, this air-burst is considered to be centered over said ground ma86psheet.

A missed shot by a Type IV/Peacemaker in space has no further effect in gameplay. Missed shots against airborne targets on the High Altitude map will travel to the weapon's maximum range, and then detonate in the air at whatever altitude they were fired, affecting only the units in that hex (if any). Missed shots aimed at the ground, or fired on the Low Altitude map, will scatter as per a missed artillery attack.

Critical hits to ammo slots containing Type IV/Peacemaker missiles will not set off a nuclear detonation.

Construction Rules: Type IV/Peacemaker missiles may be loaded as alternative munitions for any Killer Whale or AR10 capital missile launcher. Each Type IV nuclear missile weighs the same as a corresponding Killer Whale.

Type IV/Peacemaker surface-to-surface launchers are one-shot weapons that can be mounted on support vehicles, DropShips, or mobile structures (or housed within static structures). The launcher and its missile, combined, weigh a total of 260 tons.

Asset Management Weapon (AMW)

Introduced: 2790 (Free Worlds League)
Available to: SV, SC, DS, JS, WS, SS, MS
Tech Base (Ratings): Inner Sphere (E/FFFF)

Though it was quickly followed by identical adaptations in other realms, the Asset Management Weapon (AMW) was a three-megaton strategic weapon first introduced by House Marik during the First Succession War. Used extensively in the "economic warfare" of the First War, this devastating weapon placed its warhead within a Barracuda capital missile housing, but at the cost of all space-to-space guidance systems and armor-penetration aids found in the conventional missile.

While the AMW was effectively useless in ship-to-ship combat, it provided the means to saturate entire continents at will. AMWs were often deployed in the thousands against strategically important planets, typically from squadrons of converted freighter DropShips (known as "boomers") that carried a dozen or so launchers and large magazines.

Game Rules: The AMW can be launched by any unit that carries a Barracuda or AR10 capital missile launcher. The missile weighs as much as a standard Barracuda, but cannot execute attacks against other units in space or atmosphere; it can only be used for an orbit-to-surface fire. Against ground targets, an AMW must designate at the time of firing whether it has been armed for an air-burst or ground-burst attack.

If advanced point defense rules are in play (see p. 96, *SO*), the AMW may be engaged by point defenses as if it were a Barracuda capital missile, with 1 point of capital-scale armor.

A missed shot by an AMW will scatter as per a missed artillery attack.

GENERIC NUCLEAR CRITICAL HIT TABLE

Yield (in kt)	Critical Hit
Under 0.5	NA
0.5 to 4.99	11+
5 to 49.99	10+
50 to 149.99	9+
150 to 749.99	8+
750 to 2,499.99	7+
2,500 to 9,999.99	6+
10,000 to 29,999.99	5+
30,000 and Over	4+

Critical hits to ammo slots containing AMW missiles will not set off a nuclear detonation.

Construction Rules: AMW missiles may be loaded as alternative munitions for any Barracuda or AR10 capital missile launcher. Each AMW nuclear missile weighs the same as a corresponding Barracuda.

There is no surface-to-surface launcher analog for the AMW.

Custom (Generic) Nuclear Weapons
Introduction: Pre-Spaceflight
Available to: See Rules
Tech Base (Ratings): Inner Sphere (C/FFFF)

In addition to the standard nuclear weapons described earlier, players may wish to create their own custom-yield nuclear devices. In truth, virtually every suitably industrialized and well-populated world in the *BattleTech* setting is potentially capable of developing its own nuclear arsenal, while delivery systems possible for such warheads can range from suitcase-portable charges to silo-launched ballistic missiles.

Though these weapons are also bound by the difficulties in acquiring any WMDs (see *Acquiring WMDs in Campaign Play*, pp. 166-168), the methods for how these weapons are constructed, and what their deployment processes might be, will be left largely up to the players' discretion.

The game rule values for the warhead itself, however, may be constructed with the aid of the Generic Nuclear Weapons Formulas provided here. These formulas simply require the player to select a desired destructive yield (from 0.01 kilotons to 50 megatons), at which point the relevant game rule values for the weapon's detonation are then resolved. Because these formulas include the use of fourth-root (or "to the power of 1/4") and cube-root (or "to the power of 1/3") math, scientific calculators or spreadsheet programs capable of these features are a must.

Warhead Weights: As noted in the formulas, the weight of a given warhead, regardless of the technology rating used in its construction, does not include its launch systems or any missile housings, as such delivery methods are ultimately up to the players. Players seeking to maintain proper continuity with existing *BattleTech* weapon systems must therefore add the weight of any existing delivery system similar (or superior to) the deployment method they wish to use. A nuclear warhead without any extra mass, for example, may only be employed as a basic "demolitions charge", placed and armed by infantry on site, while one meant to be fired from an artillery weapon must weigh at least as much as a single shot from that weapon.

GENERIC NUCLEAR WEAPONS FORMULAS

Where Yield = Weapon's rated explosive yield (in kilotons of TNT, "kt")
Maximum Yield = The maximum yield for any single nuclear weapon is 50 megatons (50,000 kt)

Base Impact Damage (Standard Scale) = 200 x Yield (in kt)
Capital Weapon Damage (Capital Scale) = 2 x Yield (in kt)

Impact and Primary Area of Effect (in 30-meter hexes)
Crater Depth = Yield ^ (1/4)*
Blast Radius (Ground Burst) = 25 x [Yield ^ (1/3)]*
Blast Radius (Air Burst) = Ground Burst Blast Radius x 1.33
Damage Degradation (by hex)
Ground Burst = Base Impact Damage ÷ Blast Radius**
Air Burst = (Base Impact Damage ÷ Blast Radius) x 0.75**
Secondary Area of Effect (in 30-meter hexes)
Secondary Effect Radius (Ground Burst) = Blast Radius x 2**
Secondary Effect Radius (Air Burst) = Blast Radius x 2.67**
Secondary Effect Height = Secondary Effect Radius (Air-Burst) in meters; consult Low-Altitude Table, p. 81, TW.†
Additional Values
Blast Effect Height = Secondary Effect Height (in meters) ÷ 2; then consult Low-Altitude Table, p. 81, TW.†
Critical Hit Chance = See Generic Nuclear Critical Hit Table
Warhead Weight (Tech Rating C) = 15 kg + [Yield (in kt) x 2 kg]‡
Warhead Weight (Tech Rating D) = 10 kg + [Yield (in kt) x 1 kg]‡
Warhead Weight (Tech Rating E+) = 5 kg = [Yield (in kt) x 0.5 kg]‡

*Round these figures down to nearest whole number (to a minimum 0)
**Round these figures down to nearest whole number (to a minimum 1)
†For any heights of 18,000 meters or more, divide the result by 18,000, and round up; this is the number of High-Altitude Map hex rows instead.
‡Does not include weight of launchers, missiles, delivery systems, or fuel. Value provided for cargo space only.

BIOLOGICAL AND CHEMICAL WEAPONS

Rules Level: Experimental
Available to: Various (See Rules)
Tech Base (Ratings): Any (See Rules)

Biological and chemical weapons encompass a wide array of different agents, delivered through a variety of means, designed to impair, injure or kill opponents without the accompanying mass devastation caused by heavy weapons fire. Throughout recorded history, combatants have employed poisons and disease against their enemies in an attempt to reduce their ability to attack or defend without risking their own soldiers in combat, though the use of these special weapons did not begin to mature until the early decades of the twentieth century, when the first truly effective chemical weapons were deployed on the battlefield. In the centuries since, biological and chemical weapon technologies—as well as those designed to defeat the effects of these weapons—have advanced even further.

Of course, so too have the rules and conventions on the use of biological and chemical weapons advanced. By the end of the twentieth century, research and development efforts had split down two very different paths: non-lethal weapons designed to subdue or incapacitate their targets (and thus minimize bloodshed while avoiding charges of war crimes), and toxic weapons intended primarily to kill or inflict suffering. The former remain accepted tools of military and civil authorities alike throughout the centuries and across the stars, while the latter have been classified as weapons of mass destruction since before mankind's exodus from Terra.

BIOLOGICAL AND CHEMICAL WEAPON GAME RULES

The following rules incorporate the use of biological and chemical weapons into their *BattleTech* games. As with nuclear weapons, the methods for making an attack with a biological or chemical weapon can vary between delivery systems, with many dropped as bombs, or used as alternative warheads in missiles. Some of the more insidious versions, however, may not even have a delivery method, and must be resolved more as an abstracted event, rather than a proper battlefield weapon attack.

Note: The rules for these weapons will generally refer to their effects against individual units on the battlefield, where most games would be played. Players may alternatively choose to roll any illness effects that apply to infantry units and other units with multiple crewmen by each individual member, but doing so will dramatically increase the time it takes to resolve them.

Acquisition

When using the *Acquiring WMDs in Campaign Play* rules (see pp. 166-168), each biological or chemical weapon a force acquires is equal to a single "use" of the weapon type on the battlefield. For weapons delivered by alternative munitions, this is equal to a single ton of alternate ammunition. For infantry units, this is equal to 50 grenades or alternate infantry-grade ordnance. For other delivery options, this is equal to a single deployment.

Weapon Data

A full description of the nature and rules for each of the five general classes of chemical and biological weapons will follow below, but all receive several basic values as shown in the Biological and Chemical Weapons Table.

Effects Resistance TN (Partial / Full): This represents the target numbers required for an unprotected unit's personnel to resist the effects of a chemical or biological weapon, with the number to the left of the slash indicating the minimum roll needed to at least partially resist the weapon's effects, and the number to the right indicating the roll needed to completely resist the weapon's effects. A unit whose unprotected personnel roll less than the Partial value will suffer the weapon's full effects. Unit Skill ratings can also affect this TN, with units rated Green (or worse) suffering a +1 TN modifier, while units rated Elite (or better) receive a –2 TN modifier.

Non-Weapon Modifier: This indicates the additional TN modifier that applies if the weapon is delivered via indirect (non-weaponized) means.

Time to Effect: This defines how long it takes, in game turns, before crews and personnel exposed to a given chemical or biological weapon begin to suffer the weapon's effects. An entry of "Immediate" in this column indicates that the weapon's effects will manifest as soon as the unit comes into contact with the weapon and fails its Effects Resistance roll. Otherwise, the time indicates the number of turns (or hours) that the weapon takes to incubate. The effects will then manifest at the start of the first game turn after this time has elapsed.

Persistence: This indicates how long each unit's crew or personnel will suffer a weapon's effects after failing an Effects Resistance roll. Targets that failed their Effects Resistance roll will suffer full effects for the entire period indicated by the weapon's Persistence, after which they will experience partial effects for the same length of time. Targets that suffer only from partial effects will also only suffer for the

BIOLOGICAL AND CHEMICAL WEAPONS TABLE

Weapon Class	Effects Resistance TN (Partial / Full)*	Non-Weapon TN Modifier	Time to Effect	Persistence	Contamination	Stacking Effect
Class I	4 / 8	–3	Immediate	1D6 + 2 turns	3D6 + 6 turns	N
Class II	2 / 5	–2	Immediate	1D6 days	3D6 + 6 turns	N
Class III	4 / 6	+0	1D6 turns	4D6 days	2D6 + 3 turns	N
Class IV (Chemical)	4 / 8	+1	1D6 + 2 turns	1D6 days	2D6 days	+1x (max. +6x)
Class IV (Biological)	5 / 9	+1	1D6 + 2 hours	1D6 days	1D6 x 8 hours	+1x (max. +6x)
Class V	2 / 6	+2	2D6 x 12 hours	2D6 days	4D6 months	+3x (max. +12x)

*Apply the following TN modifiers for unit Skill rating: Green +1, Regular +0, Veteran –1, Elite –2.

length of time indicated by the weapon's Persistence, after which the effects will wear off entirely.

Contamination: This represents the period in which a chemical or biological weapon remains potent once it is used, as well as how long any protective gear or vehicles exposed to such weapons pose a potential health risk to any other technicians or personnel who come into contact with them. Any personnel who come into contact with a contaminated area or unit must make a fresh Effects Resistance roll.

Stacking Effect: This indicates a special impact that can be attained at the higher classes of chemical and biological weapons, where additional doses increase the Persistence and Contamination cycles. Stacking chemical or biological weapons does not change the target number or modifiers for any Effects Resistance checks, but instead alters the base amount of time the weapon's Persistence and Contamination periods last. This additional time is expressed as an added multiple of whatever time period is rolled up, with a maximum limit for multiple weapon attacks. Thus, a notation of "+1x (max +6x)" on a Persistence of 1D6 days means that the player would first roll 1D6 to find the number of days the weapon's effects would persist normally, then add the same amount again on a second dose, and again on a third and so forth until the weapon maxes out at a total of 7 times its rolled up Persistence duration.

In addition to these details from the Biological and Chemical Weapons Table, each weapon type described below will define its game play effects for full and partial exposure, as well as the specific measures that those potentially affected by the weapon can use to counter these effects.

Weapon Delivery

Under these rules, all biological and chemical agents may be delivered via any missile, grenade, mortar, or artillery weapon capable of delivering smoke munitions, including those used by infantry. These chemical munitions behave just like their smoke round equivalents (see pp. 352-375, *TO*), but are designed to disperse over a wider area and produce less obscurant. To reflect this, chemical weapon ordnance increases its radius by 1 hex over its equivalent smoke munitions, and generates Light Smoke effects in the affected hexes (even if the munitions would ordinarily deliver Heavy Smoke). Regardless of the radius, chemical smoke rises 3 levels above the underlying terrain.

All units entering or moving through hex affected by biological or chemical weapons fire without adequate protection will be affected by the weapon in accordance with the detailed rules for its type.

Non-Weapon (Indirect) Delivery

Ranged weapons are not the only way to deliver some of these agents. Indeed, many biological agents work better if they are *not* delivered by a ranged weapon. While all of the biological and chemical agents presented in these rules can be delivered via non-weapon means, many become much less potent due to various factors. To reflect this, units exposed to a chemical or biological weapon that was delivered via such indirect means will apply the appropriate Non-Weapon Modifier to their Effects Resistance target numbers.

Non-weapon delivery methods are indirect by nature, and can be as varied as poisoning a local reservoir with a heavy dose of the chemical weapon, or surreptitiously infecting several individuals to act as "carriers" before setting them loose to spread their infection across a larger population. Because of this, the specific means for resolving a non-weapon delivery of chemical or biological weapons must be left up to the players; the process can be as simple as a single die roll, or as complex as performing an objective-driven scenario where the act of successfully capturing the objective instead means that the biological or chemical weapon has been properly released.

For game purposes, a non-weapon delivery that succeeds must apply all battlefield effects prior to the start of the scenario. If the non-weapon delivery fails, no battlefield effects occur.

When determining the area of effect of a chemical or biological weapon delivered by non-weapon means, triple the weapon's usual effect radius.

Protective Gear

In general, modern armies ensure that their combatants are protected against the most common biological and chemical weapons they might encounter in the battlefield. BattleMech and aerospace pilots, and crews of combat vehicles, all remain protected from the immediate effects of biological and chemical weapons—so long as they keep their cockpits and crew compartments sealed (although support vehicles and IndustrialMechs require special Environmental Sealing modifications).

Conventional infantry and other ground combat personnel typically possess gear that can easily protect them against many such attacks, but only if they have enough warning to don that gear. This gear is bulky, however, and takes time to equip on the fly. The process of donning protective gear in game play will render any unit that is ordered to do so—including conventional infantry and support vehicle crews—unable to move or fire for 1D6 ÷ 2 turns (rounded up). Furthermore, the bulk, limited range of motion, and limited peripheral vision that generally comes with all forms of environmental protective gear, will impart a +1 target modifier to all skill-based rolls the unit must perform while in such gear, including those for all weapon and physical attacks, as well as piloting skill checks and special operations such as minesweeping. Conventional infantry units in protective gear will also lose 1 Ground MP from their normal movement rates, to a minimum movement of 1 MP.

Any vehicle, 'Mech, ProtoMech, fighter, or battle armor unit that suffers a complete loss of armor in its pilot's or crew's location will be exposed to a biological or chemical agent as soon as they end a Movement Phase within an area affected by such weapons. This includes the loss of armor to any location (other than rotors) on any vehicle type, the reduction of any battle armor trooper to a single point (which represents the warrior himself), the loss of all torso armor on a ProtoMech, the loss of all nose armor on a fighter, or the loss of all head armor on a 'Mech. 'Mechs and fighters that suffer a Life Support critical hit are likewise exposed to the effects of a chemical or biological agent.

Decontamination

Even if a unit is unaffected by a biological or chemical attack because of protective gear, the pilot, crew or soldiers may be susceptible to the effects of these weapons unless they decontaminate their 'Mech, vehicle, aerospace craft or protective gear before exiting the unit or doffing their protective gear. Decontamination is performed by specialized Engineer (or Combat Engineer) squads in XCT protective gear (see p. 351, *TO*), and requires only a successful Maintenance Check appropriate to the unit type being treated (no check is required for treating buildings and terrain). A failed decontamination check doubles the clean-up process time.

Pilots, crews and infantry that exit contaminated units or doff contaminated protective gear before the Contamination period of the weapon has elapsed, may potentially suffer the weapon's effects. When checking for these effects, the unit must make the same Effects Resistance roll they would for direct exposure to the weapon, but with a –2 target modifier.

BIOLOGICAL AND CHEMICAL WEAPON CONSTRUCTION RULES

Weapon-delivered chemical and biological agents are treated as a variant form of smoke ammunition, and use the same weight and shots-per-ton values as smoke munitions for the appropriate missile launcher, mortar, grenade launcher, artillery weapon, or bomb ordnance used.

Non-weapon delivery versions of these agents weigh 1 ton per "dose" for Class I, II, and III weapons, 3 tons per dose of Class IV weapons, and 5 tons per dose of Class V weapons.

CHEMICAL AND BIOLOGICAL WEAPON CLASSES

The following rules describe the six main classes of biological and chemical weapons employed at various times throughout the history of the *BattleTech* universe.

Class I (Non-Lethal Irritants and Subduing Chemicals)

Introduced: Pre-Spaceflight
Tech Base (Ratings): Both (A/CCCC)

Class I weapons are legal, non-lethal chemical agents that are commonly used by police and other security forces when dealing with disruptive groups, and when those persons must be dispersed or subdued without injuring or killing them.

The two most common Class I agents include "tear gas" and "knock-out gas". Though the effects can vary within this range, "tear gas" is an irritant that induces uncontrollable coughing and/or vomiting, combined with serious discomfort on all exposed skin, eyes, and mucus membranes (as well as around the eyes, nose, and mouth), while "knock-out gas" is a subduing chemical mix intended to render all targets temporarily unconscious or stunned.

Game Rules: Full "tear gas" effects apply a +4 target number modifier to all actions for the duration of the weapon's Persistence, to reflect the debilitating effects as the target is blinded and/or unable to speak or hear clearly. Targets without military or police training must immediately make a special Morale check at an additional +4 to the TN, or break into a panic (see pp. 211-213, *TO*). Partial "tear gas" effects apply a +2 target number modifier to all actions, and the Morale check required of targets without military or police training must be made at a +2 modifier. Units panicked by chemical or biological weapons move as fast as possible in a random direction until they have exited the area of effect.

Full "knock-out gas" effects render the crew and personnel of any affected targets immediately unconsciousness for the duration of the weapon's Persistence, rendering them unable to move, attack, or undertake any actions requiring a crew. Furthermore, such targets will automatically fail any Piloting or Control Rolls required of them as long as they remain affected. Partial "knock-out" gas effects leave the unit with a "hazy" or stunned sensation, applying a +2 target modifier to all actions (including Piloting, Gunnery, and so forth). Targets that can suffer pilot/crew hits temporarily act as if they have suffered 2 such hits while under partial knock-out gas effects, while conventional infantry units suffer 2D6 "casualties" for the duration of the weapon's Persistence. If either of these latter effects would render the unit destroyed, the unit is removed from play, but can be recovered later.

Countermeasures: Personnel who don protective gear or are within a sealed environment can completely avoid the effects of Class I agents. Simple "gas mask"/filter masks will not be sufficient to negate effects entirely, as these agents are also able to enter the body through pores in the skin. If only filter masks or gas masks are used, exposed personnel will receive a –1 target modifier to the Effects Resistance roll.

Class II (Fast-Acting, Light Injurious Chemicals)

Introduced: Pre-Spaceflight
Tech Base (Ratings): Both (B/CCCC)

Class II agents are the lowest level of agents to actually be classified as WMDs. These are typically fast-acting chemical agents designed to injure or otherwise incapacitate their targets, but without any specific goal of leaving them alive afterward. These weapons often leave their targets with horrible external injuries or widespread internal damage. Those who survive Class II chemical weapon attacks are rarely ever the same again, physically.

Game Rules: Full Class II weapons initially apply a +4 target modifier to all action checks made by the target units (including Piloting, Gunnery, and so forth) before rendering these targets completely incapacitated 1D6 turns after the initial effects begin. Units that track pilot hits apply 4 such hits to their pilots/crews as well. Any targets incapacitated by a Class II chemical or biological weapon are removed from play.

Targets affected by partial Class II weapon effects are subject to a +2 target modifier to all skill checks, and any targets that can suffer pilot or crew hits suffer two such hits. A partial Class II weapon effect will not render crews or personnel incapacitated over time.

After the battle, any targets incapacitated or rendered removed from play as an immediate result of the weapon's damage must make a second Effects Resistance roll with an added –4 target modifier. If this roll fails, the incapacitated unit's personnel have succumbed to the weapon and died before medical aid could stabilize them. For infantry units that fail this second roll, roll 4D6 and subtract that many troopers from the unit's original strength to determine how many actually survived the attack.

Any targets that survive a Class II chemical or biological weapon attack, but which still suffered any effects from such weapons, must make one final Effects Resistance roll after the end of the scenario. If this final roll succeeds, these personnel will suffer no lingering effects and can return to duty after the weapon's Persistence period passes and they undergo decontamination. If this roll fails, however, these personnel suffer a permanent +1 target modifier to all skills, as well as a –1 Initiative modifier if commanding a force.

Countermeasures: Personnel must don protective gear or be within a sealed environment to avoid the effects of Class II agents. Simple "gas mask"/filter masks will not be sufficient to negate effects entirely, as these agents are also able to enter the body through pores in the skin. If only filter masks or gas masks are used, exposed personnel will receive a –1 target modifier to the Effects Resistance roll.

Class III (Fast-Acting, Lethal Chemicals)

Introduced: Pre-Spaceflight
Tech Base (Ratings): Both (B/CDCD)

Class III agents are fast-acting bio-chemical weapons, designed to kill their targets immediately. Such agents include "nerve gas" and other highly toxic poisons. Those who survive Class III attacks are often left with severe physical impairments and other lasting health problems.

Game Rules: A failed Effects Resistance roll against a Class III chemical or biological weapon will kill all crew and personnel in an affected unit at the end of its Time to Effect cycle (1D6 turns), unless a medical team can administer the proper counter-agents in time (see *Countermeasures*, below). Between the time of exposure and death, affected targets suffer the effects of a partial resistance to the Class III weapon.

Personnel that manage only partial Effects Resistance result against Class III weapons (or who have not yet perished from a failed result) suffer a +3 target modifier to all skill checks, and a –2 Initiative roll modifier if commanding a force. Furthermore, targets that can suffer pilot/crew hits sustain 3 such hits from a Class III partial resistance result. (If this results in killing the pilot or crew, then the pilot or crew has died and the unit is treated as destroyed.)

Any targets that survive after suffering any effects from a Class III agent must make one final Effects Resistance roll after the end of the scenario. If this final roll succeeds, these personnel will suffer no lingering effects and can return to duty after the weapon's Persistence period passes and they undergo decontamination. If this roll fails, however, these personnel suffer a permanent +1 target modifier to all skills, as well as a –1 Initiative modifier if commanding a force.

Countermeasures: Personnel must don protective gear or be within a sealed environment to avoid the effects of Class III agents. The effects of Class III agents can potentially be countered through the immediate injection of a counter-agent; these counter agents are typically a mixed "drug cocktail" designed to counteract the worst effects of most Class III weapons, but are not issued to troops in the field unless a WMD attack is expected as they have limited "shelf lives" and, if injected in a person not affected by a Class III agent, could in fact cause serious medical problems above and beyond any inflicted by WMD use.

One Class III counter-agent dose (enough for one person) costs 100 C-bills, and will only last for 7 days if not continuously stored in a controlled environment. If a person exposed to a Class III agent is injected with a Class III counter-agent between exposure and the randomly rolled Time to Effect, that individual immediately makes a second Effects Resistance roll with a +2 modifier applied to the target number. The effects for the second result stand, even if they are worse than the first (reflecting a bad reaction or a counter-agent that has lost its potency).

Any individual administered a Class III counter-agent without first being exposed to a Class III chemical or biological weapon will suffer the partial effects of a Class II agent as a result (see p. 180).

Class IV
(Slow-Acting, Debilitating Chemical/Biological Toxin)

Introduced: Early Spaceflight

Tech Base (Ratings): Both (C/DDDD)

Class IV weapons are slow-acting bio-chemical agents designed to taint air and water supplies and thus be ingested (or inhaled) over a relatively lengthy period. Usually based on engineered viruses and bacteria or weaponized versions of particularly exotic specimens found in nature, this class of weapon also includes slow-acting chemical toxins that rely on gradual build-up to achieve their full effect. Although the technology to develop weapons of this nature truly dates back to antiquity, medical and pharmaceutical advances developed as humanity first settled the Inner Sphere forced chemical and bio-weapons manufacturers to evolve accordingly.

Class IV weapons cause illness in almost anyone that comes into contact with them, but do not break down quickly. This makes them difficult to direct against specific targets. They are most commonly delivered through covert operations—tainting a city's drinking water or infecting a small group of prisoners and then releasing them into a population. Delivery though a weapon strike is possible, but because such overt attacks are relatively easy to investigate, and do not yield immediate results, they often give the intended targets ample time to deploy countermeasures before full effects can set in.

Game Rules: Prior to deploying the Class IV agent, the controlling player must determine if this is an attack using a Class IV chemical (poison) weapon or a Class IV biological (virus or germ) weapon, as this will affect the Effects Resistance TNs as well as the contamination period. Poison attacks will follow all standard rules listed here for those who are affected by them, but biological attacks will add the possibility of contamination spread to new individuals every time they interact with one another. In game terms, this means that any unprotected crews that are otherwise not affected by an attack will need to make an Effects Resistance check if they should come into contact with a unit that has already failed (or partially failed) its own check previously.

Targets suffering the full effects of a Class IV agent—of either type—will receive a +1 target modifier to all action checks, as well as 1 pilot/crew hit for units that can suffer such hits, and a –1 Initiative modifier if the affected unit commands a force. These effects will stack for each 24-hour day of Persistence, so if a Persistence roll for a Class IV chemical weapon were 3, the unit which fails its check would suffer a +1 to-hit modifier, 1 pilot hit, and a –1 Initiative modifier for the first day of infection, a +2 to-hit modifier, 2 pilot hits, and a –2 Initiative modifier on the second, and a +3 to-hit modifier, 3 pilot hits, and a –3 Initiative modifier on the third. If this effect reaches a modifier of +7 or more, or the pilot/crew suffers enough hits to be considered killed, the infected unit must make at one final Effects Resistance roll. If the roll succeeds, the infected personnel slip into a coma for the remainder of the weapon's Persistence; otherwise, they die.

Targets suffering the partial effects of a Class IV agent must apply the same accumulating modifiers described above for a failed Effects Resistance roll, but in this case, the modifiers accumulate at 48-hour intervals, rather than 24.

Any targets that survive after suffering any effects from a Class IV agent will immediately begin to recover, reducing the cumulative modifier effects incurred while they were under the weapon's effects by 1 point per 24-hour day after the weapon's Persistence period ends. This continues until all modifiers applied by the weapon return to 0.

Countermeasures: Personnel must don protective gear or be within a sealed environment to avoid the effects of Class IV agents.

There are no "generic" counter-agents capable of counter-acting the effects of a Class IV agent. Each individual Class IV agent has its own unique counter-agent that must be researched, developed, synthesized and then distributed, which typically takes weeks of time—or longer—if the agent has never been encountered before, though every major nation maintains some stockpiles of counter-agents that can fight the effects of the most common weapons its enemies might use.

To abstractly resolve the process of finding and treating the effects of a Class IV weapon exposure, roll 2D6 after the scenario has ended; on a result of 2-10, the Class IV agent is "known" and has an already-researched counter-agent; on an 11 or 12, the agent is "unknown" and a counter-agent must be created.

Diagnosing whether or not a Class IV agent is known will take the medical staff assigned to the afflicted force 1D6 days after its exposure to the weapon. Counter-agents for "known" weapons can be synthesized and/or shipped to the battlefield within another 1D6 days and cost 500 C-bills per dose; counteragents for "unknown" weapons require 5D6 days for R&D and then synthesis, at a cost of 1,000 C-bills per dose (thereafter the Class IV agent is "known").

A counter-agent can only be administered in a medical setting (first aid station, MASH, hospital, etc.). Anyone exposed to a Class IV agent and injected with its counter-agent between exposure and the randomly-rolled Time to Effect must make a second Effects Resistance Roll. If the counter-agent is administered after effects have set in, the target makes a second Effects Resistance Roll, but with a +1 TN modifier. In either case, the effects of the second roll will apply, even if they are worse than the first result.

Class V (Slow-Acting, High-Lethality Chemical/Biological Toxin)
Introduced: Early Spaceflight
Tech Base (Ratings): Both (C/EFFF)

Class V chemical and biological agents are slow-acting, extremely vicious, and always lethal. They include bio-engineered viruses designed not merely to kill human targets, but to poison the earth and water as well. This class of chemical and biological warfare also covers makeshift radiological devices designed to spread radioactive debris over a wide area. Class V agents can render entire swaths of territory uninhabitable for months or longer, at least until significant cleanup efforts are expended, while those lucky few who survive a Class V biological or chemical attack an generally expect to suffer lingering health problems and shortened life spans.

Game Rules: Prior to deploying the Class V agent, the controlling player must determine if this is a radiological attack or a biological attack. Radiological agent attacks follow all standard rules listed here. Biological agent attacks are made at a –1 to the listed TNs, but any unprotected individual that comes into contact with someone infected by the agent after the first 1D6 x 8 hours must make an Effects Resistance roll at a total of a –1 to the TNs; unprotected individuals must make this roll *every* time they come into contact with an infected target (rolling for each target they come into contact with); once infected, the target cannot be subject to more serious effects.

Targets affected by the full effects of a Class V agent will die within 1D6 days of the onset of effects; before then, they suffer a cumulative +1 penalty to all skill check TNs, –1 to all Initiative rolls, and one pilot/crew hit (if they can suffer such hits) for each 24 full hours until they die.

Targets affected by the partial effects of a Class V agent suffer a cumulative +1 penalty to all skill check TNs, –1 to all Initiative rolls, and one pilot/crew hit (if they can suffer such hits) for each 48 hours of Persistence (at the start of the first, third, fifth, etc. days). On the eleventh day, the target must succeed at one final Effects Resist Roll, with a TN of 10 (modified as normal) or die.

Any targets that survived and suffered any effects of the agent *may* begin to recover. 48 hours after the agent's Persistence expires, the target must make an Effects Resistance roll against a TN of 10. If this roll fails, the target does not improve and may make another Effects Resistance roll in 48 hours against a TN of 9; if that one fails, the target may make one final Effects Resistance roll against a TN of 8; if that one fails, the target dies. A success means recovery; for every full 48 hours after recovery begins, that target reduces the penalty to all skill checks and Initiative rolls by one and recovers one pilot/ crew hit.

Countermeasures: Personnel must don protective gear or be within a sealed environment to avoid the effects of Class V agents. Decontamination requires a standard maintenance check by a decontamination squad with a +2 modifier to the TN.

There are no Class V counter-agents.

Note: The Class V weapon's Area of Effect is three times the normal. All terrain affected by a Class V weapon is considered either *Tainted* or *Toxic Radiological/Poisonous* (see p. 56, *TO*). Roll 1D6: on a result of 1-4 that area is Tainted; on 5-6 it is Toxic.



Despite being safely sealed in their cockpits, these lancemates know their planet will never be the same once the enemy has unleashed a Class V toxic gas.

WORD OF BLAKE SUPER-JUMP DRIVE (JIHAD)

R&D Start Date: Unknown (ComStar?)
Prototype Design and Production: circa 3059 (Word of Blake)

During the Jihad, the Word of Blake demonstrated an amazing ability to deploy troops to all corners of the Inner Sphere in a fraction of the expected time, even if a command circuit of lithium-fusion equipped JumpShips lay along their course. This feat was believed to have been accomplished thanks to a revolutionary—and exceedingly dangerous—"super-jump" technique, which might have been based on experimental research by a number of conglomerates throughout the years.

Less a piece of equipment than a series of shunts, bypasses and computers, this Word of Blake technology simply required a jump-capable vessel that also featured a functional lithium-fusion battery. While powerful in the extreme, it also proved insanely costly, as no jump drive or battery system ever survived even a successful super-jump of any range.

This critical flaw led even the Word of Blake to make use of the technique only sparingly, and was often used on captured ships to avoid expending too many of the Word's own fleet assets for short-term gains. Because of this fact and the lack of surviving data on how the super-jump effect was harnessed, this technology vanished entirely after the Jihad.

WORD OF BLAKE SUPER-JUMP SYSTEM GAME RULES

Rules Level: Experimental
Available to: JS, WS
Tech Base (Ratings): Inner Sphere (F/XXFX)

Installing the Super-Jump System: The Word of Blake's "super-jump" technology is not an all new drive system, but can be installed as a modification kit on a vessel that has both a functional K-F drive and a lithium-fusion battery system. Technicians then add several components of inconsequential weight and bulk that override and bypass the safety protocols and mechanisms built into both the drive and battery systems. This is a modification that can be done in the field, as a repair check on the vessel's K-F drive (see pp. 181-185, *SO*). If this modification skill check fails, it must be attempted again from the beginning.

The Jump Process: Before engaging a super-jump, both the K-F drive core and the L-F battery must be at full charge. Once engaged, the jumping vessel initiates a normal K-F jump sequence with the charge stored in the drive core and then—almost instantly—begins a second jump sequence that magnifies the jump by several orders of magnitude, effectively creating a "jump within a jump."

The *actual* maximum range for a super-jump (in light-years) is 1,200 – (1D6 x 50) and is determined at the time the jump is made. If a super-jump is attempted beyond this range, the jumping vessel's controlling player must make a Control Roll with a +1 target number modifi er for every 25 light years (LY) beyond the ship's determined super-jump limit. If this Control Roll fails, the super-jump fails, and the vessel is considered destroyed in hyperspace. This Control Roll is made separate from any other rolls determining the jump's success.

This technique produces a jump range that is effectively unlimited, but is very risky, applying a +3 target number modifier both to the jump calculations themselves (see pp. 88-89, *SO*), but also to the Control Roll made on arrival (see p. 89, *SO*). If a misjump occurs, the JumpShip and all attached vessels are destroyed. Otherwise, the jumping vessel safely arrives at its destination, but in doing so, it destroys its K-F drive *and* its lithium-fusion batteries upon completion. (A vessel that executes a Word of Blake super-jump is therefore making a one-way trip unless it can get to a friendly space dock where its drive and battery can be replaced; drives and batteries burned out by a super-jump cannot be repaired.)

Damage to Nearby Units: Because the safety systems are disengaged, a Word of Blake super-jump will not abort due to the presence of a nearby K-F field. If a jump-capable vessel with a K-F drive integrity of 1 or more is within 2 hexes (36 kilometers) of a vessel executing a Word of Blake super-jump, that vessel will suffer 10 points of K-F drive integrity damage, plus 10 x 2D6 points of structural integrity damage, due to the interacting jump fields, and the super-jumping vessel will have to apply an additional +2 target number modifier to survive its emergence at the other end.

In addition to this, all aerospace units within 2 hexes of a vessel executing a Word of Blake super-jump, which are not docked with the super-jumping vessel at the time of its jump, must make a Control Roll with a +2 target modifier to avoid damage. The damage from a failed Control Roll is equal to 3D6 times the roll's margin of failure, in capital-scale points.

Detection: From a detection point of view, an incoming super-jump has an emergence wave that actually resembles that of a super-large incoming vessel, which then dissolves into a group of smaller signals, creating the impression of a massive JumpShip or WarShip coming through with an escort group in tight formation. When using the Advanced Sensors rules to detect an incoming super-jump (pp. 117-119, *SO*), this effect translates to a –3 detection modifier for both the infrared and emergence wave detection checks.

WORD OF BLAKE SUPER-JUMP SYSTEM CONSTRUCTION RULES

The Word of Blake super-jump system adds no significant weight or space to the K-F drive on a JumpShip or WarShip, but the system can only be installed on those vessels that include *both* a K-F drive and a lithium-fusion battery system.

Any jump-capable ship that has both a K-F drive and a lithium-fusion battery can be modified in the field with the Word of Blake super-jump system as a K-F drive "repair" operation, including the +5 target number modifier for the repair's Skill check, and a 10-day base repair time.



This Hunchback 7R *and Rommel Howitzer pair, once prototype machines, enter combat in a display of defensive desperation by the Republic Standing Guard.*

The C-bill cost calculations for the equipment found in this chapter are largely described under the appropriate columns for said items in the Additional Alternate Era Weapons and Equipment Tables located on pp. 216-225.

For the sake of simplicity, all costs are given in C-bills. For the purposes of this section, C-bills are treated as a "universal currency", applied even in those eras and settings where the C-bill itself was not actually in use (such as the Age of War/Star League eras, and the various Clan sub-eras). This enables players wo are running campaigns or forces tied to currency-spending mechanisms to make their purchases based on an "absolute value", without requiring elaborate conversion between the C-bill and any actual currencies of the era in question.

As noted at the beginning of the Alternate Era Units and Equipment chapter (see pp. 64), items specific to the Dark Age era of play use four-letter Availability codes to clarify their proliferation in that period of play, while the majority of the other items described in this chapter show only 3-letter codes that cover pre-Dark Age eras. Dark Age-specific items are thus not available to previous eras of play, while those of previous eras may still be available (if they have not gone extinct beforehand, as noted by an "X" for the last letter of the item's three-letter Availability code). To approximate the availability of a pre-existing item that has not gone extinct in the Dark Age era of play, simply reduce the item's third letter code by one letter grade (to a minimum availability level of "A").

The following section adds further cost formula clarifications as needed.

ADVANCED CLAN EQUIPMENT (WARS OF REAVING)

The weapons and equipment introduced by the Clans during the Wars of Reaving are listed in the Additional Alternate Era Weapons and Equipment Table under *Wars of Reaving Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

Electric Discharge ProtoMech (EDP) Armor: The listed cost for this armor is presented as a formula (1,250 x AP), indicating that the cost is computed by armor point, rather than armor tonnage. Thus, the cost for 15 points of EDP Armor would be 18,750 C-bills (1,250 x 15 = 18,750).

Extended Jump Jet System: The listed cost for the extended jump jet system is presented as a formula (TT x 500 x Jump^2). In this case, "TT" refers to the ProtoMech's tonnage, and "Jump^2" indicates the unit's Jump MP, squared. Thus, a 6-ton ProtoMech with a Jump of 8 using an extended jump jet system would spend 192,000 C-bills on the jump jet system (6 x 500 x 8^2 = 6 x 500 x 64 = 192,000). Note that this cost applies to the entire jump jet system, and is not per jump jet.

Fusillade Launcher: The cost listing for a Fusillade Launcher's ammunition refers to the single 2-shot magazine the weapon uses, rather than a full ton of ammunition. This cost should be modified as appropriate for alternative munition types. If the selected ammo types are mixed, each individual shot has a base price of 200 C-bills.

Special Munitions Costs: The costs for special Wars of Reaving-era munitions are given as multipliers, rather than a static cost. This multiplier applies to the standard munitions cost for the listed weapon. All costs must be rounded up to the nearest C-bill.

ADVANCED PILOT INTERFACES (MULTIPLE ERAS)

The following costs apply to the advanced pilot interfaces introduced in this chapter. The cost data for each of these items can be found in their appropriate era in the Additional Alternate Era Weapons and Equipment Table, as described below.

Damage Interrupt Circuit: The damage interrupt circuit is listed in the Additional Alternate Era Weapons and Equipment Table under *Clan Invasion Equipment*. It adds its cost to the base price of the unit's cockpit, regardless of the cockpit type used. If the unit has multiple pilots (such as in the case of a 'Mech equipped with a cockpit command console), multiply the DIC's cost by the number of crew the cockpit can seat.

Direct Neural Interface Modification: The direct neural interface modification, listed in the Additional Alternate Era Weapons and Equipment Table under *Clan Invasion Equipment*, adds its cost to the

base price of the unit's cockpit, regardless of the cockpit type used. The cost for augmenting a warrior to use the DNI modification is found under Augmented Warriors, below, but does not apply directly to a unit designed for their operation.

SLDF Advanced Neurohelmet: The SLDF advanced neurohelmet is listed in the Additional Alternate Era Weapons and Equipment Table under *Star League Equipment*, and adds its cost to the base price of the unit's cockpit. If the unit has multiple pilots (such as in the case of a tripod 'Mech's cockpit), multiply the cost of the advanced neurohelmet by the number of crew the cockpit can seat.

Virtual Reality Piloting Pod: The VRPP is listed in the Additional Alternate Era Weapons and Equipment Table under *Clan Invasion Equipment*, and replaces the cost of the unit's cockpit, rather than adding to it. The costs for the unit's sensors and life support equipment remain unchanged.

ADVANCED PROTOTYPE SYSTEMS (AGE OF WAR)

The proto-Star League weapons and equipment introduced in the closing years of the Age of War are those listed as "Prototypes" in the Additional Alternate Era Weapons and Equipment Table under *Age of War Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

Prototype Endo Steel Structure: The listed cost for prototype endo steel structure is given a formula (4,800 x TT), which indicates that the structure cost is computed based on the unit's total tonnage weight. Thus, the cost for a 50-ton unit's prototype endo steel structure would be 240,000 C-bills (4,800 x 50 = 240,000).

Prototype XL Engine: The listed cost for a prototype XL engine is presented as a formula (100,000 x ER x TT) ÷ 75. Here, "TT" refers to the unit's tonnage, and "ER" indicates the unit's engine rating. Thus, a 40-ton 'Mech with a prototype XL engine rating of 280 would spend 1,493,334 C-bills on its engine ([100,000 x 280 x 40] ÷ 75 = 1,120,000,000 ÷ 75 = 1,493,333.33, round up to 1,493,334).

Prototype Ferro-Fibrous Armor: The listed cost for prototype ferro-fibrous armor is presented as a formula (60,000 x AT), which indicates that the armor cost is computed based on total armor weight (in tons) the unit carries. Thus, a cost for 12.5 tons of prototype ferro-fibrous armor would be 750,000 C-bills (60,000 x 12.5 = 750,000).

AUGMENTED WARRIORS (MULTIPLE ERAS)

Aside from conventional infantry, the cost of any combat personnel is generally treated as an incidental cost when purchasing units, or a monthly salary line in the force's roster. Artificially augmented warriors therefore apply their augmentation costs to the final C-bill costs of any units they operate. So, a MechWarrior who has been augmented with cybernetics will add his augmentation costs to that of the 'Mech he is assigned, while the augmentations to *each* of an infantry platoon's troopers will add to the platoon's overall cost.

The individual augmentations described in this chapter are listed in the Additional Alternate Era Weapons and Equipment Table under *Warrior Augmentations*. These costs are per augmentation per warrior. If a single warrior receives more than one augmentation, his added cost to the unit will be the sum of all augmentation costs, taken together. Because the rules presented for augmented warriors presumes that units comprised of multiple warriors will receive the same augmentations, augmented infantry units multiply the additional costs of any augmentations by the number of augmented troopers in the unit. For vehicles, this cost addition is multiplied by the number of augmented crewmen required to operate the vehicle.

For example, if each warrior in a 30-trooper Manei Domini infantry platoon is augmented with dermal armor implants (1,500,000 C-bills per trooper), and 2 enhanced prosthetic arms (100,000 C-bills per limb per trooper), the per-trooper cost added to the platoon will be 1,700,000 C-bills (1,500,000 + [2 x 100,000] = 1,700,000), which will add 51,000,000 C-bills to the platoon's final cost (30 troops x 1,700,000 per troop = 51,000,000).

Note: For simplicity's sake, the cost tables for prosthetic enhancements that can vary with weapon load presume the most expensive weapon options. Thus, regardless of whether an enhanced prosthetic limb has been fitted with a vibroblade or a shotgun, the limb's cost remains 100,000 C-bills.

CENTURION WEAPON SYSTEM (STAR LEAGUE)

The cost for the Centurion Weapon System is listed in the Additional Alternate Era Weapons and Equipment Table under *Star League Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

DARK AGE AND RISC EQUIPMENT (DARK AGE)

The weapons and equipment introduced during the years of the Republic of the Sphere appear in the Additional Alternate Era Weapons and Equipment Table under *Dark Age Equipment*. This includes not only weapons and component introduced during the relatively peaceful Age of the Republic, but also newer developments such as the experimental and dangerous RISC equipment. Units mounting these items follow all appropriate rules for cost calculations.

Dark Age Specialty Armors: The listed costs for the various armor types are presented as formulas based on the amount of armor tonnage assigned to the unit (AT). Thus, the cost for 5 tons of heat dissipating armor (which has a formula of 25,000 x AT) would be 125,000 C-bills (25,000 x 5 = 25,000).

RISC Advanced PDS: While the listed cost for the standard version of this item indicates both the item's cost and that of a full ton of ammunition, the battlesuit version indicates the cost of a single battlesuit-mounted item and a single magazine (6 shots) of ammunition for that suit.

RISC Laser Pulse Module: The listed cost for this item is in addition to the cost of whatever laser weapon it modifies.

RISC Super-Cooled Myomer: The listed cost for this item is presented as a formula (10,000 x TT), which indicates that the musculature cost is computed based on the unit's total tonnage weight. Thus, the cost for a 65-ton unit's super-cooled myomers would be 650,000 C-bills (10,000 x 65 = 650,000).

EARLY CLAN IMPROVED EQUIPMENT (EARLY CLAN)

The improved weapons and equipment first introduced by the Clans in their early years are listed as "Improved" (or "Enhanced") in the Additional Alternate Era Weapons and Equipment Table under *Early Clan Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

EARLY CLAN PROTOTYPE SYSTEMS (EARLY CLAN)

The prototype weapons and equipment added to the Clan arsenals during their early years are listed as "Prototype" in the Additional Alternate Era Weapons and Equipment Table under *Early Clan Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

EXPANDED PROTOMECHS (WARS OF REAVING)

The Ultraheavy-, Quadruped-, and Glider-type ProtoMechs introduced into Clan arsenals during the Wars of Reaving compute their component costs in the same manner as their standard-type

versions discussed in *TechManual*. The four core structural components worth noting are listed in the Additional Alternate Era Weapons and Equipment Table under *Expanded ProtoMech Components*.

Ultraheavy ProtoMechs: The listed structure and cockpit cost differences applicable to Ultraheavy ProtoMechs (those weighing from 10 to 15 tons in total mass) are noted in the table, with structure expressed as a formula (400 x TT), to indicate that its cost is based on the unit's total tonnage. The cockpit cost listed (800,000 C-bills) replaces the normal cockpit cost for a standard ProtoMech as well.

Quadruped ProtoMechs: The listed structure cost difference applicable to Quadruped ProtoMechs is also noted in the table, expressed as a formula (500 x TT), to indicate that its cost is computed based on the unit's total tonnage. This structure cost replaces the standard cost listed, regardless of the unit's weight class.

Glider ProtoMechs: The listed structure cost difference applicable to Glider ProtoMechs is also noted in the table, expressed as a formula (600 x TT), to indicate that its cost is computed based on the unit's total tonnage. This structure cost replaces the standard cost listed, regardless of the unit's weight class.

Augmented Warrior Cost: Although the EI neural implants used to control a ProtoMech are listed under warrior augmentations, the cost for this augmentation is waived for ProtoMech warriors, since it is a required part of the control system, rather than an optional one. Thus, no additional warrior augmentation cost is required for ProtoMech pilots (unless they receive another augmentation in addition to the EI implants).

INNER SPHERE PROTOMECH INTERFACE (JIHAD)

The cost for the ProtoMech Interface Cockpit is listed in the Additional Alternate Era Weapons and Equipment Table under *Jihad Equipment*. This cost replaces the ProtoMech's normal cockpit cost.

Augmented Warrior Cost: Although the VDNI implants, used to control a ProtoMech via an Inner Sphere interface, are listed under warrior augmentations, the cost for these required augmentations is waived in this case. No additional warrior augmentation cost is thus required for ProtoMech pilots using an Inner Sphere interface (unless the warrior receives other augmentations in addition to the VDNI implants).

INNER SPHERE RECOVERED PROTOTYPES (LATE SUCCESSION WARS)

The prototype forms of the Star League-era weapons and equipment reintroduced in the latter decades of the Succession Wars appear as those listed as "Prototypes" in the Additional Alternate Era Weapons and Equipment Table under *Late Succession Wars Equipment*. This includes not only recovered Star League-style weapons and components, but also newer developments such as triple-strength myomers and special munitions. Units mounting these items follow all appropriate rules for cost calculations.

Prototype Endo Steel Structure: The listed cost for prototype endo steel structure is presented as a formula (4,800 x TT), which indicates that the structure cost is computed based on the unit's total tonnage weight. Thus, the cost for a 30-ton unit's prototype endo steel structure would be 144,000 C-bills (4,800 x 30 = 144,000).

Prototype Ferro-Fibrous Armor: The listed cost for prototype ferro-fibrous armor is presented as a formula (60,000 x AT), which indicates that the armor cost is computed based on total armor weight (in tons) the unit carries. Thus, the cost for 10 tons of prototype ferro-fibrous armor would be 600,000 C-bills (60,000 x 10 = 750,000).

Prototype Triple-Strength Myomer: The listed cost for this item is presented as a formula (32,000 x TT), which indicates that the musculature cost is computed based on the unit's total tonnage weight. Thus, the cost for a 45-ton unit's prototype triple-strength myomers would be 1,440,000 C-bills (32,000 x 45 = 1,440,000).

Special Munitions Costs: The costs for special Late Succession Wars-era munitions are given as multipliers, rather than a static cost. This multiplier applies to the standard munitions cost for the listed weapon. All costs must be rounded up to the nearest C-bill.

Space Station K-F Adapter: Due to its original introduction date, the Space Station K-F Adapter is actually found under *Age of War Equipment*, rather than under *Late Succession Wars Equipment* in the Equipment Table. This value is presented as final cost multiplier (x20) that replaces the normal space station final cost modifier of x5 (see p.158, *SO*). Note that even though modular space stations integrate K-F Adapters into their design, the multiplier for such adapters is already factored into the modular space station multiplier (see *Primitive Prototype Equipment*, p. 117).

LAND-AIR BATTLEMECHS (MULTIPLE ERAS)

The extra cost for constructing a BattleMech as a LAM is listed in the Additional Alternate Era Weapons and Equipment Table, under *LAM Components*. This covers both the LAM conversion costs as well as special components available only to LAM units.

LAM Conversion Costs: Expressed as a formula (WSC x 0.65 for Bimodal LAMs, and WSC x 0.75 for Standard LAMs), this cost is derived from cost of all the weapons, equipment, and structure the unit also mounts (represented by the term "WSC"), and is then *added* to the unit's cost before the 'Mech's final cost multiplier is applied. Thus, if an 'Mech had run up a cost of 1,850,000 C-bills in structural, weapon, and equipment costs, its additional cost for conversion into a standard LAM would be 1,387,500 (1,850,000 x 0.75 = 1,387,500).

LAM Bomb Bays and Fuel Tanks: In addition the costs for any LAM bomb bays and fuel tanks (beyond the single ton that comes with the unit's engine) are also found in the same section of the Additional Alternate Era Weapons and Equipment Table. These are both counted as weapon/equipment items for cost calculation purposes, with each price given per 1-ton bomb bay or 1-ton fuel tank. Thus, the costs for these items are applied before the addition of the LAM conversion costs.

MACHINA DOMINI INTERFACE (JIHAD)

The Machina Domini BattleMech interface system prototyped in the Jihad era appears in the Additional Alternate Era Weapons and Equipment Table, under *Jihad Equipment*. This includes both the BattleMech Interface Cockpit—which applies its cost to the 'Mech's construction—and the BattleMech Neural Interface Unit—which applies as an item installed on a PA(L) battlesuit. Units mounting these items follow all appropriate rules for cost calculations.

Augmented Warrior Cost: Although the VDNI implants, used to complete a Machina Domini interface, are listed under warrior augmentations, the cost for these required augmentations is waived in this case. No additional warrior augmentation cost is thus required for Machina Domini pilots using the Machina Domini interface system (unless the warrior receives other augmentations in addition to the VDNI implants).

Units equipped with a Clan Machina Domini interface require EI neural implants instead of VDNI implants. As above, the cost of this augmentation is waived for Clan Machina Domini pilots using a Clan Machina Domini interface system.

MODULAR SPACE STATIONS (MULTIPLE ERAS)

The Modular Space Station cost value is found in the Additional Alternate Era Weapons and Equipment table, under *Star League Equipment*. This value is presented as a final cost modifier that applies to the total cost of the space station. This final cost multiplier replaces the normal x5 multiplier assigned to space stations (see p.158, *SO*), and effectively includes the K-F Adapter cost modifier. (Thus, players do not need to add the costs of the requisite K-F Adapters when finding the final C-bill values of a modular space station.)

PRIMITIVE PROTOTYPE EQUIPMENT (AGE OF WAR)

The primitive, pre-Star League weapons and equipment introduced during the Age of War are those listed as "Primitive Prototypes" in the Additional Alternate Era Weapons and Equipment Table under *Age of War Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

DropShuttle Bays: Although they are not listed specifically as "Primitive Prototype" equipment, DropShuttle Bays appear in the same section, with a listed C-bill cost per each 2-shuttle bay. Furthermore, each DropShuttle Bay also counts as the equivalent of two docking collars for K-F Drive cost calculations (see p. 158, *SO*).

Primitive Prototype K-F Boom: The listed cost for this item incorporates the cost of the DropShip's docking collar system as well, so it does not need to be added to any existing costs.

Pre-KF Boom Docking Collar: Although they are not listed specifically as "Primitive Prototype" equipment, Pre-KF Boom Docking Collars also appear in the *Age of War* section, with a listed C-bill cost per collar. Each Pre-KF docking collar also counts as one standard docking collar for the purposes of K-F Drive cost calculations (see p. 158, *SO*).

Primitive Prototype Jump Jets: The listed cost for this item is presented as a formula (TT x 200 x Jump^2). In this case, "TT" refers to the 'Mech's tonnage, and "Jump^2" indicates the unit's Jump MP squared. Thus, a 30-ton BattleMech with a Jump of 6 using prototype jump jets would spend 216,000 C-bills on the jump jets (30 x 200 x 6^2 = 30 x 200 x 36 = 216,000). This cost applies to the total number of jump jets installed, rather than per jump jet.

PRIMITIVE UNITS AND RETROTECH (MULTIPLE ERAS)

The cost calculations for all types of primitive and RetroTech units created using the rules presented in this chapter follow those of their standard unit types. Additional primitive core components required when constructing these units are also found in the Additional Alternate Era Weapons and Equipment Table under *Primitive and RetroTech Components*. Units mounting these items follow all appropriate rules for cost calculations.

Primitive 'Mech Musculature: The listed cost for this item is presented as a formula (1,000 x TT), which indicates that the musculature's cost is computed based on the unit's total tonnage weight. Thus, the cost for a 90-ton primitive 'Mech's musculature would be 90,000 C-bills (1,000 x 90 = 90,000).

Primitive Armor: The listed cost for both Primitive Aerospace Fighter and Primitive 'Mech/Industrial armor is presented as a formula (5,000 x AT), which indicates that the cost is based on total armor weight (in tons) the unit carries. Thus, a cost for 8 tons of primitive armor would be 40,000 C-bills (5,000 x 8 = 40,000).

Primitive Aerospace Small and Large Craft: Aside from the primitive prototype versions of the K-F Boom and Docking Collars found under Primitive Prototype Equipment (see pp. 117-120), the costs for all of the primitive forms of the various aerospace unit types that are larger than aerospace fighters (including small craft, DropShips, JumpShips, space stations, and WarShips) may be computed as normal for those unit types.

Even though primitive core aerospace components, such as jump drives and sails, are substantially different from their modern forms, many of these feature weight modifications and such that impact costs by default, and thus require no additional modification. Additionally, for cost purposes, all Primitive K-F jump drives are treated compact-core drives, rather than standard-core drives.

Primitive Combat Vehicles and Primitive Conventional Fighters: Remember that both combat vehicles and conventional fighters built to Primitive standards employ the support vehicle construction rules, rather than standard combat vehicle and conventional fighter rules. As a result, costs for these unit types must be computed using cost calculations for support vehicles.

PROTOTYPE SPECIALTY MUNITIONS (CLAN INVASION)

These specialty missiles, introduced by the Inner Sphere on the eve of the Clan Invasion, are listed in the Additional Alternate Era Weapons and Equipment Table under *Clan Invasion Equipment*. As special munitions, their costs are given as multipliers, rather than static C-bills amounts. This multiplier applies to the standard munitions cost for the listed weapon. All ammo costs must be rounded up to the nearest C-bill.

QUADVEES (DARK AGE)

The extra cost for constructing a BattleMech as a QuadVee is listed in the Additional Alternate Era Weapons and Equipment Table, under *QuadVee Components*. This covers both the QuadVee conversion costs as well as special components available only to QuadVee design.

QuadVee Conversion Cost: Expressed as a formula (WSC x 0.5), this cost is derived from cost of all the weapons, equipment, and structure the unit also mounts (represented by the term "WSC"), and is then *added* to the unit's cost before the 'Mech's final cost multiplier is applied. Thus, if an 'Mech had run up a cost of 3,533,334 C-bills in structural, weapon, and equipment costs, its additional cost for conversion into a QuadVee would be 1,766,667 (3,533,334 x 0.5 = 1,766,667).

QuadVee Cockpit: The QuadVee's cockpit cost replaces that of the standard 'Mech cockpit.

QuadVee Tracks and Wheels: QuadVee Tracks compute their costs in the same manner as standard 'Mech Tracks (see p. 278, *TM*). QuadVee Wheels calculate their cost using a similar formula: (750 x ER x TT) ÷ 75. In this formula, "ER" represents the unit's Engine Rating, and "TT" represents its total weight (in tons). As with Tracks, this value is added before the 'Mech's final cost multiplier is applied.

ROBOTIC AND DRONE SYSTEMS (MULTIPLE ERAS)

The cost of a unit modified for robotic or drone operation is calculated as normal for the unit's type, but the special components unique to the robotic and drone construction—including control systems, assistance systems, and other special devices discussed in this chapter—appear in the Additional Alternate Era Weapons and Equipment Table under *Robotic and Drone Unit Systems*. Units mounting these items follow all appropriate rules for cost calculations, replacing standard cockpits and crew systems as appropriate.

Smart Robotic Control System

The C-bill cost for the Smart Robotic Control System replaces the unit's normal cockpit/crew systems (but not its sensors or life support). The listed cost for this item is presented as a formula (5,000 + [10,000 x IT]), which indicates that the robotic control system is computed based on the item's own tonnage weight. Remember to include the weight of the unit's default control systems, which are added to the robotic control system's tonnage.

Thus, the standard SRCS mounted in a 55-ton combat vehicle would weigh 6 tons (5 percent for the vehicle's standard control systems, rounded up to 3 tons, plus another 5 percent for the SRCS added to it, also rounded up to 3 tons, equals 6 tons of SRCS weight). For this system, the C-bill cost would come to 65,000 (5,000 + [10,000 x 6] = 65,000).

Shielded Aerospace Smart Robotic Control System

The C-bill cost for the Shielded Aerospace SRCS replaces the unit's normal cockpit/crew systems (but not its sensors or life support). The listed cost for this item is presented as a formula (6,250 + [12,500 x IT]), which indicates that the control system cost is based on the item's own tonnage weight. Remember to include the weight of the unit's default control systems, which are added to the control system tonnage.

Thus, the Shielded Aerospace SRCS mounted in a 60-ton aerospace fighter would weigh 6 tons (3 tons for the fighter's cockpit, plus another 5 percent of 60 tons for the Shielded Aerospace SRCS added to it, equals 6 tons of SRCS weight). For this system, the C-bill cost would come to 81,250 (6,250 + [12,500 x 6] = 81,250).

SDS (Caspar) Drone Control System

The C-bill cost for the SDS Caspar drone control system replaces the unit's normal cockpit/crew systems (but not its sensors or life support). The listed cost for this item is presented as a formula (500,000 + [50,000 x IT]), which indicates that the control system cost is based on the item's own tonnage weight. Remember to include the weight of the unit's default control systems, which are added to the Caspar system's total tonnage.

Thus, the Caspar control system mounted in a 4,500-ton DropShip would weigh 259 tons (34 tons for the DropShip's control systems, plus another 5 percent of 4,500 tons—225 tons—for the Caspar systems added to it, equals 259 tons of Caspar control system weight). For this, the C-bill cost would come to 13,450,000 (500,000 + [50,000 x 259] = 13,450,000).

Caspar II Advanced Smart Robotic Control System

The C-bill cost for the Caspar II advanced SRCS replaces the unit's normal cockpit/crew systems (but not its sensors or life support). The listed cost for this item is presented as a formula (50,000 + [20,000 x IT]), which indicates that the control system cost is based on the item's own tonnage weight. Remember to include the weight of the unit's default control systems, which are added to the Caspar II system's tonnage.

Thus, the Caspar II control system mounted in a 200-ton small craft would weigh 11.5 tons (1.5 tons for the craft's control systems, plus another 5% of 200 tons—10 tons—for the Caspar II systems added to it, equals 11.5 tons of Caspar II control system weight). For this, the C-bill cost would come to 280,000 (50,000 + [20,000 x 11.5] = 280,000).



Hubris and insanity were required to push BattleMech technology past the 100-ton mark.

Autonomous Tactical Analysis Computer

The C-bill cost for the ATAC is presented as a formula (100,000 x IT), which indicates that the computer's cost is based on its own tonnage weight. Thus, an ATAC that weighs 3,060 tons would have a C-bill cost of 306,000,000 (100,000 x 3,060 = 306,000,000).

Direct Tactical Analysis Control System

The C-bill cost for the DTAC system is presented as a formula (50,000 x IT), which indicates that the system's cost is based on its own tonnage weight. Thus, a DTAC system that weighs 3,090 tons would have a C-bill cost of 154,500,000 (50,000 x 3,090 = 154,500,000).

Advanced Robotic Transport System

The C-bill cost for the ART system is presented as a modifier (+1,000,000), which indicates that the system's cost adds 1,000,000 C-bills to the base cost of the transport bay it modifies. Thus, an ART system that modifies a single 20,000-C-bill fighter bay would increase that bay's cost to a total value of 1,020,000 C-bills (20,000 + 1,000,000 = 1,020,000).

SDS Self-Destruct System, SLDF SDS Jammer, and Dragon's Breath Launcher

The C-bill cost for the SDS self-destruct system, the SLDF SDS jammer, and the Word of Blake's Dragon's Breath MCM launch system, are presented as fixed prices in the Additional Alternate Era Weapons and Equipment Table under *Robotic and Drone Unit Systems*.

SUPERHEAVY 'MECHS (MULTIPLE ERAS)

The cost of a superheavy 'Mech is calculated as normal for the 'Mech's type, but the special components unique to the superheavy unit's construction—including cockpits, actuators, musculature, and the like—appear in the Additional Alternate Era Weapons and Equipment Table under *Superheavy 'Mech Components*. Units mounting these items follow all appropriate rules for cost calculations.

Superheavy 'Mech Cockpits: The listed cost for superheavy 'Mech cockpits replace those of a standard 'Mech in the normal calculation rules.

Superheavy 'Mech Actuators: The listed cost for superheavy 'Mech actuators is presented as a formula (2 x Standard Cost), which indicates that the actuator cost for a superheavy 'Mech is computed by simply doubling the cost of an equivalent actuator under the standard formula. Thus, where the upper arm actuator for a standard 'Mech would equal 100 x Unit Tonnage, the cost for a superheavy 'Mech's upper arm actuator would be equal to 2 x (100 x Unit Tonnage), or 200 x Unit Tonnage. This means that a 145-ton superheavy 'Mech's actuator would cost 29,000 C-bills (200 x 145 = 29,000), while the same actuator for a 45-ton BattleMech would cost only 4,500 C-bills (100 x 45 = 4,500).

Superheavy 'Mech Musculature and Internal Structures: The listed costs for the musculature and internal structure types available to superheavy 'Mechs are all presented as formulas based on the unit's total tonnage (TT). Thus, the cost for a 145-ton superheavy 'Mech's endo-steel internal structure (given as 16,000 x TT) would come to 2,320,000 C-bills (16,000 x 145 = 2,320,000).

TRIPOD 'MECHS (MULTIPLE ERAS)

The extra costs for constructing a BattleMech as a tripod are listed in the Additional Alternate Era Weapons and Equipment Table, under *Tripod 'Mech Components*. This covers both cockpit types available to tripod 'Mechs, and a structure cost modifier to account for the unique nature of the tripod's configuration.

Tripod 'Mech Cockpits: The tripod 'Mech cockpit costs replace those of a standard 'Mech cockpit in the equivalent unit weight class.

Tripod 'Mech Structure: Expressed as a formula (SC x 1.2), this cost is derived from the cost of the internal structure of equivalent weight and type on a standard biped or quadruped 'Mech, and applies based on whatever formula is used to compute that structure. Thus, if a tripod 'Mech weighing 50 tons used a standard internal structure, which costs 400 x Unit Tonnage (in C-bills), the tripod version would cost 400 x Unit Tonnage x 1.2, or 24,000 C-bills (400 x 50 x 1.2 = 24,000). Alternatively, if the tripod was a 130-ton 'Mech using superheavy endo-composite structure—which has a cost formula of 6,400 x Unit Tonnage—the tripod structure would cost 998,400 C-bills (6,400 x 130 x 1.2 = 998,400).

THERMOBARIC WEAPONS (MULTIPLE ERAS)

The C-bills costs for all of the fuel-air munitions introduced in this chapter appear in the Additional Alternate Era Weapons and Equipment Table under *Thermobaric Weapons*. For the fuel-air bombs, this is given as a flat C-bill cost per individual bomb. For all other fuel-air munitions, the C-bill cost is given as a multiplier that applies to the normal per-ton ammo costs of the appropriate weapon system.

WEAPONS OF MASS DESTRUCTION (MULTIPLE ERAS)

The C-bills costs for all of the weapons of mass destruction introduced in this chapter appear in the Additional Alternate Era Weapons and Equipment Table under *Weapons of Mass Destruction*. Unlike most of the equipment covered in this chapter, many of these weapons are treated as either a special munitions type unto themselves (and thus apply no actual cost under unit construction rules) or incorporate their own launchers and delivery systems, which are incorporated into the weapon's overall cost.

Weapons with Launchers: Where a weapon has its own dedicated launcher, two C-bill costs will appear, separated by a slash. The cost to the left of the slash is that of the launcher, while the cost to the right is that of a single shot of that weapon type. (Except where noted in the weapons' rules, WMDs are purchased by shot, not tonnage.) If a dagger symbol (†) appears instead of a set cost for a launcher, the weapon uses an existing launcher type that has its own cost defined elsewhere.

Cost Shorthand: Furthermore, due to the extreme expense of these weapons, their cost listings have been simplified to thousands of C-bills (costs ending in "K"), or millions of C-bills (costs ending in "M"). A Class III chemical weapon, with a listed cost of 250K, thus costs 250,000 C-bills to purchase. Meanwhile, a Type III nuclear weapon, listed at 15M, costs 15,000,000 C-bills per shot.

WORD OF BLAKE SUPER-JUMP DRIVE (JIHAD)

As a modification distributed across the existing systems on board a JumpShip with both a working K-F drive and lithium-fusion battery, the cost for the Word of Blake super-jump drive system, as listed in the Additional Alternate Era Weapons and Equipment Table under *Jihad Equipment*, is added to the unit's final cost.

BATTLE VALUE

The following covers the Battle Values for the equipment/rules found in this section.

ADVANCED CLAN EQUIPMENT (WARS OF REAVING)

The Battle Value for the weapons and equipment introduced by the Clans during the Wars of Reaving are listed in the Additional Alternate Era Battle Values Table under *Wars of Reaving Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Nova Composite Electronic Warfare System: In addition to adding its listed value to the unit's Defensive Battle Rating, the C^3-style features of the Nova CEWS adds to the total BV of a force that includes units equipped with this system. This increase—which only applies if two or more friendly units equipped with this item are present in the force—equals 5 percent of the total BV for all friendly units that mount a Nova CEWS. The maximum total increase a force's Battle Value can receive from the use of the Nova CEWS is equal to 35 percent of the force's base Battle Value.

ADVANCED PILOT INTERFACES (MULTIPLE ERAS)

The Battle Value for the various advanced pilot interfaces introduced in this book are listed in the Additional Alternate Era Battle Values Table under their various era of introduction, as described below. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Damage Interrupt Circuit: The damage interrupt circuit appears under *Clan Invasion Equipment*. It has no impact on the unit's Battle Value.

Direct Neural Interface Modification: The Battle Value for the control systems modifications made to allow a unit to be piloted by one of the various direct-neural implant technologies appears under *Clan Invasion Equipment*. By itself, the modification has no impact on a unit's Battle Value, so the BV modifiers appear only with the warrior augmentations necessary to take advantage of this interface.

SLDF Advanced Neurohelmet: The Battle Value for the SLDF advanced neurohelmet introduced during the Star League era is listed in the Additional Alternate Era Battle Values Table under *Star League Equipment*. Its modifier applies only once, even if the unit seats more than one crewman. Units mounting this item follow all other appropriate rules for Battle Value calculations.

Virtual Reality Piloting Pod: The Battle Value for the virtual reality piloting pod devised by the Federated Commonwealth appears under *Clan Invasion Equipment*. It multiplies the unit's Battle Value by 1.4, to reflect the MechWarrior's improved Piloting and Gunnery skills due to the system interface.

ADVANCED PROTOTYPE SYSTEMS (AGE OF WAR)

The Battle Value for the proto-Star League weapons and equipment introduced during the Age of War are listed in the Additional Alternate Era Battle Values Table under *Age of War Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Prototype Artemis IV FCS: Multiply the BV for all missile launchers enhanced by prototype Artemis IV by 1.1. This modification does not apply to the launcher's ammunition.

Prototype CASE: When computing the unit's Defensive Battle Rating, subtract 8 points (rather than 15) for any ammunition critical slots protected by prototype CASE.

Prototype Extralight (XL) Engine: If the unit is a heat-tracking unit (such as a BattleMech or aerospace fighter), remember to account for the additional heat generated by its prototype XL engines when computing its Battle Value.

Prototype Pulse Lasers: When calculating the heat efficiency of a unit using prototype pulse lasers, use the average heat level possible when these weapons are used (4 heat for prototype small pulse lasers, 7 heat for prototype medium pulse lasers, and 13 heat for prototype large pulse lasers).

AUGMENTED WARRIORS (MULTIPLE ERAS)

The Battle Value for the various warrior augmentations discussed in this book are listed in the Additional Alternate Era Battle Values Table under *Warrior Augmentations*. Units using such augmented pilots, crews, and troops follow all other appropriate rules for Battle Value calculations.

In many cases, these augmentations may apply modifiers to the unit based on Skill modifiers, in which case the unit's final BV is computed normally, and then multiplied as appropriate using the BV Skill Multiplier (see p. 314, *TM*). Through these modifiers, the minimum rating to which a Skill may be reduced is 0, while the highest rating to which any Skill may be raised is 8.

Note that the Clan Enhanced Imaging Interface is listed on the same table under *Clan Invasion Equipment*, as is the direct neural interface modification necessary to operate a unit via a prototype DNI, VDNI, or buffered VDNI implant.

Stacked Benefits: For the purposes of Battle Value calculations, any warrior augmentations that have the same gameplay benefits will not stack. Only items that provide different benefits from one another may be applied to a given augmented warrior.

Belter Infantry Package: When computing an infantry unit's Defensive Battle Rating (see *Advanced Infantry*, p.379, *TO*), a Belter Infantry Package adds 1 to the unit's Sum of Damage Divisors.

Belter Fighter Pilot Package: When applying the total BV multiplier for Skill to a fighter unit piloted by this warrior, be sure to account for the warrior's –1 Piloting Skill target modifier. Thus, an augmented Belter fighter pilot with a base Piloting Skill of 5 would apply the BV multiplier for a Piloting Skill of 4 due to his pilot package Skill modifier.

Enhanced Imaging Neural Implants: When applying the total BV multiplier for Skill to a unit piloted by a warrior with EI implants, apply a –1 target modifier each to the warrior's Piloting and Gunnery Skills, but only if he is piloting a unit that features an EI Neural Interface. Thus, an EI-augmented MechWarrior with a base Piloting Skill of 3 and a base Gunnery Skill of 2 would apply the BV multipliers for a Piloting Skill of 2 and a Gunnery Skill of 1 to his 'Mech's total BV—but only as long as his 'Mech has the equipment to enable those benefits.

A warrior with EI implants who is assigned to a 'Mech that lacks the requisite interface may only apply the BV multiplier for his non-augmented Skills.

Artificial Pain Shunt: For Battle Value purposes, any unit whose pilot/crew/troops are equipped with a Pain Shunt applies an effective Piloting Skill modifier of –1 when finding the unit's BV Skill Multiplier.

Communications Implant: For Battle Value purposes, any unit whose pilot or commander is equipped with a Communications Implant applies an effective Piloting Skill modifier of –1 when finding the unit's BV Skill Multiplier.

Boosted Communications Implant: For Battle Value purposes, any unit whose pilot or commander is equipped with a Boosted Communications Implant is treated as a unit equipped with a standard C^3 slave, making it eligible to act as part of a C^3 network, and thus must be accounted for under the C^3 rules for constructing a battle force (see p. 314, *TM*).

Sensory Implants (All Types): For Battle Value purposes, any unit whose pilot, commander, or troops are equipped with Sensory Implants of any kind (including basic sensory implants, multi-modal sensory implants, or enhanced multi-modal sensory implants) applies an effective Gunnery Skill modifier of –1 when finding the unit's BV Skill Multiplier.

Gas Effuser Implant, Pheromone: Only conventional infantry units may apply a BV modifier for use of a pheromone gas effuser implant. This modifier—0.05 points per trooper—is added to the infantry unit's Defensive Battle Rating, before multiplying that value by the unit's Defensive Movement Factor.

Gas Effuser Implant, Toxin: Only conventional infantry units may apply a BV modifier for use of a toxin gas effuser implant. This modifier—0.23 points per trooper—is added to the infantry unit's Weapon Battle Rating, before multiplying that value by the unit's Speed Factor.

Dermal Armor Implants: Dermal armor implants only affect the Battle Value of infantry unit types. Dermal armor implants have no impact on the Battle Value of non-infantry units.

When computing a conventional infantry unit's Defensive Battle Rating (see *Advanced Infantry*, p.379, *TO*), dermal armor implants add 1 to the unit's Sum of Damage Divisors.

When computing a battle armored infantry unit's Battle Value, warriors augmented with dermal armor implants add 3 BV per augmented trooper before applying Skill modifiers.

Dermal Camouflage Implants: Dermal camouflage implants only affect the Battle Value of conventional infantry unit types. When computing a conventional infantry unit's Defensive Battle Rating (see *Advanced Infantry*, p.379, *TO*), remember to apply the target modifier produced by the dermal camouflage effect when determining the unit's highest potential modifier.

For example, a foot infantry unit capable of only 1 MP per turn will generate a defensive modifier of +0 normally, but with dermal camouflage, it can generate a defensive modifier as high as +3 by remaining stationary, or +2 while moving. Because the +3 modifier is higher, that value is used to find the unit's Defensive Battle Rating.

Triple-Strength Myomer Implants: Triple-strength myomer implants only affect the Battle Value of infantry unit types. These implants have no impact on the Battle Value of non-infantry units.

When computing a conventional infantry unit's Offensive Battle Rating (see *Advanced Infantry*, p.379, *TO*), triple-strength implants add 0.1 per trooper to the unit's Weapon Battle Value.

When computing a battle armored infantry unit's Battle Value, warriors augmented with triple-strength implants add 1 BV per augmented trooper before applying Skill modifiers.

Triple-Core Processor: For 'Mech, combat vehicle, and aerospace fighter units piloted by a warrior augmented with a triple-core processor, apply a –1 Gunnery Skill modifier when determining the unit's BV Skill Multiplier. For all other unit types, the triple-core processor implant is treated as a –1 Piloting Skill modifier when determining the unit's BV Skill Multiplier instead.

Vehicular Direct Neural Interface: When a warrior with a VDNI implant commands a unit equipped with a compatible control system, the unit receives the –1 Gunnery and Piloting Skill modifiers that in turn apply to its BV Skill Multiplier.

Buffered Vehicular Direct Neural Interface: When a warrior with a buffered VDNI implant commands a unit equipped with a compatible control system, the unit receives the –1 Gunnery Skill modifier that in turn applies to its BV Skill Multiplier.

Explosive Suicide Implant: The explosive suicide implant adds 0.12 (per trooper) to the Weapon Battle Value of a conventional infantry unit. Warriors augmented by this implant apply no other BV effects to any other unit types.

Prosthetic Leg MASC: The additional movement capabilities produced by prosthetic leg MASC must be accounted for when finding the Defensive Battle Rating of a conventional infantry unit augmented by this item. All other unit types receive no BV effect for the use of prosthetic leg MASC.

Prosthetic Limb Enhancements: The additional weapons and equipment that may be featured on any applicable prosthetic limb will add to the Offensive Battle Value of a conventional infantry unit so equipped on a per-trooper basis. These effects are shown in the Prosthetic Limb Enhancement BV Modifiers Table below. Unless noted otherwise, all of these values are applied to the infantry unit's Weapon Battle Value in addition to any standard or support weapons the unit receives at creation.

No other unit types can receive a BV effect for the use of prosthetic limb enhancements.

Prosthetic Tail, Enhanced: Only conventional infantry units apply Battle Value effects for the use of prosthetic tails. This value—0.2 per trooper—is applied to the unit's Offensive Battle Value in addition to any standard or support weapons the unit receives at creation.

Prosthetic Glider Wings: Prosthetic glider wings have no impact on a unit's Battle Value.

Prosthetic Powered Flight Wings: The additional movement capabilities produced by prosthetic powered flight wings—including the modifier for VTOL movement—must be accounted for when finding the Defensive Battle Rating of a conventional infantry unit augmented by this item. All other unit types receive no BV effect for the use of prosthetic wings.

PROSTHETIC LIMB ENHANCEMENT BV MODIFIERS

Enhancement Item	BV (per trooper)
Ranged Weapons	
Laser	0.24
Ballistic	0.02
Needler	0.08
Shotgun	0.08
Sonic Stunner	0.10
Submachine Gun	0.10
Melee Weapons	
Blade	0.02
Shocker	0.04
Vibroblade	0.14
Rumal/Garrote	0.14
Non-Weapons	
Grappler Line	0*
Climbing Claws	0.02*

*In addition, multiply this unit's Anti-'Mech Battle Rating by 1.2 if equipped with Grappler Lines or Climbing Claws

CENTURION WEAPON SYSTEM (STAR LEAGUE)

The Battle Value for the Centurion Weapon System is listed in the Additional Alternate Era Battle Values Table under *Star League Equipment*. Units using this item follow all other appropriate rules for Battle Value calculations.

DARK AGE AND RISC EQUIPMENT (DARK AGE)

The Battle Value for the weapons and equipment introduced across the Inner Sphere during the post-Jihad Dark Age eras are listed in the Additional Alternate Era Battle Values Table under *Dark Age Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Dark Age Armors: Most of the various special armor types introduced in the Dark Age era apply a modifier to the BV of the unit's armor. To determine how, multiply the armor points the unit possesses by its armor type multiplier as found in the Dark Age Armor Modifiers Table. (In the case of units with patchwork armor, this multiplier only applies to the armor points in the section of the unit that uses the appropriate special armor type, rather than to the entire unit.)

HarJel Repair Systems: The HarJel repair systems provide armor modifiers similar to those of Dark Age armor types, but only for body sections where a HarJel system is located. Even though HarJel repair systems currently work with no armor types that provide a special modifier, this multiplier will stack with any armor type multipliers that affect the same section, so a HarJel II's armor BV multiplier of 1.1 would stack with another armor multiplier of 1.2 for a final armor BV multiplier of 1.32 (1.1 x 1.2 = 1.32). Additionally, every critical slot of HarJel repair system a unit mounts will add –1 to the unit's Defensive BV.

Radical Heat Sinks: When computing the heat sink capacity of a unit using the Radical Heat Sink System, multiply the unit's normal heat sink capacity by 1.4, and round up to the nearest whole number. This multiplier applies in addition to any others for special heat sink types (such as double heat sinks). For example, a unit with 15 double heat sinks and a Radial Heat Sink system would end up at a heat sink capacity of 36 for heat capacity purposes (15 x 2 x 1.4 = 36).

RISC Super-Cooled Myomers: If the unit does have UMU or jump jets of any kind, the unit's movement heat is counted as 0 for 'Mech Heat Efficiency calculations.

DARK AGE ARMOR MODIFIERS TABLE

Armor Type	Armor BV Multiplier
Anti-Penetrative Ablation Armor	1.2
Heat-Dissipating Armor	1.1
Impact-Resistant Armor	1
Ballistic-Reinforced Armor	1.5
HarJel Repair System (HarJel II)	1.1*
HarJel Repair System (HarJel III)	1.2*

*While not technically armor, HarJel's effect on armor gives it an armor type modifier as well. This only applies to locations protected by a HarJel Repair System, and may stack with whatever other armor type modifier also applies to that section. Each HarJel Repair System critical slot also applies –1 Defensive BV to the unit.

EARLY CLAN IMPROVED SYSTEMS (EARLY CLAN)

The Battle Value for the upgraded Inner Sphere weapons and equipment introduced by the early Clans are listed as "Improved" or "Enhanced" in the Additional Alternate Era Battle Values Table under *Early Clan Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

EARLY CLAN PROTOTYPE SYSTEMS (EARLY CLAN)

The Battle Value for the prototype weapons and equipment introduced by the early Clans are listed as "Prototype" in the Additional Alternate Era Battle Values Table under *Early Clan Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

EXPANDED PROTOMECHS (WARS OF REAVING)

The Battle Values for the Ultraheavy, Quadruped, and Glider ProtoMechs introduced in this book may be computed using the same rules as established for standard ProtoMechs in *TechManual*, with only one modification applicable to Glider-type ProtoMechs.

Glider ProtoMechs: When calculating the defensive factor and the speed factor for a Glider ProtoMech, use the unit's WiGE Flanking MP. Glider ProtoMechs are considered airborne.

INNER SPHERE PROTOMECH INTERFACE (JIHAD)

The Inner Sphere ProtoMech Interface system does not modify a ProtoMech's Battle Value in any way.

INNER SPHERE RECOVERED PROTOTYPES (LATE SUCCESSION WARS)

The Battle Value for the prototype weapons and equipment introduced by the Inner Sphere in the late Succession Wars are listed as "Prototype" in the Additional Alternate Era Battle Values Table under *Late Succession Wars Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Prototype ER Large Laser: When computing the unit's heat efficiency, treat the prototype ER large laser as if it generates an average heat of 13 points.

Prototype Medium Pulse Laser: When computing the unit's heat efficiency, treat the prototype medium pulse laser as if it generates an average heat of 7 points.

Prototype Triple-Strength Myomer: When computing the unit's Offensive Battle Rating, multiply its tonnage by 1.5 if it is equipped with prototype triple-strength myomers.

Special Munitions: Anti-TSM LRMs and SRMs: The Battle Values for anti-triple-strength myomer types are listed as a multiplier, rather than a fixed value. This multiplier is applied to the ammunition BV for the launcher that uses this special munition, rounding up the result to its nearest whole number.

Special Munitions: Listen-Kill LRMs and SRMs: For Listen-Kill missiles, the Battle Value Table also provides ammunition BVs for each size and class of launcher that can fire these munitions. Even though the multi-missile launcher system did not exist at the time L-K missiles were in use, Battle Values for those weapons are also provided, as such launchers may technically employ them.

Space Station K-F Adapter: The Space Station K-F Adapter has no effect on a unit's Battle Value.

LAND-AIR BATTLEMECHS (MULTIPLE ERAS)

Calculate the base Battle Value for a LAM (see p. 105) as a BattleMech with the following modifications.

Target Movement Modifiers: For standard LAMs, use the LAM's AirMech flank speed when calculating its target movement modifier, and apply the additional +1 for an airborne target. For bimodal LAMs, calculate the unit's target movement modifier as a normal 'Mech.

Defensive Battle Rating: When calculating the defensive battle rating for an LAM, treat each slot of fuel and each bomb bay slot as explosive ammunition (i.e. subtract 15 points for each).

Base Weapon Battle Rating: When calculating the base weapon battle rating, add 9 to the LAM's heat sink capacity (this replaces the 6 points that are added to a 'Mech's heat sink capacity), and subtract movement heat for AirMech flank speed.

Rear-Facing Weapons: Use the LAM's 'Mech mode to determine whether or not a weapon is rear firing.

Speed Factor: To determine the LAM's speed factor, add its running MP in 'Mech mode to half its AirMech Flank MP (rounded normally).

Pilot Skills: To calculate the Battle Value for a LAM with variable skill ratings (see p. 314, *TM*) use the average of the pilot's 'Mech and aerospace piloting for piloting skill and the average of 'Mech and aerospace gunnery skill. Round normally when determining the average scores.

Calculating the Battle Value for a *Phoenix Hawk* LAM

CALCULATE DEFENSIVE BATTLE RATING

128 points of standard armor (1.0 multiplier)	
Total Armor Factor x 2.5:	**128 x 2.5 x 1.0 = 320**
83 points of standard internal structure (1.0 multiplier)	
With standard fusion engine (1.0 multiplier)	
Total Internal Structure	
Points x 1.5 x 1.0 x 1.0:	**83 x 1.5 x 1 x 1 = 124.5**
Standard Gyro: (0.5 multiplier)	**55 x 0.5 = 27.5**
Total BV of all Defensive Equipment:	**472**
AirMech Flank Speed: 23 (+5) plus airborne modifier (+1)	
Target Movement Modifier: +6 (1.6 defensive factor)	**457**
	x 1.6
	Defensive Battle Rating = 731.2

CALCULATE OFFENSIVE BATTLE RATING

LAM heat efficiency: (9 + 12 – 8)	**13**
Total heat generated: (8 + 3 + 3)	**14**
Large Laser	**123**
Medium Laser	**46**
Medium Laser	**46**
Medium Laser	**46**
Medium Laser	**46**
LAM Tonnage	**50**
	271
Speed Factor: (8 + 12 = 20, speed factor 3.00)	
	271 x 3.00 = 651
	Offensive Battle Rating = 651

CALCULATE FINAL BATTLE VALUE

Defensive Battle Rating + Offensive Battle Rating = BV

731.2 + 651 = 1382

Phoenix Hawk LAM BV = 1382

MACHINA DOMINI INTERFACE (JIHAD)

Calculate the Battle Value of a Machina Domini unit—PA(L) or BattleMech—as normal, with the following additions. Note that these rules apply regardless of whether the unit is using Inner Sphere or Clan Machina Domini interfaces:

BattleMech Interface Cockpit: A BattleMech equipped with a BattleMech Interface Cockpit multiplies its Final BV by 1.30.

BattleMech Neural Interface Unit: The BattleMech Neural Interface Unit alone has a Battle Value of 0.

Gyroless 'Mechs: If a 'Mech with a Machina Domini Interface Cockpit is not equipped with a gyro, treat the unit as if it is equipped with a standard gyro when finding its Defensive Battle Rating.

MODULAR SPACE STATIONS (MULTIPLE ERAS)

Compute the Battle Value of a modular space station as though it were a standard space station. No additional Battle Value modifiers are required for this unit type.

PRIMITIVE PROTOTYPE EQUIPMENT (AGE OF WAR)

The Battle Value for the Primitive-quality pre-Star League weapons and equipment introduced during the Age of War are listed as "Primitive Prototypes" in the Additional Alternate Era Battle Values Table under *Age of War Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

DropShuttle Bays: DropShuttle Bays have no effect on a unit's Battle Value.

Pre-KF Boom Docking Collar: The pre-KF boom docking collar has no effect on a unit's Battle Value.

PRIMITIVE UNITS AND RETROTECH (MULTIPLE ERAS)

Calculate the Battle Value of all Primitive and RetroTech units as per the normal rules for units of equivalent type and weight. When doing so, remember to bear in mind the following:

Primitive Combat Vehicles and Conventional Fighters: Because they are constructed as Support Vehicles, Primitive combat vehicles and conventional fighters must calculate their Battle Values as appropriate for such unit types.

Primitive Armor: When calculating a Primitive unit's Battle Value, remember to account for any armor modifications for any units that feature BAR values below 10.

Primitive Fire Control Systems and Cockpits: When calculating the Battle Value of any unit that features Primitive fire control systems, sensors, or piloting systems, remember to account for any resulting Skill modifiers at the end of the BV calculation process.

PROTOTYPE SPECIALTY MISSILES (CLAN INVASION)

The Battle Value for the prototype specialty missiles introduced by the Inner Sphere in the Clan Invasion are listed as "Special Munitions" in the Additional Alternate Era Battle Values Table under *Clan Invasion Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Special Munitions: Dead-Fire LRMs and SRMs: For Dead-Fire missiles, the Battle Value Table provides ammunition BVs for each size and class of launcher that can fire these munitions. Even though the multi-missile launcher system did not exist at the time D-F missiles were in use, Battle Values for those weapons are also provided, as such launchers may technically employ them.

Special Munitions: Retro-Streak SRMs: Regardless of the Streak SRM launcher used to fire them, Retro-Streak ammo adds 15 to the unit's Defensive Battle Value.

Special Munitions: Shoot-and-Sit Narcs: Shoot-and-Sit Narc missiles have no Battle Value.

QUADVEES (DARK AGE)

Compute the Battle Value of a QuadVee as though it were a standard four-legged BattleMech. No additional Battle Value modifiers are required for this unit type.

Pilot Skills: To calculate the Battle Value for a QuadVee with variable skill ratings (see p. 314, *TM*) use the average of the two pilot's Piloting and Gunnery Skills, respectively. Round normally when determining the average scores.

ROBOTIC AND DRONE SYSTEMS (MULTIPLE ERAS)

For any unit operating with one of the robotic and drone systems featured in this chapter, compute the unit's Battle Value as a normal unit of equivalent type, except as noted by the systems and components below.

Robotic and Drone Pilot Skills: Do not forget to apply the final Piloting and Gunnery Skill modifiers for a unit operating with a robotic control system of any type. This modifier applies to the unit's final BV after all other features and components are accounted for.

Smart Robotic Control System: After calculating the Battle Value of a unit equipped with a Smart Robotic Control System normally, multiply its final BV by 0.85 to reflect its robotic controls.

Shielded Aerospace Smart Robotic Control System: After calculating the Battle Value of any unit equipped with a Shielded Aerospace SRCS normally, multiply its final BV by 0.90 to reflect the robotic controls.

SDS (Caspar) Drone Control System: Calculate the Battle Value of any unit equipped with an SDS Drone Control System as normal.

Caspar II Advanced Smart Robotic Control System: After calculating the Battle Value of any unit equipped with a Caspar II Advanced Smart Robotic Control System as normal, multiply its final BV by 0.90 to reflect the robotic controls.

Autonomous Tactical Analysis Computer System: If two or more units in a battle force are linked by an ATAC system they are treated as if part of a C^3 network (see p. 131, *TW*). Add 7 percent to the total BV of all units in the ATAC network to each of the units linked by each network.

Direct Tactical Analysis Control System: If two or more units in a battle force are linked by a DTAC system they are treated as if part of a C^3 network (see p. 131, *TW*). Add 5 percent to the total BV of all units in the DTAC network to each of the units linked by each network.

Advanced Robotic Transport System: The advanced robotic transport system has no effect on a unit's Battle Value.

SDS Self-Destruct System: The SDS self-destruct system has no effect on a unit's Battle Value.

SLDF SDS Jammer System: The SDS Jammer System has no effect on a unit's Battle Value.

Dragon's Breath MCM Launch System: The Battle Value for the Dragon's Breath MCM launch system is listed in the Additional Alternate Era Battle Values Table under *Robotic and Drone Unit Systems*.

SUPERHEAVY 'MECHS (MULTIPLE ERAS)

Calculate the Battle Value of Superheavy 'Mechs as a BattleMech or IndustrialMech, with the following exceptions:

Gyro: For BV purposes, treat a Superheavy 'Mech's Heavy-Duty Gyro as a standard Gyro.

SUPERHEAVY ENGINE TYPE BV MODIFIER TABLE

Engine Type	Modifier
Standard	1.0
Light	0.825
Compact	1.0
XL (Inner Sphere)	0.75
XL (Clan)	0.825
Large	1.0
XXL (Inner Sphere)	0.5
XXL (Clan)	0.75
Large XXL (Inner Sphere)	0.5
Large XXL (Clan)	0.75

Superheavy Engine Type BV: For Superheavy 'Mechs, use the Superheavy Engine Type BV Modifier Table in place of the standard Battle Value modifiers.

Explosive Components: When assessing the BV of a Superheavy 'Mech that carries explosive ammunition or components, treat the Superheavy 'Mech as a Clan 'Mech if the explosive components are in a location protected by any form of CASE (if the location is protected by CASE II and the explosive component is any type of Gauss weapon, subtract nothing). If the Superheavy 'Mech makes use of explosive components not protected by CASE systems, treat it as a standard Inner Sphere 'Mech. Remember, however, that these rules apply per slot, regardless of how many tons of explosive components occupy said slot.

Pilot Skills: To calculate the Battle Value for a multi-pilot Superheavy 'Mech with variable skill ratings (see p. 314, *TM*) use the average of the pilots' Piloting and Gunnery Skills, respectively. Round normally when determining these average scores.

TRIPOD 'MECHS (MULTIPLE ERAS)

For Tripod 'Mechs, calculate the unit's Battle Value as a biped BattleMech of equivalent weight class.

Pilot Skills: To calculate the Battle Value for a Tripod 'Mech with variable skill ratings (see p. 314, *TM*) use the average of the pilots' Piloting and Gunnery Skills, respectively. Round normally when determining the average scores.

THERMOBARIC WEAPONS (MULTIPLE ERAS)

The Battle Values for fuel-air munitions are found under the Thermobaric Weapons header in the Alternate Era Weapons and Equipment Battle Value Table. For fuel-air bombs (small and large), this BV is given as a flat per-bomb value. For all other fuel-air munitions, the BV is given as a multiplier per ton of standard munitions fired by the weapon.

WEAPONS OF MASS DESTRUCTION (MULTIPLE-ERAS)

Weapons of Mass Destruction (WMD) are simply beyond the scope of the Battle Value system, and so no such values exist.

WORD OF BLAKE SUPER-JUMP DRIVE (JIHAD)

The Word of Blake super-jump drive system does not modify the unit's Battle Value in any way.



As it heavily monitored and censured 'Mech production around its borders, opponents of the Republic of the Sphere would cry hypocrisy at the sight of the Ares.

ALTERNATE ERA WEAPONS AND EQUIPMENT BATTLE VALUE TABLE

Item	Item BV	Ammo BV*	Special
Age of War Equipment			
Primitive Prototype Autocannon/2	37	4	
Primitive Prototype Autocannon/5	70	7	
Primitive Prototype Autocannon/10	123	12	
Primitive Prototype Autocannon/20	178	17	
Primitive Prototype Long Tom Artillery	368	35	
Primitive Prototype Small Laser	9	—	
Primitive Prototype Medium Laser	46	—	
Primitive Prototype Large Laser	123	—	
Primitive Prototype LRM 5	38/8	4	
Primitive Prototype LRM 10	78/16	8	
Primitive Prototype LRM 15	132/26	13	
Primitive Prototype LRM 20	168/34	16	
Primitive Prototype SRM 2	10/2	1	
Primitive Prototype SRM 4	21/4	3	
Primitive Prototype SRM 6	41/8	4	
Primitive Prototype PPC	176	—	
Prototype Arrow IV	240	30	
Prototype Artemis IV FCS	—	—	Multiply modified launcher BV by 1.1
Prototype Beagle Active Probe	10**	—	
Prototype CASE	—	—	Ammo critical slots count as –8 BV, rather than –15
Prototype Double Heat Sink	—	—	
Prototype Endo Steel Structure	—	—	
Prototype Extralight Engine	—	—	See rules.
Prototype Ferro-Fibrous Armor	—	—	
Prototype Gauss Rifle	320§	40§§	
Prototype Guardian ECM Suite	61**	—	
Prototype LB 10-X Autocannon	148	15	
Prototype Narc Missile Beacon	15	0	
Prototype Small Pulse Laser	11	—	Count as 4 heat for heat efficiency calculations
Prototype Medium Pulse Laser	43	—	Count as 7 heat for heat efficiency calculations
Prototype Large Pulse Laser	108	—	Count as 13 heat for heat efficiency calculations
Prototype Remote Sensors	0	0	
Prototype Rocket Launcher 10	15	—	
Prototype Rocket Launcher 15	18	—	
Prototype Rocket Launcher 20	19	—	
Prototype TAG	0	—	
Star League Equipment			
Centurion Weapon System	750	—	
SLDF Advanced Neurohelmet	—	—	–1 Piloting for BV Skill Modifier
Early Clan Equipment			
Improved Autocannon/2	37	5	
Improved Autocannon/5	70	9	
Improved Autocannon/10	123	15	
Improved Autocannon/20	178	22	
Improved Gauss Rifle	320	40§	
Improved Large Laser	123	—	
Improved Large Pulse Laser	119	—	
Improved PPC	176	—	
Enhanced PPC	329	—	

Item	Item BV	Ammo BV*	Special
Improved LRM 5	45/9	6	
Improved LRM 10	90/18	11	
Improved LRM 15	136/27	17	
Improved LRM 20	181/36	23	
Improved SRM 2	28/5	4	
Improved SRM 4	52/10	7	
Improved SRM 6	79/16	10	
Prototype ER Small Laser	17	—	
Prototype ER Medium Laser	62	—	
Prototype LB 2-X Autocannon	42	5	
Prototype LB 5-X Autocannon	83	10	
Prototype LB 20-X Autocannon	237	30	
Prototype Streak SRM 4	59/12	7	
Prototype Streak SRM 6	89/18	11	
Prototype Ultra Autocannon/2	56	7	
Prototype Ultra Autocannon/10	210	26	
Prototype Ultra Autocannon/20	281	35	
Late Succession Wars Equipment			
Prototype Double Heat Sink	—	—	
Prototype Endo Steel Structure	—	—	
Prototype ER Large Laser	136	—	Count as 13 heat for heat efficiency calculations
Prototype Medium Pulse Laser	43	—	Count as 7 heat for heat efficiency calculations
Prototype Ferro-Fibrous Armor	—	—	
Prototype Gauss Rifle	320§	40§§	
Prototype LB 10-X Autocannon	148	15	
Prototype Triple Strength Myomer	—	—	See rules
Prototype Ultra Autocannon/5	112	14	
Special Munitions: Anti-TSM LRMs	—	x1	Multiplier applies to standard ammo BV
Special Munitions: Anti-TSM SRMs	—	x1	Multiplier applies to standard ammo BV
Special Munitions: Listen-Kill LRM 5	—	7	
Special Munitions: Listen-Kill LRM 10	—	14	
Special Munitions: Listen-Kill LRM 15	—	21	
Special Munitions: Listen-Kill LRM 20	—	28	
Special Munitions: Listen-Kill SRM 2	—	6	
Special Munitions: Listen-Kill SRM 4	—	12	
Special Munitions: Listen-Kill SRM 6	—	18	
Special Munitions: Listen-Kill MML 3 (SRM)	—	4	Value provided for reference
Special Munitions: Listen-Kill MML 3 (LRM)	—	9	Value provided for reference
Special Munitions: Listen-Kill MML 5 (SRM)	—	7	Value provided for reference
Special Munitions: Listen-Kill MML 5 (LRM)	—	15	Value provided for reference
Special Munitions: Listen-Kill MML 7 (SRM)	—	10	Value provided for reference
Special Munitions: Listen-Kill MML 7 (LRM)	—	21	Value provided for reference
Special Munitions: Listen-Kill MML 9 (SRM)	—	13	Value provided for reference
Special Munitions: Listen-Kill MML 9 (LRM)	—	27	Value provided for reference

ALTERNATE ERA WEAPONS AND EQUIPMENT BATTLE VALUE TABLE (CONT.)

Item	Item BV	Ammo BV*	Special
Clan Invasion Equipment			
Damage Interrupt Circuit	0	—	
Direct Neural Interface Modification	0	—	Enables BV modifiers for DNI/VDNI implant use
Enhanced Imaging Interface	0	—	Enables BV modifiers for EI Neural Implant use
Virtual-Reality Piloting Pod	—	—	–2 Piloting, –1 Gunnery for BV Skill Modifier
Special Munitions: Dead-Fire LRM 5	—	6	
Special Munitions: Dead-Fire LRM 10	—	16	
Special Munitions: Dead-Fire LRM 15	—	27	
Special Munitions: Dead-Fire LRM 20	—	36	
Special Munitions: Dead-Fire SRM 2	—	2	
Special Munitions: Dead-Fire SRM 4	—	4	
Special Munitions: Dead-Fire SRM 6	—	5	
Special Munitions: Dead-Fire MML 3 (SRM)	—	4	Value provided for reference
Special Munitions: Dead-Fire MML 3 (LRM)	—	3	Value provided for reference
Special Munitions: Dead-Fire MML 5 (SRM)	—	6	Value provided for reference
Special Munitions: Dead-Fire MML 5 (LRM)	—	4	Value provided for reference
Special Munitions: Dead-Fire MML 7 (SRM)	—	10	Value provided for reference
Special Munitions: Dead-Fire MML 7 (LRM)	—	6	Value provided for reference
Special Munitions: Dead-Fire MML 9 (SRM)	—	14	Value provided for reference
Special Munitions: Dead-Fire MML 9 (LRM)	—	8	Value provided for reference
Special Munitions: Retro-Streak SSRMs	—	15**	
Special Munitions: Shoot-and-Sit Narcs	—	0	
Wars of Reaving Equipment			
Electric Discharge ProtoMech Armor*	32	—	
Extended Jump Jet System	†	—	
Fusillade Launcher	11	—	
Improved ATM 3	83	21	
Improved ATM 6	164	39	
Improved ATM 9	231	54	
Improved ATM 12	333	78	
Magnetic Clamp System	1	—	
Nova CEWS‡	68**	—	
ProtoMech Quad Melee Weapon System	(Dmg x 1.25)	—	
Special Munitions: Imp. IMP iATMs	—	x2.0	
Special Munitions: Imp. IIW iATMs	—	x1.3	
Jihad Equipment			
Machina Domini Interface Cockpit (Clan or IS)	—	—	–1 Piloting, –1 Gunnery for BV Skill Modifier
BattleMech Neural Interface Unit (Clan or IS)	0	—	Enables BV modifiers for VDNI/EI implant use
ProtoMech Interface Cockpit	0	—	
Word of Blake Super-Jump Drive	0	—	

Item	Item BV	Ammo BV*	Special
Dark Age Equipment			
Anti-Penetrative Ablation Armor	—	—	Armor BV Multiplier: 1.2
Heat-Dissipating Armor	—	—	Armor BV Multiplier: 1.1
Impact-Resistant Armor	—	—	
Ballistic-Reinforced Armor	—	—	Armor BV Multiplier: 1.5
HarJel II Self-Repair System	–1 per slot**	—	Armor BV Multiplier: 1.1
HarJel III Self-Repair System	–1 per slot**	—	Armor BV Multiplier: 1.2
Radical Heat Sink System	—	—	Add (unit's # of heat sinks x 0.4, rounded up) to unit Heat Efficiency
Small Re-Engineered Laser	14	—	
Medium Re-Engineered Laser	65	—	
Large Re-Engineered Laser	161	—	
Remote Drone Command Console	0	—	
TSEMP Cannon	488§§	—	
TSEMP One-Shot	98§§	—	
RISC Advanced PDS (Standard)	64**	22**	
RISC Advanced PDS (Battlesuit)	7**	—	
RISC Laser Pulse Module§§	x1.15††	—	
RISC Emergency Coolant System§§	—	—	Add +4 to unit Heat Efficiency
RISC Heat Sink Override Kit	—	—	Multiply unit's final BV by 1.01
RISC Hyper Laser	596§§	—	
RISC Repeating TSEMP Cannon§§	600	—	
RISC Super-Cooled Myomer	—	—	See Rules
RISC Viral Jammer (Decoy)	284**	—	
RISC Viral Jammer (Homing Beacon)	284**	—	
ER PPC + Capacitor (Clan)	548§§	—	
Robotic and Drone Unit Systems			
Smart Robotic Control System	—	—	Multiply unit's final BV by 0.85
Shielded Aerospace SRCS	—	—	Multiply unit's final BV by 0.90
SDS Caspar Control System	—	—	
Caspar II Advanced SRCS	—	—	Multiply unit's final BV by 0.90
Advanced Tactical Analysis Computer	—	—	Adds 7% BV of all linked units to Force BV.
Direct Tactical Analysis Control System	—	—	Adds 5% BV of all linked units to Force BV.
Advanced Robotic Transport System	0	N/A	
SDS Self-Destruct System	0	N/A	
SLDF SDS Jammer System	0	N/A	
Dragon's Breath MCM Launch System	1,076	N/A	
Expanded ProtoMechs	—	N/A	Calculate BV as per standard ProtoMechs
Glider ProtoMechs	—	N/A	Use WiGE Flank MP to calculate Speed Factor
LAMs			
Bimodal LAMs	—	N/A	See Rules
Standard LAMs	—	N/A	See Rules
LAM Bomb Bay	–15 per slot**	—	See Rules
LAM Fuel Tanks	–15 per slot**	—	See Rules

ALTERNATE ERA WEAPONS AND EQUIPMENT BATTLE VALUE TABLE (CONT.)

Item	Item BV	Ammo BV*	Special
Primitive and RetroTech Units	—	—	See Rules
QuadVees	—	—	Calculate BV as per standard quad BattleMech
QuadVee Cockpit	—	—	Average Gunnery and Piloting for BV Skill Modifier
Superheavy 'Mechs	—	—	See Rules
Superheavy 'Mech Cockpit	—	—	Average Gunnery and Piloting for BV Skill Modifier
Superheavy 'Mech Gyro	—	—	Treat as Heavy Duty Gyro for BV purposes
Superheavy 'Mech Engine	—	—	See Rules
Tripod 'Mechs	—	—	See Rules
Tripod 'Mech Cockpit	—	—	Average Gunnery and Piloting for BV Skill Modifier
Thermobaric Weapons			
Fuel-Air Bomb (Small)	—	37 each	
Fuel-Air Bomb (Large)	—	63 each	
Fuel-Air Missile (Arrow IV)*	—	x1.0	
Fuel-Air Shell (Thumper, Thumper Cannon)	—	x1.4	
Fuel-Air Shell (Sniper, Sniper Cannon)	—	x1.4	
Fuel-Air Shell (Long Tom, Long Tom Cannon)	—	x1.4	
Weapons of Mass Destruction	WMDs are incompatible with the Battle Value system.		
Warrior Augmentations			
Belter Infantry Package	0	N/A	+1 to Damage Divisor Sum for DBR (see rules)
Belter Fighter Pilot Package	0	N/A	–1 Piloting for BV Skill Modifier
Belter Vacuum-Resistance Package	0	N/A	
Enhanced Imaging (EI) Neural Implants	0	N/A	–1 Piloting, –1 Gunnery for BV Skill Modifier
Artificial Pain Shunt	0	N/A	–1 Piloting for BV Skill Modifier
Communications Implant	0	N/A	–1 Piloting for BV Skill Modifier
Boosted Communications Implant	0	N/A	Treat unit as if equipped with C3 Slave
Sensory Implants (IR/EM/Audio)	0	N/A	–1 Gunnery for BV Skill Modifier
Sensory Implants (Laser/Telescopic)	0	N/A	–1 Gunnery for BV Skill Modifier
Multi-Modal Sensory Implants	0	N/A	–1 Gunnery for BV Skill Modifier
Enhanced M-M Sensory Implants	0	N/A	–1 Gunnery for BV Skill Modifier
Filtration Implants	0	N/A	
Gas Effuser Implant, Pheromone	5**	N/A	Added to Infantry unit's DBR (see rules)
Gas Effuser Implant, Toxin	0.16	N/A	Per Infantry trooper; add to Infantry unit's WBR
Dermal Armor Implants	0	N/A	+1 to Damage Divisor Sum for DBR (see rules)
Dermal Camouflage Implants	0	N/A	May affect DBA via defensive modifiers (see rules)
Triple-Strength Myomer Implants	0.1/1	N/A	See Rules
Triple-Core Processor Implant	0	N/A	–1 Piloting or Gunnery for BV Skill Modifier (see rules)
Vehicular Direct Neural Interface (VDNI)	0	N/A	–1 Piloting, –1 Gunnery for BV Skill Modifier
Buffered VDNI	0	N/A	–1 Gunnery for BV Skill Modifier
Prototype Direct Neural Interface (DNI)	0	N/A	–3 Piloting, –2 Gunnery for BV Skill Modifier
Explosive Suicide Implant	0.12	N/A	
Prosthetic Leg MASC	0	N/A	May affect DBA via defensive modifiers (see rules)
Prosthetic Limb, Enhanced	Var	N/A	See Rules
Prosthetic Limb, Improved Enhanced	Var	N/A	See Rules
Prosthetic Limb, Extraneous	Var	N/A	See Rules
Prosthetic Tail, Enhanced	0.2	N/A	See Rules
Prosthetic Glider Wings	0	N/A	See Rules
Prosthetic Powered Flight Wings	0	N/A	May affect DBA via defensive modifiers (see rules)

*EDP Armor does not apply an armor type modifier; instead, count armor points per standard armor, and add the listed 32 BV as a weapon.

**Defensive BV

§This ammunition type is not counted as explosive.

§§Treat this item as a Gauss weapon critical space for Defensive Battle Value purposes.

†Compute ProtoMech BV as normal for its respective Running and Jumping MP.

††Multiplier applies only to the modified weapon.

‡In addition to their defensive battle rating Nova CEWSs add 5 percent of the total BV of all friendly units equipped with the system on the battlefield to each of the units equipped with it (but never more than 35% of the friendly force's BV overall). This effect applies regardless if the units are linked at the beginning of the game or not. There must be at least two friendly units equipped with Nova CEWS for this rule to apply.

BATTLEFORCE ADDENDUM

The following provides *BattleForce*-scale conversion and game rules for the material in this section.

ADVANCED CLAN EQUIPMENT (WARS OF REAVING)

The advanced Clan equipment that debuted during the Wars of Reaving have the following effects in *BattleForce* games.

Electric Discharge ProtoMech (EDP) Armor

Electric Discharge ProtoMech Armor has no special effect in *BattleForce*-scale games.

Conversion: When converting units equipped with this item to *BattleForce* elements, treat EDP Armor as standard ProtoMech armor.

Extended Jump Jet (XJJ) System

ProtoMechs equipped with an Extended Jump Jet (XJJ) System are treated as jump-capable elements in BattleForce-scale games.

Conversion: Use the standard conversion rules for converting a jump-capable element when finding the *BattleForce* movement rates for a ProtoMech equipped with an XJJ system.

Fusillade and Improved ATM Launchers

Elements with sufficient number of Fusillade launchers and/or improved ATM launchers will receive the IATM special. Elements with the IATM special may use the following abilities, based on the special munitions selected:

Indirect Fire: This ability is available only to an element with IATMs firing standard munitions only (as a standard load is presumed to include extended-range missiles by default). In this case, the element may execute an attack as if it has an IF special of equal value (i.e., an IATM2 special can also act as an IF2 special). This ability cannot be used if the element has designated any other alternate munitions for its IATMs.

Magnetic Pulse: Using this alternate munition, the element's normal Short-range damage value is reduced by 1 point, but any attacks that hit at Short range will reduce the target's MP by 1 and apply a –1 to-hit modifier for all of the target's weapon attacks, throughout the following turn. (Multiple magnetic pulse hits will not stack these modifiers.)

Improved Inferno: Using this alternate munition, the element's normal attack is reduced by 1 point at Short range. But if this attack hits a target in the Short range bracket, the target suffers the effects of a HT# special attack equal to the numerical value of the element's IATM# special (i.e., an IATM2 will translate to a HT2 effect).

Conversion: The damage values for each individual Fusillade or improved ATM launcher may be found under the Wars of Reaving header in the BattleForce Weapon Conversion Table for Alternate Era equipment (see pp. 225-226). An element must be able to deliver a minimum of 10 points of damage at Medium range with its Fusillade launchers and improved ATM launchers to receive the IATM special.

Find the final attack values for this ability using the standard rules for converting other missile launcher types into *BattleForce* (i.e. add all values together, divide by 10, and adjust for heat, rounding normally). Record the ability as IATM #/#/# where # is the final, heat-modified damage value for each range bracket.

Magnetic Clamp System

ProtoMechs with magnetic clamps may ride on a BattleMech as if they were a battle armor infantry element with the XMEC special (see p. 349, *SO*). No more than 2 ProtoMechs with the MCS special (or 1 with the UCS special) may ride on a single transporting 'Mech at the same time.

When transporting ProtoMechs via the MCS or UCS special, the transporting 'Mech will lose 1 MP per ProtoMech carried, as long as the ProtoMechs remain attached to it.

Conversion: This special ability is available only to ProtoMechs that have the Magnetic Clamp System listed in their weapons and equipment inventories. If the ProtoMech with magnetic clamps weighs 9 tons or less, it receives the MCS special. If the ProtoMech weighs 10 tons or more, it receives the UCS special instead. Quadruped ProtoMechs and Glider ProtoMechs may not make use of this special ability.

Nova Composite Electronic Warfare System

An element with the NOVA special mounts a special electronics warfare system that not only provides the abilities of the ECM and PRB specials, but also acts as a C^3i-style network that can link up to 3 friendly elements (see pp. 346-347, *SO*) as long as they are also equipped with the NOVA special. (The NOVA is incompatible with Inner Sphere C^3 systems of all types.)

Unlike a normal C^3i system, the Nova cannot be disrupted by ECM, LECM, and WAT specials; it can only be disrupted by a hostile element with the NOVA special.

Conversion: An element receives the NOVA special ability if it possesses at least one Nova CEWS. Possession of this ability also adds the PRB and ECM specials to the element.

ProtoMech Quad Melee Weapon System

A ProtoMech equipped with a Quad Melee System is able to execute physical attacks.

Conversion: A ProtoMech equipped with a Quad Melee Weapon System receives the MEL special.

Specialty Munitions: IMP and IIW Missiles

Improved Magnetic Pulse (IMP) missiles and Improved Inferno Warhead (IIW) missiles are alternate munitions available only to Improved ATM (and Fusillade) launchers. Full rules for these munitions may be found under the rules for Fusillade and improved ATM launchers (see p. 65).

The rules governing the use of alternative munitions in *BattleForce* are found in *Strategic Operations* (see pp. 308-310, *SO*).

ADVANCED PILOT INTERFACES (MULTIPLE ERAS)

Of the advanced pilot interfaces covered in this chapter, only two have any effects in *BattleForce* games: the Direct Neural Control System and the Virtual Reality Piloting Pod. These effects are defined below.

The other pilot interface technologies featured in this chapter—Damage Interrupt Circuit and the SLDF Advanced Neurohelmet—have no effect at the *BattleForce* scale of play.

Direct Neural Control System

An element featuring a DN special ability has a cockpit modified for use by a warrior or crew with a DNI implant—including the prototype DNI, vehicular DNI, or buffered VDNI implants (see *Augmented Warriors*, pp. 74-85). If the pilot or crew lacks such implants, the element operates normally, with no benefits from the system.

Otherwise, the use of this feature applies a –1 modifier to the pilot's Skill rating, so a DNI-implanted pilot or crew with a base Skill rating of 2 will become a Skill rating of 1 in an element with this special. However, any Fire Control critical hit the element receives during a scenario will result in a Crew Stunned effect to the element (regardless of the element's type). If this happens to an aerospace element operating within the Radar Map above a ground battle, treat the stunned element as if it has shut down for a duration of 1 turn.

Conversion: The DN special ability is assigned to any element that features a direct neural interface (DNI) cockpit modification (listed in the notes area of the element's *Technical Readout*).

Virtual Reality Piloting Pod

An element with the VR special applies a –1 target modifier to any special Control Rolls required of the element (such as those to avoid skidding or becoming stuck in bog-down terrain), but the element becomes unable to use the *Ejection/Abandoning Elements* rules (see p. 314, *SO*).

Furthermore, if an element with this special begins its Combat Phase within an area affected by hostile ECM of any type (such as those generated by LECM, ECM, NOVA, and WAT specials), it may not attempt any ranged weapon attacks, and suffers a +2 to-hit modifier for any physical attacks it attempts.

Conversion: An element receives the VR special if it features a Virtual Reality Piloting Pod for its cockpit description.

ADVANCED PROTOTYPE SYSTEMS (AGE OF WAR)

The advanced prototype weapons and equipment that debuted in the years leading up to (and during) the Reunification War have the following effects in *BattleForce* games.

Advanced Prototype Weapons

The proto-Star League weapons introduced in the closing years of the Age of War are listed as "Prototypes" in the in the BattleForce Weapon Conversion Table for Alternate Era equipment, under the *Age of War Equipment* header. These include the prototype Arrow IV missile launcher, prototype Gauss rifle, prototype LB 10-X autocannon, prototype pulse lasers, and prototype rocket launchers.

Elements mounting these advanced prototype weapons follow all appropriate rules for standard weapons in gameplay. Any relevant special unit abilities applicable to these weapons (as noted on the table) will apply only if their damage values attain the minimum defined under the normal rules for those special abilities when converting elements from standard *BattleTech* play to *BattleForce* (i.e. 10 points or more at Medium range for missile launchers).

Prototype Artemis IV

In gameplay, prototype Artemis IV has no special effect on an element's attacks.

Conversion: An element equipped with LRM or SRM launchers modified by prototype Artemis IV must convert the weapon's damage value using the 8 column for the appropriate launcher size, rather than the 7 column. For the sake of expedience, these prototype Artemis IV damage values have been pre-calculated, and appear with the other prototype weapons for all standard LRM and SRM launcher sizes.

Prototype Beagle Active Probe

The prototype Beagle active probe (BAP-P) has the same effects as a standard active probe in *BattleForce* game play.

Conversion: An element will receive the Active Probe (PRB) special if its *Technical Readout* entry lists a Prototype Beagle active probe in its weapons and equipment inventory.

Prototype CASE

When an element with prototype CASE (CASEP) suffers an Ammo Explosion critical hit, the attacker rolls 1D6. On a 3 or higher, the critical hit is ignored. On a result of 2 or less, the element suffers an explosion and is destroyed.

Conversion: An element will receive the CASEP special if its *Technical Readout* entry lists Prototype CASE among its weapons and equipment inventory.

Prototype Double Heat Sinks

Prototype double heat sinks have no special effects in *BattleForce* gameplay.

Conversion: When calculating heat for an element with prototype double heat sinks, each prototype double heat sink dissipates 2 points of heat.

Prototype Endo Steel Structure

Prototype endo steel internal structure (ES-P) has no special effects in *BattleForce* gameplay.

Conversion: Prototype endo steel internal structure does not modify an element's *BattleForce* conversion process in any way.

Prototype Extralight Fusion Engine

Prototype XL fusion (XL-P) engines have no special effects in *BattleForce* gameplay.

Conversion: When calculating heat for an element equipped with a prototype XL fusion engine, remember to apply the additional +1 point of heat generated by the engine to the element's maximum heat output.

Prototype Ferro-Fibrous Armor

Prototype ferro-fibrous armor (FF-P) has no special effects in *BattleForce* gameplay.

Conversion: Prototype ferro-fibrous armor does not modify an element's *BattleForce* conversion process in any way.

Prototype Guardian ECM

The prototype Guardian ECM suite (ECM-P) has the same effects as a standard ECM suite in *BattleForce* gameplay.

Conversion: An element with the Prototype Guardian ECM receives the ECM special unit ability.

Prototype Narc Missile Beacon

The prototype Narc missile beacon (NARC-P) has the same effects as a standard Narc missile beacon in *BattleForce* gameplay.

Conversion: An element with a prototype Narc missile beacon receives the SNARC special unit ability.

Prototype Remote Sensor Dispenser

The prototype remote sensor dispenser (RS-P) provides the same reconnaissance benefits as a standard remote sensor dispenser in *BattleForce* gameplay.

Conversion: An element with the prototype remote sensor dispenser receives the RCN and RSD special unit abilities.

Prototype TAG

Prototype TAG (TAG-P) functions in the same manner as the production-grade Inner Sphere TAG in *BattleForce* gameplay.

Conversion: An element with a prototype TAG receives the TAG special unit ability.

AUGMENTED WARRIORS (MULTIPLE ERAS)

The following rules address the use of modified warriors in *BattleForce*, but only covers the cases where such augmentations have an actual effect at this scale of play. While the effects of some of these enhancements may seem trivial, others can be quite

unbalancing for normal games, and players should limit their use to forces rated Elite or better, to further reflect their rarity.

If the players are tracking casualties in an ongoing campaign, the abilities provided by an augmented warrior are lost if that augmented warrior is killed or captured, even if his vehicle or equipment is salvaged.

Belter Augmentations

Belter warriors receive a –1 Skill modifier as long as the scenario in question takes place in space or under low-gravity conditions (G-ratings of 0.7 and under, see p. 315, *SO*). In addition to this, Belter aerospace fighter pilots receive an additional –1 Skill modifier, but only when operating in space.

Cybernetic Augmentations

The following rules cover cybernetic warrior augmentations that have an effect in *BattleForce*.

Communications Implants: Elements controlled by warriors with a communications implant (or its boosted version described below) receive the CI special unit ability. If used as a spotter for indirect fire (see p. 225, *SO*), the element applies a –1 to-hit modifier to the indirect fire attack.

Boosted Communications Implants: In addition to receiving the CI special unit ability and the benefits of a basic communications implant described above, elements controlled by warriors with the boosted communications implant will also receive the C^3I special unit ability (but *not* the MHQ special).

Sensory Implants: Any element controlled by a warrior with sensory implants (including multi-modal sensory implants) receives the LPRB and RCN abilities. Multi-modal sensory implants will improve weapon damage by such elements as well, but this must be factored at the time of the element's conversion.

Enhanced Multi-Modal Sensory Implants: Elements controlled by warriors with enhanced multi-modal sensory implants receive the PRB and RCN abilities, reflecting a greater detection range.

Filtration Implants: Infantry elements equipped with filtration implants receive the FI special unit ability. If exposed to atmospheric toxins from poisonous atmosphere or nerve gas weapons, these elements ignore these effects. They do, however, remain susceptible to drowning from underwater hull breaches, and cannot operate in vacuum.

Dermal Camouflage Armor: Conventional infantry elements whose warriors possess this implant receive the LMAS special unit ability.

Triple-Strength Myomer Implants: Infantry elements whose warriors possess this implant type receive the TSI special unit ability. These elements will be susceptible to the effects of Anti-TSM warheads (see p. 104).

Triple-Core Processor: An element controlled by a warrior with a triple-core processor (TCP) implant receives the TCP special unit ability and applies a +2 Initiative modifier for that element's force—but only *if* the TCP-augmented warrior is also the force's overall commander. (This Initiative modifier is lost if this command element is destroyed.)

Having a warrior with a TCP also adds a MHQ1 special to the warrior's element for the purposes of battlefield intelligence (see *Battlefield Intelligence*, pp. 263-265, *SO*). If the element already has the MHQ special and its warrior is the force commander, the Initiative modifier increases to +3, and the element's MHQ# special increases by 1 point.

Finally, if the warrior's element possess ECM of any type (including LECM, ECM, and WAT specials), the triple-core processor implant makes that warrior's element immune to hostile ECM effects.

Direct Neural Interface (DNI) Implant: Only a pilot with a DNI implant (including the Prototype DNI, Vehicular DNI, or Buffered VDNI implants), or using an EI neural implant in an element equipped with an EI-compatible interface, may activate the features of a direct-neural control system in an element that possesses one (see *Direct Neural Control System*, p. 213).

Prototype DNI Implant: In addition to the effects described for the Direct Neural Interface implant above, an element piloted by a warrior using a prototype DNI implant must roll 2D6 *every* time the element is hit. If the result of this roll is 8 or less, the element suffers the effects of a Crew Stunned critical hit, regardless of its element type.

Prosthetic Leg MASC: Conventional infantry elements augmented by warriors with prosthetic leg MASC receive the PL special. Attacks against these elements apply an additional +1 to-hit modifier.

Prosthetic Wings: A conventional infantry element whose warriors have been augmented with prosthetic wings (including glider wings and powered flight wings) receives the PAR special element ability (see p. 351, *SO*). If the element possesses powered flight wings, it also receives the ability to move 2 MP per turn as a VTOL (movement code v).

Converting Augmented Warriors

Because warrior augmentations affect the pilots, crews, and troops in a *BattleForce* element, rather than its actual capabilities, it is up to the players to identify and keep track of which elements are operated by augmented warriors, and which are not. Conversion is thus usually not a factor performed by translating the element's *BattleTech* stats into *BattleForce*, but may modify the element's Point Value as a result of improved Skill modifiers. The relevant conversion rules are as follows:

Skill-Modifying Augmentations: When converting any element that is piloted or crewed by warriors augmented in a way that affects their Skill rating, use the modified Skill rating for the element's final Point Value calculations.

Communications Implants: An element controlled by warriors with the communications implant or boosted communications implant receives the CI special unit ability. The boosted communications implant also adds the C^3I special unit ability to the element (but not the MHQ special).

Sensory Implants (Basic, Enhanced, and Multi-Modal): Elements controlled by warriors with sensory implants receive the LPRB and RCN special unit abilities. If the sensory implants are identified as "enhanced", the element receives the PRB and RCN specials instead.

In addition to this, when converting damage values for an element controlled by sensory-implant augmented warriors, multiply all of the element's weapon attacks by 1.05 (before rounding) if the warriors are augmented with multi-modal sensory implants of either type (e.g., a PPC's damage increases from 10 points to 10.5).

Dermal Armor Implants: Infantry elements whose warriors are modified by dermal armor implants (including camouflage and triple-strength myomer) must remember to apply the armor divisors for these systems in the conversion process. Non-battle armor infantry elements with dermal camouflage armor also receive the LMAS special.

Non-infantry elements with dermal implants of any type receive no benefit from them in gameplay, and thus ignore these implants during the conversion process.

Triple-Core Processor Implant: An element commanded by a warrior with this augmentation receives the TCP special unit ability.

Triple-Strength Myomer Implant: In addition to the armor divisors mentioned above, remember that any extra damage granted by triple strength myomer implants is factored into the infantry element's attack values during the conversion process. In addition, such infantry elements will also receive the TSI special unit ability. (Non-infantry elements with triple-strength myomer implants receive no benefit from them in gameplay, and thus ignore these implants during the conversion process.)

VDNI and Prototype DNI Implants: The Skill modifiers granted by these implants only apply when combined with an element that

already has the DN special unit ability. If the element does not have the DN special unit ability, the Skill modification does not apply.

Prosthetic Leg MASC: The extra MP provided by prosthetic leg MASC is factored into the infantry element's base movement during the conversion process. In addition, such infantry elements will also receive the PL special unit ability. (Only foot infantry elements with prosthetic leg implants receive these modifications in conversion; all other element types ignore these augmentations during the conversion process.)

Prosthetic Limbs (All Types): Conventional infantry elements that make use of all types of prosthetic limbs—including the enhanced, improved enhanced, and extraneous enhanced—must include the added damage values provided by any weapons mounted within them prior to conversion. All other element types ignore these augmentations in the conversion process.

Prosthetic Wings: Conventional infantry elements with prosthetic wings gain the PAR special unit ability. Powered flight prosthetic wings also add 2 MP of VTOL movement to the element's capabilities. All other element types (including battle armor infantry) ignore these augmentations during the conversion process.

CENTURION WEAPON SYSTEM (STAR LEAGUE)

The Centurion weapon system that debuted during the Star League era functions in *BattleForce* like a TSEMP weapon (see p. 202).

Conversion: Treat each of an element's Centurion weapon systems as a TSEMP cannon for conversion purposes, and combine with any TSEMP weapons also mounted on the element (if any). An element with 2 Centurion weapon systems and 1 TSEMP cannon would thus receive a TSEMP3 special unit ability.

DARK AGE AND RISC EQUIPMENT (DARK AGE)

The advanced weapons and equipment that debuted in the Dark Age era have the following effects in *BattleForce* games.

Dark Age Weapons

The weapons introduced in the Dark Age period are listed in the in the BattleForce Weapon Conversion Table for Alternate Era equipment, under the *Dark Age Equipment* header. These include the re-engineered lasers, Inner Sphere ER and standard lasers modified by RISC pulse laser modules, the RISC hyper laser, and the Clan ER PPC with PPC Capacitor.

Elements mounting these Dark Age weapons follow all appropriate rules for standard weapons in gameplay. Any relevant special unit abilities applicable to these weapons (as noted on the table) will apply only if their damage values attain the minimum defined under the normal rules for those special abilities when converting elements from standard *BattleTech* play to *BattleForce* (i.e. 10 points or more at Medium range for re-engineered lasers).

Anti-Penetrative Ablation (ABA) Armor

An element with the ABA special unit ability is protected by anti-penetrative ablation armor—often simply called ablative armor—is resistant to specialty munitions designed to pierce most other armor types. A unit with this special ignores attacks by taser weapons (MTAS# and BTAS# specials), and negates the bonus critical hit check made for attacks that use armor-penetrating ammunition and tandem-charge missile munitions (see pp. 309 and 310, *SO*).

Conversion: An element only receives the ABA special unit ability if it mounts anti-penetrative ablation armor in all hit locations.

Ballistic-Reinforced Armor

An element with the BRA special unit ability is protected by armor specially developed to counter projectile weapons and missiles, ballistic-reinforced armor reduces all damage delivered by attacks that make use of the AC, IATM, IF, LRM, or SRM specials, by half (rounding up). This reduction is applied whether the attack is delivered using an element's normal damage values, or by just its special unit abilities.

Thus, if an element that delivers normal attack values of 5/4/2, with an AC2/2/0 special, delivers a successful standard attack at Medium range against an element with the BRA special, the damage will be reduced by 1 point (half the AC attack value at Medium range), dropping the normal total of 4 points to 3.

Though similar to reactive armor in many ways, ballistic-reinforced armor will not reduce damage from attacks made using the ART, BOMB, MSL, or FLK specials.

Conversion: An element only receives the BRA special unit ability if it mounts ballistic-reinforced armor in all hit locations.

HarJel Repair Systems

An element that features the BHJ2 or BHJ3 special unit abilities is equipped with improved versions of the hull-sealing technology known as BattleMech HarJel. In addition to providing the same hull breach resistance of standard HarJel (see p. 349, *SO*), units protected by HarJel II or HarJel III will recover armor points lost to damage as long as they begin the End Phase with at least 1 point of armor remaining. The amount of armor recovered at this point is 1 point for elements that have the BHJ2 special, or 2 points for elements with the BHJ3 special.

The maximum armor points an element may recover with BattleMech HarJel II or III may never exceed the element's original armor value. BHJ2 and BHJ3 special abilities will not recover structure points or critical damage, and these abilities will cease to function entirely if the element is reduced to 0 armor points before its End Phase.

Conversion: A 'Mech element equipped with HarJel repair systems only receives the special unit ability if it is equipped with such repair systems in its left, right, and center torso hit locations. If the HarJel repair systems used are HarJel II, the element receives the BHJ2 special; if the HarJel repair systems are HarJel III, the element receives the BHJ3 special.

Heat-Dissipating Armor

An element protected by heat-dissipating armor receives the same benefits in *BattleForce* as one protected by fire-resistant armor (see p. 349, *SO*).

Conversion: An element equipped with heat-dissipating armor only receives the FR special unit ability if it mounts heat-dissipating armor in all hit locations.

Impact-Resistant Armor

An element with the IRA special unit ability is protected by impact-resistant armor. When an element with this special sustains damage as a result of a physical attack (including those delivered using a MEL special, or self-inflicted damage from a Death from Above attack), the damage sustained by the element is reduced by 1 point, to a minimum of 1 point.

In addition to this, all critical hit rolls and hull breach checks made against this element apply a +1 modifier to the roll result. For critical hits, treat any modified result over 12 as an Engine Hit critical.

Conversion: An element only receives the IRA special unit ability if it mounts impact-resistant armor in all hit locations.

Radical Heat Sink System

An element with the RHS special possesses a "radical heat sink system" that can perform a special coolant flush action in any End Phase where its Heat Scale is 1 point or higher. This coolant flush will reduce the element's heat level by 1 point (to a minimum of 0), but the controlling player must then roll 1D6. If the roll result is 1, the RHS special must be marked off, and the element fails to reduce its heat level for that turn. A radical heat sink system that has been marked off in this fashion is no longer usable for the remainder of the scenario.

Conversion: Only heat-tracking elements may be equipped with a radical heat sink system. The element receives the RHS special unit ability if it features this item in its weapons and equipment inventory.

Re-Engineered Lasers

An element that has the REL special carries enough re-engineered lasers to offset many of the benefits presented by several types of specialty armors, such as reflective. When an element with this ability successfully attacks an element featuring reflective armor (RFA special), ignore that armor's damage-reducing effects.

Furthermore, if an element with this ability successfully attacks a target that features the critical-resistant (CR) special, replace the target's normal –2 modifier for any critical hit rolls with –1.

Conversion: To receive the REL special, the damage value for all of an element's re-engineered laser weapons combined must be 10 points or more at Medium range.

Remote Drone Command Console

The remote drone command console is a smaller version of the drone carrier control (DCC) system described in *Strategic Operations* (see p. 348, *SO*). Intended for use in 'Mech and fighter cockpits, this system can only direct the operation of a single drone at one time. Otherwise, it functions just like the drone carrier control system.

Conversion: An element equipped with the remote drone command console receives a DCC1 special, as the system can only direct one drone at a time.

Tight-Stream Electromagnetic Pulse (TSEMP) Weapons

An element with the TSEMP# or TSEMP-O# special unit ability carries a number of tight-stream EMP weapons (TSEMPs), which function much like an energy-based version of the taser (see p. 353, *SO*). As with taser weapons, the numerical value for this special ability indicates the number of TSEMP weapon attacks the element may attempt per *BattleForce* turn. If this numerical value is preceded by a "-O", then the element is only carrying one-shot TSEMPs, and the number instead indicates how many TSEMP attacks it may attempt for the entire scenario.

An element may only attempt TSEMP attacks during its Combat Phase, and these may only be directed against targets at Short or Medium range brackets in ground combat. (TSEMP weapons are ineffective in airborne combat, but may be part of an air-to-ground attack by fighters so equipped.)

A successful TSEMP attack has no effect against conventional infantry elements, DropShips, or any other elements that possess the VLG or SLG specials. For all other element types, a successful TSEMP attack must be followed by a second 2D6 roll, adding a –1 roll modifier if the target is a BattleMech or aerospace element, a –2 if the target has the LG special, and a +2 if the target is a support vehicle element.

If the modified roll result is 8 or higher, the target shuts down for 1 turn. On a 7 or less, the target instead suffers a +1 target modifier for all attacks and Control Rolls required of it for 1 turn. Multiple TSEMP attacks against the same target will not increase these modifiers, but each attack should make its effects roll as long as the target is not shut down. TSEMP effects against a target automatically wear off in the End Phase of the following turn.

Conversion: If an element carries a TSEMP Cannon, or a RISC Repeating TSEMP (or a Centurion weapon system, see p. 201), it receives a TSEMP# special unit ability, where the # equals the number of TSEMP Cannons and/or Centurion weapon systems the element carries. If the element carries One-Shot TSEMP weapons instead, record this as TSEMP-O#, where the # equals the number of One-Shot TSEMP weapons carried.

RISC Advanced Point Defense System

An element with the RAMS special unit ability is equipped with a RISC advanced point defense system may use this special ability to reduce incoming missile fire against itself as a standard anti-missile system (see *Anti-Missile System*, p. 345, *SO*), or it may use the system to reduce the missile damage to any other friendly element within its own lance/Star unit by 1 point.

The use of the RAMS special to defend its own element (or a friendly element) must be declared when the missile attack is resolved; a RAMS ability used to defend its own element cannot be used to defend a friendly element (and vice versa) in the same turn.

Conversion: An element receives the RAMS special unit ability if it carries one or more RISC Advanced Point Defense Systems.

RISC Heat Sink Override Kit

The RISC heat sink override kit has no effect in *BattleForce* gameplay.

Conversion: RISC heat sink override kits have no effect in the conversion process from *BattleTech* to *BattleForce* scales of play.

RISC Emergency Coolant System

An element with the ECS special possesses a RISC emergency coolant system. This system works much like the radical heat sink system (see p. 215), but with potentially more devastating effects in the event of a system failure. Like the RHS special, the system is activated in the End Phase of the turn, but will only do so if the element has reached a Heat Scale of 4 (Shutdown). Also like the RHS, the system requires a 1D6 check to determine if it suffers a failure when attempting its coolant flush.

If this 1D6 roll result is 2 or higher, the ECS reduces the element's Heat Scale by 2 points. If the result of the 1D6 roll is 1, the ECS special must be marked off and, just like the RHS, it will fail to reduce the element's heat level. In addition to this, an ECS failure will *also* inflict one Engine Hit critical on the element itself. The ECS remains inoperable for the remainder of the scenario once it is marked off.

Conversion: An element receives the ECS special unit ability if it possesses a RISC Emergency Coolant System.

RISC Laser Pulse Module

The RISC laser pulse module improves the accuracy of standard and extended-range versions of standard Inner Sphere laser weapons at a trade-off in heat. At the *BattleForce* scale of play, these effects are factored into the heat and damage values provided by the modified weapon.

Conversion: Use the appropriate heat and damage values found in the BattleForce Weapon Conversion Tables for any Inner Sphere standard or ER lasers augmented by a RISC laser pulse module.

RISC Super-Cooled Myomers

The RISC super-cooled myomer system has no effect in *BattleForce* gameplay.

Conversion: RISC super-cooled myomers have no effect in the conversion process from *BattleTech* to *BattleForce* scales of play.

RISC Viral Jammers

An element with RISC Viral Jammers will be noted with either a HJ special unit ability (for homing jammers), or a DJ special unit ability (for decoy jammers). A viral jammer may only be activated at the start of the element's Movement Phase, and will have the effects outlined below for its jammer type against all elements within 6 hexes of the jamming element, and which have an LOS to it at the end of their Movement Phase. Note that viral jamming affects friendly and opposing elements alike.

A RISC viral jammer remains active for 5 turns once it is activated, and cannot be shut off before then except through the destruction or shutdown of the operating element. Once a jammer is disabled in any way (or its 5 turns of operation elapse), its negative effects will dissipate, and the jammer's special ability is marked off the element's stats.

Decoy Jammers (DJ): Once a decoy jammer is activated, all elements within the jammer's area of effect must roll 2D6. If this roll result is 9 or higher, the element is unaffected by the jammer. Otherwise, any AECM, ECM, LECM, STL, or WAT specials the target element possesses will be rendered inoperative for the duration of the jammer's effect.

Homing Jammer (HJ): Once a homing jammer is activated, all elements within the jammer's area of effect must roll 2D6. On a result of 9 or more, these elements will function normally. Otherwise, the targeted elements will be unable to use any TAG, C^3 systems of any kind (including C^3BSM, C^3BSS, C^3EM, C^3I, C^3M, C^3RS, or C^3S), or the NOVA special, for the duration of the jammer's effect. In addition, if such elements feature an IATM, LRM, CNARC, SNARC, or SRM special, all attacks made that include these weapons' damage or effects will suffer a +1 to-hit modifier.

Conversion: An element receives the DJ special unit ability if it carries one or more decoy jammers. If the element carries one or more homing jammers, it receives the HJ special unit ability.

Clan ER PPC Capacitor

The development of a PPC capacitor compatible with Clan-made ER PPCs occurred in the decades following the Jihad. Because this is technically the Dark Age period, the weapon combination is listed in the BattleForce Weapon Conversion Tables for Dark Age Equipment. The Clan ER PPC and Capacitor combination has no special effects.

Conversion: Use the appropriate heat and damage values found in the BattleForce Weapon Conversion Tables for any Clan ER PPCs augmented by a PPC Capacitor.

EARLY CLAN IMPROVED SYSTEMS (EARLY CLAN)

The improved weapons and equipment that debuted in the early years of Clan development have the following effects in *BattleForce* games.

Early Clan Improved Weapons

The weapons introduced by the early Clans are listed as "Improved" or "Enhanced" in the BattleForce Weapon Conversion Table for Alternate Era equipment, under the *Early Clan Equipment* header. These include the improved lasers, improved and enhanced PPCs, improved autocannons, improved Gauss rifle, and improved standard missile launchers.

Elements mounting these improved weapons follow all appropriate rules for standard weapons in gameplay. Any relevant special unit abilities applicable to these weapons (as noted on the table) will apply only if their damage values attain the minimum defined under the normal rules for those special abilities when converting elements from standard *BattleTech* play to *BattleForce* (i.e. 10 points or more at Medium range for missile launchers).

EARLY CLAN PROTOTYPE SYSTEMS (EARLY CLAN)

The prototype weapons and equipment that debuted in the early years of Clan development have the following effects in *BattleForce* games.

Early Clan Prototype Weapons

The weapons prototyped by the early Clans are listed as "Prototype" in the BattleForce Weapon Conversion Table for Alternate Era equipment, under the *Early Clan Equipment* header. These include Clan prototype ER lasers, Clan prototype LB-X autocannons, Clan prototype Streak SRM launchers, and Clan prototype Ultra autocannons.

Elements mounting these prototype weapons follow all appropriate rules for standard weapons in gameplay.

EXPANDED PROTOMECHS (WARS OF REAVING)

With the exception of the Glider type of ProtoMech, the expanded ProtoMech technologies that were unveiled during the Clan Wars of Reaving function (and are converted from *BattleTech*) according to the standard *BattleForce* rules for such element types.

Glider ProtoMechs

Glider ProtoMechs are noted by having the Glider (GLD) special unit ability, and will feature two MP values, separated by a slash. The value left of the slash is the ProtoMech's ground MP, while the value to the right of the slash is its WiGE MP (movement code g).

In *BattleForce* gameplay, a Glider ProtoMech element must declare which movement mode it is using at the start of its Movement Phase. Glider ProtoMechs that opt to use their ground MP must follow all relevant rules for ProtoMechs using non-jumping ground movement, while those that use their WiGE movement must use the rule appropriate for Wing-in-Ground Effect vehicles (see p. 218, *SO*)—including the minimum movement requirement of 2 hexes to remain aloft.

Furthermore, if an attack against a Glider ProtoMech element misses its modified to-hit number by 1 point, the attacker must roll 1D6. If the result is 5 or 6, the Glider ProtoMech suffers a glancing hit to its wings. This glancing blow reduces the element's WiGE MP by 1, but otherwise delivers no damage to the ProtoMech.

Conversion: When converting a Glider ProtoMech, assign 1 MP of ground MP for every MP of Walking movement it has in *BattleTech* play. For the Glider ProtoMech's WiGE MP, use its WiGE Cruise MP. For example, the *Svartalfa* Glider ProtoMech, with a Walking MP of 1 and a WiGE Cruise MP of 4 in *BattleTech*, would translate to a BattleForce MP of 1/4g.

INNER SPHERE PROTOMECH INTERFACE (JIHAD)

The Inner Sphere ProtoMech interface that was prototyped during the Jihad has no special effect in *BattleForce* play, except that such elements can only be piloted by warriors who have received a direct neural implant of some kind.

Conversion: The Inner Sphere ProtoMech interface has no special rules when converting a ProtoMech so equipped from *BattleTech* to *BattleForce*.

INNER SPHERE RECOVERED PROTOTYPES (LATE SUCCESSION WARS)

The recovered Star League-era equipment, and prototype technologies that debuted in the Late Succession Wars have the following effects in *BattleForce* games.

Recovered Prototype Weapons

The prototype weapons reintroduced in the late Succession Wars period are listed in the in the BattleForce Weapon Conversion Table for Alternate Era equipment, under the *Late Succession Wars Equipment* header. These include the prototype ER large laser, the 3031 prototype medium pulse laser, 3038 prototype Gauss rifle, 3030 prototype LB 10-X autocannon, and the prototype autocannon/5.

Elements mounting these recovered prototype weapons follow all appropriate rules for standard weapons in gameplay.

Prototype Double Heat Sinks (Freezers)

Prototype double heat sinks have no special effects in *BattleForce* gameplay.

Conversion: When calculating heat for an element with prototype double heat sinks (freezers), each freezer dissipates 2 points of heat.

Prototype Endo Steel Structure

Prototype endo steel internal structure (ES-P) has no special effects in *BattleForce* gameplay.

Conversion: Prototype endo steel internal structure does not modify an element's *BattleForce* conversion process in any way.

Prototype Ferro-Fibrous Armor

Prototype ferro-fibrous armor (FF-P) has no special effects in *BattleForce* gameplay.

Conversion: Prototype ferro-fibrous armor does not modify an element's *BattleForce* conversion process in any way.

Prototype Triple-Strength Myomer

Elements with the prototype form of triple-strength myomer (identified by the TSMX special unit ability) deliver 1 additional point of damage to all successful physical attacks they execute, regardless of the element's current heat level. This added damage is cumulative with any provided by a Melee (MEL) special ability.

Unlike standard and industrial TSM, prototype TSM does not provide a movement boost. More importantly, elements equipped with prototype TSM are susceptible to Anti-TSM special munitions (see below).

Conversion: An element receives the TSMX special unit ability if it lists prototype triple-strength myomer in its weapon and equipment inventory.

Specialty Munitions: Listen-Kill Missiles and Anti-TSM Munitions

Listen-Kill missiles and Anti-TSM warheads missiles are alternate munitions available only to standard LRM and SRM launchers, and cannot be used by elements that lack either of those special abilities. The general rules governing the use of alternative munitions in *BattleForce* are found in *Strategic Operations* (see pp. 308-310, *SO*). The following rules detail the specific effects of these munitions in *BattleForce* play.

Anti-TSM Warheads: When making a successful ranged attack by elements equipped with Anti-TSM warheads—either while using just the element's IF, LRM, or SRM special abilities, or as part of a standard attack—reduce the attack's damage by 1 point. If the target possesses the TSMX or TSI specials, it sustains 2 additional points of damage and 1 additional critical hit, even if there is still armor remaining.

In addition to these effects, Anti-TSM warheads fill a 1-hex area with smoke centered on the element they hit. This "green smoke" which will linger, drift, and affect LOS as per the rules for normal smoke (see p. 318, *SO*). Elements with the TSMX or TSI specials that enter this smoke area—or which begin their Movement Phase within a smoke area previously created by Anti-TSM warheads—will immediately suffer 1 point of structure damage if they do not possess any armor at that time, resolving Critical Hits accordingly.

Listen-Kill Missiles: Elements using Listen-Kill missiles receive a –1 to-hit modifier when executing attacks against a target, whether doing so with just the element's LRM or SRM special, or as part of a full standard attack. (**Note:** For scenarios set after 3039, this modifier is negated.)

Space Station K-F Adapter

Elements with Space Station K-F Adapters are counted as DropShips for the purposes of being transported by ships with KF-capable docking collars (represented by the DT# special). Docking and undocking a station element fitted with a K-F adapter follows the standard rules for this item (see p. 105), except the number of turns required is halved. Any K-F Drive critical hits to a space station with a K-F adapter are treated as a K-F Boom critical hit instead (see p. 285, *SO*).

LAND-AIR BATTLEMECHS (MULTIPLE ERAS)

An element that is built as a Land-Air BattleMech (LAM) will have either a LAM (#g/#a) special, or a BIM (#a) special to identify itself as such. LAMs can change modes from that of a BattleMech to that of an aerospace fighter, using the movement rules for the element type corresponding to their mode. LAMs not indicated as bimodal-only (those with the BIM special) also include a hybrid configuration known as AirMech mode, in which the 'Mech can move as a wing-in-ground effect (WiGE) vehicle element.

Regardless of their current mode of operation, LAMs are technically considered BattleMechs, and will thus function in accordance with the standard *BattleForce* rules for 'Mech elements except as follows:

Mode Switches and Movement

When a LAM switches between modes, this switch always takes place at the start the element's Movement Phase. The action is incidental to the element's movement, and switches it to the movement type of its chosen form:

- LAMs in 'Mech mode function as jump-capable BattleMechs, and may only use the movement rules and modifiers applied to standard ground and jumping movement types in this mode. These movement ranges will be shown on the element's basic Move stats.
- LAMs in AirMech mode function as BattleMechs with a WiGE movement type (the movement mode ending in "g" after the LAM special), and may only use the movement rules and modifiers applied for WiGE vehicle elements in this mode. Note that the number of MPs a WiGE receives may be different from the amount of MPs it receives in 'Mech mode.
- LAMs in Fighter mode function as aerospace elements for movement purposes. Once the switch to this mode occurs, the element's Thrust is identified by the aerodyne movement value (the movement mode ending in "a" after the LAM or BIM special).
- If a LAM is currently being attacked by Anti-'Mech Infantry (see p. 322, *SO*)—or was attacked by an Anti-'Mech Infantry element that has yet to move away from the previous turn—when it changes modes, the LAM delivers 1 point of damage to the attacking infantry element, but must roll for and resolve a Critical Hit against itself before it can perform any other actions in the turn where it converts.

Combat Phase

The following rules additional rules apply to LAMs in combat:

Target Movement Modifiers: Attacks against LAMs use the target movement modifiers appropriate to their current mode of operation. LAMs in Fighter and AirMech mode are considered airborne elements for targeting purposes, with attacks against AirMech-mode LAMs

treated as an attack against an airborne 'Mech, and attacks against Fighter-mode LAMs treated as an attack against an airborne aerospace fighter.

Weapon Attack Arcs: LAMs in all modes use the same weapon attack arcs as a BattleMech.

Control Rolls: LAMs in fighter mode make Control Rolls whenever they would normally be required for aerospace elements.

Damage and Critical Hits: In all three modes, LAMs suffer damage and critical hits as a BattleMech.

Additional Land-Air BattleMech Rules

LAMs also apply the following additional rules during *BattleForce* game play:

Bimodal LAMs: A LAM identified as bimodal—with the BIM (#a) special—cannot make use of the AirMech mode. Bimodal LAMs can only switch between standard 'Mech and fighter configurations.

Unit Transports: Another advantage to LAMs is that they can be carried by transports intended for either 'Mechs or fighters by simply switching to the appropriate mode. A LAM in 'Mech mode can be transported and deployed by units that possess 'Mech cubicles (MT# special), while one in fighter mode can be carried and launched from units that possess fighter cubicles (AT# special).

Converting LAMs for BattleForce

When converting a LAM from *BattleTech* to *BattleForce*, treat the element as a normal BattleMech, but assign it the additional special unit ability of LAM (#g/#a) if the element is a standard LAM, or BIM (#a) if it is a bimodal LAM. For both LAM types, the # value preceding the letter "a" is equal to the element's Safe Thrust in fighter mode; for standard LAMs, the # value preceding the letter "g" is the LAM's WiGE Cruise MP.

MACHINA DOMINI INTERFACE (JIHAD)

A 'Mech element that is operated by a Machina Domini Interface (Clan or Inner Sphere) functions as a normal BattleMech in BattleForce play, with a –1 Skill modifier applied to the operating warrior. Be sure to adjust the element's *BattleForce* Point Value to account for this Skill improvement. In addition to this, warriors piloting a Machina Domini-operated element automatically eject in the event their element is destroyed in combat (see p. 314, *SO*).

Only warriors who have been augmented with a VDNI implant of some type may operate an element fitted with a Machina Domini interface. While operating a 'Mech element via a Machina Domini interface, the operator's battle armor-based control system is treated as part of the 'Mech, and thus is not tracked as a separate element. When ejected or otherwise outside of its 'Mech, the suit is treated as an ejected warrior per the Ejection/Abandoning Elements rules cited above.

Conversion: Beyond applying the DN special unit ability to both the 'Mech and battle armor elements required for a Machina Domini interface, this technology does not alter the standard rules for converting elements from *BattleTech* to *BattleForce*.

MODULAR SPACE STATIONS (MULTIPLE ERAS)

An element that is built as a modular space station follows the standard *BattleForce* rules for space stations, but is treated as having a Space Station K-F Adapter. Assembly/disassembly follows the standard rules (see p. 117), except the number of turns required is halved. Disassembled modular space stations may then be docked with any jump-capable elements that possess a DT# special ability, with a maximum of 2 space station modules per jump-capable element.

PRIMITIVE PROTOTYPE EQUIPMENT (AGE OF WAR)

The primitive prototypes of the weapons and equipment that debuted in the early years of Clan development have the following effects in *BattleForce* games.

Primitive Prototype Weapons

The early prototype weapons introduced in the earliest days of the Age of War are described as "Primitive Prototype" weapons in the BattleForce Weapon Conversion Table for Alternate Era equipment, under the *Age of War Equipment* header. These include the primitive prototypes for standard autocannons, the Long Tom artillery piece, standard lasers, standard LRMs, standard SRMs, and the standard PPC.

Elements mounting these improved weapons follow all appropriate rules for standard weapons in gameplay. Any relevant special unit abilities applicable to these weapons (as noted on the table) will apply only if their damage values attain the minimum defined under the normal rules for those special abilities when converting elements from standard *BattleTech* play to *BattleForce* (i.e. 10 points or more at Medium range for missile launchers).

Note that primitive prototype missile launchers (which already account for their reduced number of missile hits per cluster) are incompatible with Artemis-style fire control systems, and thus have no augmented damage values for such technologies. Likewise, primitive prototype autocannons, lasers, and PPCs are incompatible with modern targeting computers, and thus cannot benefit from such equipment.

DropShuttle Bays

Elements with DropShuttle Bays count as having the DropShip Transport ability (DT#), with each DropShuttle Bay counting as the equivalent of 2 docking collars (see p. 348, *SO*). Docking attempts follow the standard rules (see p. 119), except the required number of turns is halved.

Pre-KF Boom Docking Collar

Elements with a Pre-KF Boom Docking Collar treat these as standard docking collars for most operations, adding the DT# special to the unit for each pre-boom collar the element possesses, but must add a lower-case "p" to the end of the special ability code to identify the transport capability as pre-boom (e.g. DT3p for an element with 3 pre-boom docking collars). Elements that mount pre-boom collars may not execute hyperspace jumps while any DropShips are docked with it.

Other Primitive Prototype Equipment

The other "primitive prototype" equipment featured in this chapter—K-F drive booms and post-KF boom docking collars for spacecraft, and jump jets for 'Mechs—operate as their normal counterparts under *BattleForce* rules. No special rules apply for their use in gameplay, or when converting elements that use them from *BattleTech* to *BattleForce* game stats.

PRIMITIVE UNITS AND RETROTECH (MULTIPLE ERAS)

The following *BattleForce* rules apply to elements built using the rules for primitive units. Players running games set after the Age of War period may still employ primitive construction rules, but any elements built via the primitive construction rules after the founding of the Star League (2570) will be classified as "RetroTech" instead. It is up to the players to clearly identify which elements are which in the event that a scenario features a mix of primitive, modern, and/or RetroTech elements.

Primitive Targeting Modifiers

In *BattleForce* play, primitive IndustrialMechs with the AFC special ability and aerospace fighter elements automatically suffer a +1 to-hit modifier for all attacks due to their less sophisticated targeting systems. This same modifier also applies to primitive combat vehicles with the AFC special, and primitive conventional fighters with the AFC, which are built using support vehicle rules, and thus use the rules for those element types in *BattleForce* play.

Primitive elements that have the BFC special unit ability (Basic Fire Control) will suffer a +2 Skill modifier instead of the +1 indicated above, while primitive IndustrialMechs and vehicle elements with *neither* the AFC nor the BFC specials will suffer a +3 Skill modifier.

Primitive BattleMechs suffer no added to-hit modifiers due to their primitive construction, nor will any modern elements built to primitive standards (also known as "RetroTech" elements).

Damage to Primitive and RetroTech Elements

When applying damage to elements built with a primitive or RetroTech construction rules, use the standard *BattleForce* gameplay rules, including those for special unit abilities such as BAR.

If the element is a 'Mech, roll twice for any required Critical Hit checks, even if the element is a BattleMech. If the element is an IndustrialMech, apply an additional +2 roll modifier for these Critical Hit rolls, treating any result higher than 12 as a "Fuel Hit" critical result (even if the element does not carry fuel).

For all other primitive and RetroTech elements, no additional special rules apply.

Converting Primitive and RetroTech Elements

When converting elements constructed via the rules for primitive units and RetroTech from *BattleTech* to *BattleForce*, all standard conversion rules apply. As always, be sure to note any armor types used that may provide a BAR special unit ability, as well as any use of the basic fire control (BFC) or advanced fire control (AFC) on all non-BattleMech and non-aerospace elements.

For elements that are not specifically identified as RetroTech, be sure and compute the element's base *BattleForce* Point Value using a Skill rating equal 4 plus the appropriate primitive to-hit modifier indicated above. (For example, a primitive IndustrialMech with a BFC special would compute its base PV as if it had a Skill of 6; 4 +2 [Primitive element with BFC] = 6.)

PROTOTYPE SPECIALTY MUNITIONS (CLAN INVASION)

Of the short-lived prototype specialty munitions that appeared in the Clan Invasion era, only dead-fire missiles, and shoot-and-sit missiles have an effect in *BattleForce* play. Dead-fire missiles are alternate munitions available only to standard LRM and SRM launchers, and cannot be used by elements that lack either of those special abilities, while shoot-and-sit missiles are only available to elements equipped with a standard Narc launcher (SNARC special).

The general rules governing the use of alternative munitions in *BattleForce* are found in *Strategic Operations* (see pp. 308-310, *SO*). The following rules detail the specific effects of these munitions in *BattleForce* play.

Dead-Fire Missiles

When delivering an attack using dead-fire missiles, increase the damage delivered by the element's LRM or SRM special by 1 point, but decrease its maximum range by 1 bracket. (For example, with dead-fire missiles, the LRM1/2/2 special would become LRM2/3/0, while the SRM3/3 special would become SRM4/0.)

When using dead-fire missiles as part of a standard weapon attack, remember to adjust the element's normal damage values accordingly (e.g. eliminating the Long range LRM damage values for elements with LRM specials while increasing their Short and Medium range damage by 1; or eliminating the Medium range SRM damage values for elements with SRM specials, while increasing their Short range damage by 1).

Shoot and Sit Missiles

Shoot-and-sit (SS) missiles were an early version of the explosive Narc pods that could either be detonated immediately on contact (like the explosive pods, as defined on p. 309, *SO*), or detonated later.

When making a weapon attack, an element using shoot-and-sit missiles can declare when attacking that it is either using these warheads as normal contact-explosive pods—in which case the explosive pod rules are used, and deliver 1 point of damage per 2 pods, rounded down—or is withholding the detonation for later. If the attacker opts for a later detonation, it must track each successful hit made against its target using the SNARC special. To detonate these missiles later, the attacker must begin its Combat Phase with a valid LOS to the target that has been "seeded" with SS missiles, and declare that it is setting off the explosives as part of its own weapon attack.

The detonation delivers damage to the target equal to 1 point for every 2 successful SNARC attacks previously made against the target using SS missiles. When detonated later in this manner, all of the SS missiles are set off at once; the attacker cannot choose to set some off and save others for later.

An element using SS missiles can only detonate its own missiles in this manner. If the element using SS munitions is destroyed before it can set off its explosives, the unexploded missiles will not be detonated (and can be safely removed post-battle).

QUADVEES (DARK AGE)

An element that is built as a QuadVee will have the QV special to identify itself as such, as well as a base movement code given as either "qt" or "qw". Because the torso of a QuadVee also functions as a turret, these units will also feature a TUR (#/#/#) special ability.

Similar to a LAM, but entirely ground-based, a QuadVee is a 'Mech designed to switch between 'Mech and vehicle movement options. Unlike LAMs, QuadVees do not have a hybrid mode of operation.

QuadVees are considered BattleMech elements regardless of their current mode, and thus will function in accordance with the standard *BattleForce* rules for 'Mech elements except as follows:

Mode Switches and Movement

When a QuadVee switches between modes, its conversion always takes place at the start the element's Movement Phase. The action is incidental to the element's movement, and switches it to the movement type of its chosen form:

- QuadVees in 'Mech mode function as four-legged 'Mechs, and thus may use the standard movement rules and modifiers applied to 'Mech elements (including jump capability, if indicated in the element's stats). These movement ranges are as those shown on the element's basic Move stats.
- QuadVees in vehicle mode function as ground vehicles for movement purposes, but the type of movement used in this mode varies with element's movement code. A QuadVee movement code of "qt" indicates that the element uses tracked movement when in vehicle mode, while a code of "qw" indicates that it uses wheeled movement in vehicle mode. The base MP a QuadVee has in vehicle mode is identical to its non-jumping 'Mech mode. While in vehicle mode, a QuadVee must obey all terrain restrictions for vehicles of its movement type, and cannot use jumping movement even if it possesses that ability

in 'Mech mode. However, vehicle-mode QuadVees *will* gain other benefits unique to vehicles (such as the extra 1 MP of movement on paved terrains).
- Wheeled QuadVees in vehicle mode increase their available MP per turn by 1.

Combat Phase

The following rules additional rules apply to QuadVees in combat:

Target Modifiers: Attacks against QuadVees use all target modifier rules appropriate to the QuadVee's current mode of operation.

Weapon Attack Arcs: QuadVees in both modes possess a 360-degree weapon attack arc, as indicated by the fact that the element's damage values are also given as a TUR (#/#/#) special. Despite this, the element retains a rearward facing and attacks through its rear arc are resolved with the same modifiers and effects as a rear attack on a BattleMech.

Damage and Critical Hits: In both modes, QuadVees suffer damage and critical hits as a BattleMech. Unlike vehicles, QuadVees do not check for Motive Systems Damage under any circumstances (see p. 231, *SO*).



Autonomous and unmanned, M-5 Caspar Capital Drones once guarded the Terran Hegemony worlds with cold logic and heartless lethality.

Other QuadVee Rules

QuadVees also apply the following additional rules during *BattleForce* game play:

Water Movement: Unlike normal vehicles, QuadVees in vehicle mode may enter water of Depth 0 or 1, but must be in 'Mech mode to enter Depths 2+. Vehicle-mode QuadVees in water of Depths 0 and 1 use the movement costs applied to 'Mech elements.

Unit Transports: Another advantage to QuadVees is that they can be carried by transports intended for either 'Mechs or vehicles by simply switching to the appropriate mode. A QuadVee in 'Mech mode can be transported and deployed by elements that possess 'Mech cubicles (MT# special), while one in vehicle mode can be carried and launched from units that possess vehicle bays (VTM#, VTH#, or VTS# specials).

The only concern when carrying vehicle-mode QuadVees in this manner is that the QuadVee must be within the size limits described for the appropriate bay type (see p. 354, *SO*).

Converting QuadVees for BattleForce

QuadVees receive the QV special ability. Convert QuadVees to *BattleForce* as BattleMechs (see p. 355, *SO*). If the QuadVee has Tracks in its legs, it identifies its ground MP with the Tracked QuadVee movement type (qt). If the QuadVee has Wheels in its legs, it identifies its ground MP with the Wheeled QuadVee movement type (qw). The MPs listed for either QuadVee ground movement type are equal to the element's Walking MP. (The bonus MP allotted to wheeled QuadVees in vehicle mode is accounted for in the rules above.)

In addition to the above, all weapons mounted in a QuadVee's torso and head are treated as though they are mounted in a turret, and so the sum of all damage values attributed to torso- and head-mounted weaponry is also assigned to a TUR(#/#/#) special unit ability (see pp. 353-354, *SO*).

ROBOTIC AND DRONE SYSTEMS (MULTIPLE ERAS)

Virtually all element types found in *BattleForce* may be constructed as drones. Drones are either driven remotely by human operators, or controlled by their own on-board artificial intelligence software. For the sake of these rules, a unit with the Drone (DRO) special is considered to be a remote-controlled unit, while those with the Robotic (RBT or SDCS) specials operate independently.

Remote-Operated Drones

The use of remote-operated drones is largely covered already by the rules for the Drone and Drone Carrier Control System special unit abilities found in *Strategic Operations* (see p. 348, *SO*). Additional rules regarding these drones are covered under *Additional Drone Rules* (see p. 208).

Robotic Drones

Robotic elements—identified by the RBT special unit ability code—are designed for independent operation, and thus do not rely on constant communication for combat directions, nor do they require the presence of a control element as remote drones do. Despite this, robotic drones can still be impaired by hostile ECMs as their sensor suites become blinded or disoriented by the interference. The following rules cover the operation of robotic drones in *BattleForce* games.

Robotic Initiative: Because they are specifically designed to operate independent of human control, any time a force of robotic elements is present in a scenario, all robotic elements fielded by each side must roll their own Initiative. A robotic force's Initiative roll automatically applies a –2 modifier automatically (–1, if the robotic unit features the SDCS special).

Robotic Skill Ratings: As with remote drones, robotic drones that lack the SDCS special receive a Skill rating 1 point higher than an equivalent human-operated equivalent. Thus, a Regular-rated non-SDCS robotic tank would possess an effective Skill of 5, rather than 4. Robotic elements *with* the SDCS special receive a Skill rating equal to any human-operated element of the equivalent Skill Rating.

Because few robotic AIs can match the intuitive abilities of a human, the maximum Skill Rating a robotic unit may possess is Elite—so, a robotic unit without the SDCS special may not receive a Skill rating better than 3, while the best Skill rating a robotic drone *with* the SDCS special may attain is 2.

Robotic Aggression Modes: At the *BattleForce* scale of play, the elaborate decision trees described earlier in this book are replaced with a simpler guide to robotic drone behavior, based on the element's "Aggression Mode". Prior to the start of a scenario involving robotic drone elements, the drones' controlling player must assign an Aggression Mode to each unit of robotic elements. This Aggression Mode will establishes the drones' general mission and tactical functions for the scenario, and may be set as Aggressive, Defensive, Passive, or Suicidal.

- **Aggressive Mode:** An aggressive robotic element will take an active role in combat, targeting and attacking any hostile elements that come within its weapons' range and line of sight. The aggressive element may pursue its enemies as the controlling player sees fit, and will continue to pursue for any distance, unless the drone suffers crippling damage (at which point it will follow Forced Withdrawal rules and return to its base).
- **Defensive Mode:** Defensive robotic elements will stay close to an objective or designated map area that it is tasked with protecting, never straying farther than 12 hexes from its charge. Defensive drones will only target hostile elements that enter their weapons' range, and may seek better positions to strike at them from, but they will never allow themselves to be drawn too far away from their defensive objective. If a defensive drone does find itself farther than 12 hexes from the focus of its defense, it will move back toward it at the earliest opportunity. As with aggressive drones, defensive drones return to base per Forced Withdrawal rules once they have sustained crippling damage.
- **Passive Mode:** A passive robotic element is even less apt to move and engage enemies than a defensive one. These drones will only attack a hostile target that has entered their Short range bracket, and are always susceptible to Forced Withdrawal rules if they sustain crippling damage. A passive drone will not move farther than 3 hexes from its assigned position.
- **Suicidal Mode:** Robotic drones set to a suicidal level of aggression will always attempt to close with and engage the nearest hostile element during combat. Suicidal drones will also ignore Forced Withdrawal rules under all conditions. If a suicidal drone is crippled and rendered unable to attack a target, it may—at the controlling player's option—initiate a self-destruct sequence. A self-destructing drone with a Booby Trap device will deliver the full damage value of that device to all elements in its hex (see p. 346, *SO*); if it lacks such a device, the self-destructing drone will deliver damage equal to its Size value to all elements in its hex.

Aerospace Drones: When using the Aggression Modes for robotic aerospace elements with the abstract aerospace combat rules, disregard the range references described, and replace the movement range limitations of the defensive and passive modes as follows:

- For defensive robotic elements, all movement must be restricted to the Central Zone and the Inner, and Middle Rings of the Radar Map that the element is operating in.
- Passive robotic elements will restrict their movement range to the Central Zone and Inner Ring only. If forced to retreat for any reason, the robotic element will return to its base vessel or landing area, or—if none has been defined—simply move to stay as close to the Central Zone as possible.

ECM Effects on Robotic Elements: Unlike remote-controlled drones, robotic elements caught within a hostile ECM field will not simply shut down. Instead, whenever a robotic element begins its Movement Phase inside the area of a hostile ECM field, the drone's controlling player must roll 1D6.

On a result of 4 or less, the robotic element becomes blinded for that turn. A blinded robotic element will behave as a crippled element under Forced Withdrawal rules, and retreat toward its home area.

On a result of 5, the robotic element becomes dazed for that turn. While dazed, the element will simply move in a random direction (turning only to avoid entering illegal terrain), and will attempt no attacks in the Combat Phase.

On a 6 result, the robotic element goes berserk. In this state, the robotic element behaves as if it has been set to a Suicidal Aggression Mode, and will target, close with, and attack the nearest element of any type. Because its sensors are disrupted at this time, the berserking robotic element will not be able to tell friend from foe in this state, and will attack the nearest element from *any* side.

ECM effects against robotic elements end at the start of any turn in which the robotic element is no longer within a hostile ECM field.

Additional Drone Rules

Neither of the drone types covered by these rules—remote-controlled or robotic—may benefit from special command or pilot abilities (such as the found on pp. 265-269 and 298-307, *SO*). If such optional command rules are in play, drone elements are omitted from any chains of command that may receive special tactical commands. Furthermore, remote-controlled and robotic drones may take advantage of any rules that rely on the MHQ# special unit ability (such as Battlefield Intelligence, see pp. 263-264, *SO*)—but they may still benefit from any other on-board special unit abilities noted in their stats.

Drones and Psychological Warfare: Drones of all types are immune to the effects of morale (see pp. 295-297, *SO*), and special abilities and command tactics that would demoralize, distract, intimidate, or enrage human-crewed units.

Special Equipment and Conversion Rules for Robotic Elements

The rules that follow detail additional effects of robotic- and drone-specific equipment that has been featured in this book. This includes not only gameplay rules, but also the applicable conversion rules that apply. Note that all robotic and remote-operated drones otherwise follow the *BattleForce* conversion rules appropriate to their element types.

Smart Robotic Control System

An element with a smart robotic control system is identified as a robotic element with the RBT special unit ability. These elements follow the standard rules for robotic drones as described above.

Conversion: An element constructed with a smart robotic control system receives the RBT special unit ability.

Shielded Aerospace Smart Robotic Control System

An aerospace element with a shielded aerospace smart robotic control system is identified as a robotic element with the RBT special unit ability, and also receives the ECM special to reflect its ability to resist hostile electronic warfare systems. These elements follow the standard rules for robotic drones as described above, and may use their ECM abilities as appropriate to the scenario at hand.

Conversion: An element constructed with a shielded aerospace SRCS receives both the RBT and ECM special unit abilities (even if it does not otherwise incorporate ECM equipment).

SDS (Caspar) Drone Control System

Elements with a Caspar control system identify themselves as such with the SDCS special unit ability. This extremely sophisticated and highly adaptive robotic control system reduces the Skill modifier for the robotic element to +0. Furthermore, if all elements in the drone force are equipped with SDCS, the force's Initiative modifier changes from –2 to –1.

Conversion: An element constructed with a SDS (Caspar) drone control system receives both the RBT and the SDCS special unit abilities.

Caspar II Advanced Smart Robotic Control System

Elements constructed with a Caspar II advanced smart robotic control system receive both the drone (DRO) and robotic (RBT) special unit abilities. This feature enables them to operate independently (using the robotic drone rules described on pp. 207-208) and as remote-operated drones (by any friendly element with element with both the DCC and NC^3 special abilities, which together represent a DTACS-equipped command element).

A Caspar II element that has no command element in play (or which cannot communicate with such elements due to some form of interference) will operate as a robotic element in accordance with its last assigned Aggression Mode. If a friendly control element is present and able to communicate, it may either change the Caspar II's at the start of the control element's Movement Phase, or assume direct command over the Caspar II element, directing its actions as a drone (see p. 348, *SO*).

Conversion: An element constructed with a Caspar II advanced SRCS receives both the RBT and the DRO special unit abilities.

Autonomous Tactical Analysis Computer

An element with an autonomous tactical analysis computer (ATAC) system is identified by the ATAC# special unit ability. This equipment enables the element to feed improved tactical input to robotic and remote-operated elements, translating to a –1 Skill modifier for all elements in its network (much like a Naval C^3 system).

The number of elements with the DRO, RBT, or SDCS abilities that may benefit from this boost is equal to the element's ATAC# value, so an element with an $ATAC^3$ special can provide this Skill modifier to up to 3 robotic units.

Conversion: An element constructed with an ATAC system receives the ATAC# special unit ability. The value assigned to this ability is equal to the number of drones it is designed to control.

Direct Tactical Analysis Control System

An element with a direct tactical analysis control system (DTACS) functions as though it were equipped with a combination of both a drone carrier control system and a Naval C^3, and thus such elements will be identified by the presence of both the DCC# and the NC^3 special abilities.

A DTACS is compatible only with elements that have the RBT special *without* the SRCS special, and provides a –1 Skill modifier to a number of such elements equal to the command element's DCC# special. If commanding an element that has the RBT special only, this element can only alter a friendly robotic element's Aggression level during its own Movement Phase; if the friendly robotic element also possesses the DRO special.

Conversion: An element constructed with DTACS equipment receives the DCC# and NC^3 special unit abilities. The value assigned to the DCC# ability is equal to the number of drones the element is designed to control.

Advanced Robotic Transport System

An element equipped with the advanced robotic transport system uses modified transport bays primarily intended to operate in conjunction with drones. In *BattleForce* play, the function of an ARTS bay is indistinguishable from that of an equivalent fighter, small craft, 'Mech, or vehicle transport bay.

Elements with ARTS bays also gain the benefits of a mobile field base, which enables them to serve as repair assets between scenarios.

Conversion: Treat an element's ARTS-enhanced transport bays as their equivalent standard transport bays when converting to *BattleForce*. In addition to this, assign the mobile field base (MFB) special to any element that carries one or more ARTS-enhanced transport bays.

SDS Self-Destruct System

The SDS self-destruct system operates as the equivalent of a booby trap device on drones so equipped. Players should note that, to avoid capture, virtually every Star League-era robotic elements equipped with such self-destruct systems would automatically activate them once they sustained crippling damage, regardless of the element's Aggression level.

Conversion: Any element constructed with a SDS self-destruct system receives the booby trap (BT) special unit ability.

SLDF SDS Jammer

An element with this special unit ability cancels the –1 to-hit modifier provided by an opposing element's ATAC or Naval C^3 special abilities. This jamming effect works as long as the opposing elements lie within its Extreme range weapon bracket (or closer).

Conversion: An element constructed with an SLDF SDS jammer system receives the JAM special unit ability.

Dragon's Breath MCM Launch System

An element equipped with the Dragon's Breath MCM launch system receives the DB special unit ability. Once per scenario, an element with this ability may execute an attack against any target that comes within the element's Medium range bracket. Apply a +4 to-hit modifier to this attack, in addition to all other modifiers appropriate to the element's normal ranged weapon attack. If the attack succeeds, roll 4D6 and apply that many points to the target.

Once a Dragon's Breath weapon is fired, mark it off the element's record sheet.

Conversion: An element carrying a Dragon's Breath MCM launch system receives the DB special unit ability.

SUPERHEAVY 'MECHS (MULTIPLE ERAS)

Superheavy 'Mechs are identified as 'Mech-type elements, with a Size value of 4, and the Large (LG) special unit ability. Superheavy 'Mechs are treated like standard 'Mechs in *BattleForce* play, except as indicated below.

Movement Phase

Superheavy 'Mechs use the standard movement rules for 'Mech elements, except for the following changes:

Movement: Superheavy 'Mechs reduce the MP costs for all Woods, Jungle, Rough, Rubble, and Buildings terrain by 1 (to a minimum cost of +0 MP). For all other terrain types and conditions, including elevation changes and lateral movement for quads, the movement costs for a superheavy 'Mech are the same as they would be for a standard size 'Mech element.

Stacking Limits: Although other Large-size elements normally occupy an entire *BattleForce*-scale hex (see p. 219, *SO*), a single superheavy 'Mech only counts as 4 elements for stacking purposes. Given the limit of 20 elements per hex in standard *BattleForce*-scale play, this allows up to 5 superheavy 'Mechs to operate as a single unit and occupy the same hex.

Combat Phase

Superheavy 'Mechs in *BattleForce* modify the standard combat rules for 'Mechs as indicated below:

Attack Modifiers: All attacks made against a superheavy 'Mech receive a –1 to-hit modifier, to reflect their Large size. In addition to this, any physical attacks performed *by* a superheavy 'Mech will suffer a +1 to-hit modifier, due to their reduced agility.

Infantry: Anti-'Mech infantry elements receive a –2 to-hit modifier when attempting an anti-'Mech attack against a superheavy 'Mech (see pp. 322-323, *SO*). This modifier replaces the standard –1 attack modifier described above, but only for anti-'Mech attacks.

Mechanized Infantry (and ProtoMechs): Even though superheavy 'Mechs are substantially larger than normal 'Mechs, they still may not carry more than 1 battle armor element per 'Mech under the Mechanized Battle Armor rules (see p. 324, *SO*).

Likewise, if carrying ProtoMechs equipped with magnetic clamp systems (see p. 214), a superheavy 'Mech can only carry 2 ProtoMech elements with the MCS special—or 1 ProtoMech element with the UCS—at a time.

A superheavy 'Mech may never carry mechanized infantry *and* magnetic-clamped ProtoMechs at the same time.

Critical Hits: Superheavy 'Mechs resolve critical hits using the same rules for a normal 'Mech of equivalent type. This also means that superheavy IndustrialMechs still roll twice for critical hits when such elements suffer damage to their Structure points.

Additional Superheavy 'Mech Rules

Superheavy 'Mechs also apply the following additional rules in *BattleForce* play:

Buildings: When using the advanced Buildings rules (see pp. 311-313, *SO*), superheavy 'Mechs operate as normal sized 'Mechs, but cannot climb buildings, and have an effective Size value of 5 for the purposes of the building's weight capacity. (This essentially means that even a Hardened building cannot support the weight of a superheavy 'Mech on top of it.)

Furthermore, in addition to the MP reduction indicated earlier, a superheavy 'Mech passing through a building hex will inflict 2 points of damage to the building as it passes through.

Transporting Superheavy 'Mechs: Superheavy 'Mechs may not be transported as standard 'Mechs via the MT# special. They may only be transported by elements that have a cargo capacity listed in tonnage, as long as that cargo capacity is at least 220 tons per superheavy 'Mech. This lack of dedicated superheavy 'Mech transport cubicles also means that superheavy 'Mechs cannot use the Dropping Troops rules (see pp. 313-314, *SO*), and must always be transported as cargo (see *Elements as Cargo*, p. 326, *SO*).

Converting Superheavy 'Mechs to BattleForce

Any BattleMech or IndustrialMech weighing more than 100 tons is automatically considered a superheavy 'Mech. Superheavy BattleMechs and superheavy IndustrialMechs convert to *BattleForce* using the same rules as their standard-size counterparts, but also apply the Large (LG) special unit ability as a consequence of their superheavy construction.

THERMOBARIC WEAPONS (MULTIPLE ERAS)

Under *BattleForce* rules, the fuel-air munitions presented in this volume are deployed in accordance with their appropriate methods (as bombs from fighters and other airborne units, or as artillery rounds from appropriate launchers).

As with the standard rules, these weapons may not be employed at Atmospheric Densities below Thin, and their damage values—as presented in the BattleForce Artillery Conversion Table—are halved in Thin atmospheric pressure conditions. Note that any of these weapons with damage values separated by a slash represent munitions that inflict area effect damage to multiple hexes, with the value left of the slash applying to the point of impact, and the value right of the slash applied to all adjacent hexes. Apply this damage to all elements and buildings in the appropriate affected hexes, multiplying the damage by 1.5 and rounding up if the element is infantry of any type, or possesses the BAR special.

If the Fire rules are in play (see pp. 317-320, *SO*), treat an attack by fuel-air munitions as any other indirect fire attack for the purposes of starting fires.

TRIPOD 'MECHS (MULTIPLE ERAS)

'Mechs constructed with a three-legged (tripod) configuration function as normal 'Mech elements of their appropriate weight/Size class in *BattleForce*, except as follows:

Weapon Attack Arcs: The weapons mounted in a tripod's torso, arms, and head possess a 360-degree weapon attack arc. To reflect this, these elements will possess a TUR (#/#/#) special unit ability that defines the firepower allocated to these locations. Despite this feature, tripod 'Mech elements still possess a rear facing, and thus will suffer additional damage from any attacks that strike the element through its rear facing.

Converting Tripods for BattleForce

Any BattleMech or IndustrialMech constructed with a tripod chassis configuration is considered to be a tripod 'Mech. Tripod BattleMechs and IndustrialMechs convert to *BattleForce* using the same rules as their standard counterparts.

In addition to this, all weapons mounted in a tripod's torso, arms, and head are treated as though they are mounted in a turret, and so the sum of all damage values attributed to torso-, arm- and head-mounted weaponry is assigned to a TUR(#/#/#) special unit ability (see pp. 353-354, *SO*). If a tripod carries any leg-mounted weaponry, all three legs are treated as if they face forward, for the purposes of stat conversion.

WEAPONS OF MASS DESTRUCTION (MULTIPLE ERAS)

As discussed under their core rules for *Total Warfare*-scale play, weapons of mass destruction (WMDs) are an extreme option, suitable only for use in space combat where large craft are a persistent factor, or in advanced, grand-scale campaigns where regiments or divisions clash across hundreds or even thousands of kilometers of terrain.

At the *BattleForce* scale of play, these weapons are no less devastating, and should be used sparingly, if at all. There are no rules for determining game balance in any scenario where WMDs are involved; simply put, any semblance of game balance flies out the airlock the moment someone chooses to field a WMD in a tactical game.

Basic BattleForce WMD Rules

The *BattleForce*-scale rules presented here will mainly describe the game effects of each WMD class (and, where applicable, their most common delivery methods). Subtle nuances about how such weapons are acquired, stored, and so forth, are thus left open to player determination. This is not only in keeping with the more abstracted nature of *BattleForce* itself, but also an acknowledgement that there are a great many ways to deliver a WMD attack by any force desperate enough to resort to such weaponry.

WMDs are indiscriminate; all described effects are considered universal, and will affect elements regardless of their affiliation. In the cases of chemical and biological weapons are in use, where some precautions may protect the users against the weapon effects, this will be reflected by a preparedness modifier.

Nuclear Weapons in BattleForce

Nuclear attacks in *BattleForce* may be delivered by any element with an Artillery (ARTX-#), Bomb (BOMB#), or capital missile (SDS-CM or MSL) special ability. To reflect the rarity of such weapons, each element armed with nuclear ordnance treats the weapon special ability so armed as though it has exchanged all of its normal munitions for a single, one-shot, nuclear payload. As a result, these elements may execute one nuclear attack per scenario using that special ability. Once the attack is made—regardless of its success—the element's controlling player must then mark off the special ability that delivered the attack.

For ease of reference, the standard-type nuclear weapons described under the *BattleTech* rules for these weapons have been converted for use in *BattleForce* in the BattleForce Nuclear Weapons Table. Conversion rules for custom-created nuclear weapons are also described below.

Ground Attacks: Attacks against ground targets using a nuclear weapon resolve the point of impact as per a standard artillery weapon attack from the attacking element—including any flight times required from artillery elements striking from off the map (see pp. 285-287, *SO*).

When a nuclear attack strikes, the attacker delivers damage equal to the weapon's Ground Zero Damage value to all elements, buildings, and terrain within the hex of impact. This damage then radiates in all directions outward from the point of impact to a number of hexes equal to the weapon's Primary Radius value. As the damage radiates, it is reduced by a number of points equal to the weapon's Damage Reduction value for each hex outward from the impact point. This reduced damage continues to affect all elements, terrain, and buildings in the hex. Beyond the Primary Radius, elements will suffer no immediate damage from the nuclear attack, but they may suffer secondary effects.

After resolving all primary damage effects, the attacker must then resolve secondary effects. Any elements from the points of impact to a hex distance equal to the weapon's Secondary Radius value will need to check for secondary effects if they have not already been destroyed by the weapon's damage. This check is a 2D6 roll—made by the target element—that subtracts the target's Skill value from the result. An extra –2 modifier applies to the roll if the element is conventional infantry or a support vehicle with a BAR special. Consult the Secondary Effects Table to determine the effects of each modified roll result, and apply it as appropriate to the element within the secondary effect area.

Beyond the Secondary Radius, no elements, terrain, or buildings will be affected by the nuclear attack (though spreading fires and smoke may occur as a result of the nuclear strike).

A nuclear attack on the ground automatically fills the hex of impact with fire and smoke (see pp. 317-320, *SO*), and will convert terrain in accordance with the amount of damage delivered to that hex (see pp. 323-324, *SO*).

During a BattleForce scenario set during the Jihad, a Word of Blake force has decided to launch a Type II nuclear device into the melee against House Davion forces. An artillery strike identifies the hex of impact—a heavy woods hex that also features a lance of Davion 'Mechs. The weapon's Ground Zero Damage indicates that each of those four 'Mechs will sustain 100 points of damage, as will the heavy woods terrain itself. Not surprisingly, none of the Davion elements have enough armor and structure to survive 100 points, so the entire 'Mech force is annihilated. Likewise, the 100-point strike wipes out the heavy woods, which could only sustain 27 points of damage before being reduced to light woods, which in turn could only sustain another 15 points before being reduced to rough terrain (per p. 323, SO).

Type II ordnance has a Primary Radius of 14. This means that from the center hex to a distance of 14 hexes away, the physical damage of the weapon will continue to affect all terrain, buildings, and elements on the map. A Damage Reduction value of 7 indicates that, for every hex away from the center, the nuclear blast will reduce itself by 7 points. This means that every element, building, and terrain feature within 1 hex of the impact point will sustain 93 points of damage (100 – 7 = 93), while every element, building, and terrain feature 2 hexes away will sustain 86 points of damage (100 – [7 x 2] = 86), and so forth. At 14 hexes from Ground Zero, the Type II delivers only 2 points of damage to all elements, terrain, and buildings in the hex (100 – [7 x 14] = 2). Beyond that, no more physical damage occurs.

After resolving the damage effects (which were quite horrendous), the attacking player now needs to resolve all secondary effects from the Type II nuclear strike. With a Secondary Radius value of 28 for a Type II, this means that all elements that have not already been destroyed will need to make a 2D6 roll if they are within 28 hexes of the impact hex.

Among the elements caught in this area are a BattleMech whose MechWarrior has a Skill rating of 3; a combat vehicle that has suffered the loss of all of its Armor points and has a crew Skill rating of 4; a battle armor infantry element with a Skill rating of 2; and a MASH unit with the BAR special and a Skill rating of 5.

The 'Mech rolls 2D6 and gets a result of 10, which subtracts 3 from the result for the warrior's Skill rating for a modified result of 7. This means the 'Mech must roll once on the Critical Hit table for secondary effects.

The combat vehicle rolls 2D6 and gets a result of 8. After subtracting 4 for its Skill rating, it finds the modified result is 4. This would prompt 2 Critical Hit checks on the vehicle, but the fact that it also lacks Armor points right now increases this to 3 Critical Hit rolls due to secondary weapon effects.

The battle armor element rolls 2D6 and gets a result of 11. After subtracting 2 for the element's Skill rating, and another 2 for being an infantry element, the modified result is 7. Because it is an infantry element, this does not prompt a Critical Hit check; instead, the element sustains 1 point of damage from secondary effects.

The MASH element rolls 2D6 and gets a 5. After subtracting its Skill rating of 5, and another 2 for being an element with the BAR special, the modified result is –2. This

means that secondary effects have destroyed the element, killing all personnel on board.

As a final effect of the nuclear strike, fire erupts in the central hex. Over time, this fire—and the smoke it spawns—may spread further.

Air and Space Attacks: Attacks against airborne or spaceborne targets are resolved using the rules for the appropriate special ability type used to make the attack. If the attack misses a target in space, or misses an airborne target that is not operating over the ground-level map, the nuclear weapon has no effect. If it misses an airborne target that is operating over the ground map, resolve it as a ground attack aimed at the center-most hex on the ground map, but scatter it by a distance (in hexes) equal to the number of points by which it missed the airborne target.

An air or space attack that hits its target delivers the damage value indicated in the weapon's Space column. If the target is not destroyed outright by the nuclear attack, roll 2 Critical Hit rolls against the target, and apply both results—in addition to any critical effects prompted by other factors, such as damage to the element's Structure points.

During a space battle set during the First Succession War, a House Liao Congress*-class frigate uses its forward missile launcher to deliver nuclear ordnance against an inbound enemy House Davion* Overlord*-class DropShip. The* Congress *is using Type III nuclear weapons, which have a Space Attack Value of 100.*

Prior to the attack, the Overlord *has an Armor value of 26, and a Structure value of 9 points. As the combined amount of Armor and Structure comes to 35 points—far less than the incoming nuke—the* Overlord's *crew (including the battalion of Davion 'Mechs it was carrying to the ground battle below) has no chance to survive if this weapon hits!*

BATTLEFORCE NUCLEAR WEAPONS TABLE

Weapon Type	Ground Zero Damage	Primary Radius	Secondary Radius	Damage Reduction	Space Attack Value
Elias	1	3	6	0	0
Type Ia/Ib	10	7	13	1	1
Type II	100	14	28	7	10
Type III	1,000	33	61	30	100
Type IV	10,000	66	132	152	1,000
AMW	60,000	120	240	500	6,000

SECONDARY NUCLEAR EFFECTS TABLE

Roll Result	Effect (Non-Infantry Elements)	Effect (Infantry Elements)*
1 or less	Crew or Pilot Killed/Element Destroyed	Element Destroyed
2-4	Roll 2 Critical Hits**	Element suffers 1D6 damage
5-7	Roll 1 Critical Hit**	Element suffers 1 damage
8 or more	No effect	No effect

*Includes battle armor elements.

**Roll 1 additional Critical Hit against IndustrialMechs, elements with the BAR special, and elements with no Armor points remaining.

Converting Custom Nuclear Weapons to BattleForce

If players wish to convert custom-yield (generic) nuclear weapons to *BattleForce*, they must first determine the *BattleTech*-scale values for such weapons using the rules found on pp. 169-177. The *BattleForce* value for Ground Zero Damage is then found by dividing the weapon's *BattleTech* Base Impact Damage by 10, while the weapon's Space Attack Value in *BattleForce* is the same as its Capital Damage value in *BattleTech* (rounded normally).

The Primary Radius and Secondary Radius of a *BattleForce* nuclear weapon is found by dividing the Blast Radius and Secondary Radius of such weapons by 3, rounding normally. For the purposes of these rules, only the ground attack radii are used during conversion. Crater depth and blast height values are also ignored in *BattleForce*-scale play. The *BattleForce* Damage Reduction value is then found by dividing the weapon's Ground Zero Damage by its Primary Radius value, rounding normally.

Chemical Weapons in BattleForce

Chemical attacks in *BattleForce* may be delivered by any element with an Artillery (ARTX-#), Bomb (BOMB#), LRM, or SRM special ability. As with nuclear ordnance, an element armed with chemical weapons treats the weapon special ability so armed as though it has exchanged all of its normal munitions for a limited number of chemical weapon rounds. In this case, the total number of chemical attacks that can be performed per special ability is equal to the ability's numerical value.

(For the SRM and LRM specials, the value used is that of the ability's Short-range attack, and the element's normal attack values must be reduced by the values of the LRM and/or SRM special ability that has swapped its munitions for chemical rounds.)

Deploy chemical munitions under these rules is treated as a normal attack appropriate to the weapon type used, with ARTX-# specials using the Artillery rules (see pp. 285-287, SO), the BOMB# specials using bombing rules (seep. 234-236, *SO*), and LRM/SRM specials using the rules for a standard weapon attack using such specials. In all cases, the chemical attack is aimed at terrain, rather than other elements, so attacks made using LRM and SRM specials also receive a –4 to-hit modifier to reflect the immobile nature of the target terrain. As with all such attacks, missed shots will scatter in a random direction.

For each attack made using a chemical munition, reduce the numerical value of the special ability used by 1 point. Once the special is reduced to a value of 0 in this manner, the chemical munitions are expended, and the special ability is marked off. (Thus, an element with an SRM 3/3 special that make only 3 chemical weapon attacks using its SRM special, while a fighter with a BOMB4 special could execute 4 chemical weapon bombing attacks.)

Chemical weapons under these rules deliver their effects in the form of a "chemical smoke" field. This smoke follows the rules described on p. 318 of *Strategic Operations*, and will persist until a dissipation roll of 10+ is made per the normal smoke rules. These weapons can only affect elements at ground level; elements that are underwater or airborne during a chemical weapon attack are immune to these effects.

Chemical Effects: For the purposes of *BattleForce* play, a chemical weapon attack is always presumed to be of a fast-acting and lethal or debilitating variety, so weapon classes are not tracked under these rules.

Any element that begins its Movement Phase in a hex filled with chemical smoke—or which moves into/through a chemical smoke hex during its Movement Phase—must make a 2D6 roll to see if it suffers the effects of the weapon. Apply to this roll all of the appropriate modifiers for the Element's Skill rating, type, armor, special abilities, and affiliation, as shown in the Chemical Weapon Resistance Modifiers Table. If the modified roll result is 8 or better, the element suffers no ill-effects of the weapon at this time.

If the roll result is 7 or less, the element suffers a +1 to-hit modifier for all attacks and Control Rolls (if any) that are required of it for the remainder of the scenario. This chemical effect stacks with itself to a maximum of 3 times per scenario (to a maximum to-hit modifier of +3), and must be checked for every time the element begins its Movement Phase in a chemical smoke hex or passes through it during the course of the turn.

If the element fails to resist its exposure a *fourth* time, its pilot or crew is killed, and the element is removed from play.

CHEMICAL WEAPON RESISTANCE MODIFIERS

Condition	Modifier
Target's Skill Rating	
5 or More	–1
2 or Less	+2
Target…	
…is Conventional Infantry	–2
…has 0 Armor points	–2
…has BAR special ability	–2
…is on the side that used this chemical weapon	+4
…underwater or airborne	Auto-Success

Biological Weapons in BattleForce

Biological weapons are far more subtle, insidious, and long-lasting than chemical weapons. Because of this, they are not tracked in *BattleForce* play, except as a pre-existing condition of the scenario. In other words, the only time players must check for the effects of a biological weapon is long after such weapons have been deployed and have had time to poison the local atmosphere.

Biological Weapon Effects: In any scenario where a biological weapon attack is considered a factor, the attack is considered to have already taken place before the elements of either side joins the battle. The effects of this attack are similar to those described above for chemical weapons, except for the following:

- First, the entire ground map is considered tainted by the biological weapon attack, so all elements in play are considered to be exposed from the start.
- Second, the resistance roll for a biological weapon attack must be made at the End Phase of the first turn of play, and is only repeated on every fifth turn thereafter. This roll uses the same target number and roll modifiers used for a chemical weapon attack.
- Third, the biological weapon effects stack with themselves up to a maximum of 6 times before killing an element's crew or pilot, rather than 3.
- Finally, any elements not killed by a biological weapon attack by the end of the scenario are considered safe from further contamination. This reflects a timely intervention by medical teams once the shooting stops.

WORD OF BLAKE SUPER-JUMP DRIVE (JIHAD)

For the purposes of *BattleForce* play, the Word of Blake super-jump drive is treated as a normal K-F drive, with a lithium-fusion battery.

Conversion: An element with a Word of Blake super-jump drive receives both the KF and LF special unit abilities.

ADDITIONAL BATTLEFORCE SPECIAL UNIT ABILITIES

The following summarizes the new special unit abilities for *BattleForce* that have been covered previously in this section. Also included are some expanded rules for existing special unit abilities suitable for *BattleForce* campaigns.

Autonomous Tactical Analysis Computer (ATAC#)

An element with this special is able to feed improved tactical input to robotic elements that feature the SDCS or RBT special unit abilities. The *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pp. 207-209.

Anti-Penetrative Ablation Armor (ABA)

An element with the ABA special unit ability is protected by anti-penetrative ablation armor. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (pp. 201-203).

Ballistic-Reinforced Armor (BRA)

An element with the BRA special unit ability is protected by ballistic-reinforced armor. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (pp. 201-203).

Bimodal Land-Air BattleMech (BIM (#a))

A 'Mech with this special has been built to convert between 'Mech and aerospace fighter modes of operation. The *BattleForce* rules for LAMs, may be found on pp. 204-205.

Communications Implant (CI)

An element with this special ability is being operated by a warrior, crew, or troops that have been augmented with a cybernetic communications implant of some type. The *BattleForce* rules for this special may be found under *Augmented Warriors*, pp. 199-201.

Direct Neural Control System (DN)

An element featuring a DN special ability has a cockpit modified for use by a warrior or crew with a DNI implant—including the prototype DNI, vehicular DNI, or buffered VDNI implants. It also applies to units operated by pilots using Enhanced Imaging implants. The *BattleForce* rules for this special ability are found under *Advanced Pilot Interfaces*, pp. 198-199.

Dragon's Breath MCM Launch System (DB)

An element with this special ability features the one-shot Dragon's Breath multi-capital missile (MCM) launch system. Because it was often used in conjunction with robotic elements, the *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pp. 207-209.

Filtration Implant (FI)

An infantry element with this special ability has been equipped with filtration implants that render it immune to gas attacks and tainted or toxic atmosphere conditions. The *BattleForce* rules for this special may be found under *Augmented Warriors*, pp. 199-201.

Glider ProtoMech (GLD)

A ProtoMech element with this special ability has been built with a special low-level flight capability similar to a Wing-in-Ground Effect vehicle. Rules for using Glider ProtoMechs in *BattleForce* games may be found on p. 203.

HarJel Repair Systems (BHJ2, BHJ3)

An element that features the BHJ2 or BHJ3 special unit abilities is equipped with improved versions of the hull-sealing technology known as BattleMech HarJel. The *BattleForce* rules for these abilities are found under *Dark Age and RISC Equipment* (pp. 201-203).

Impact-Resistant Armor (IRA)

An element with the IRA special unit ability is protected by impact-resistant armor. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (pp. 201-203).

Improved ATM Launchers (IATM (#/#/#))

Elements with the IATM special feature Fusillade Launchers or improved ATM launchers. The *BattleForce* rules for this special may be found under *Advanced Clan Equipment* (see p. 198).

Land-Air 'Mech (LAM (#g/#a))

A 'Mech with this special has been built to convert between 'Mech, AirMech, and aerospace fighter modes of operation. The rules for LAMs may be found on pp. 204-205.

Magnetic Clamp System (MCS, UCS)

ProtoMech elements with the MCS or UCS specials are equipped with a magnetic clamp system. The *BattleForce* rules for these specials may be found under *Advanced Clan Equipment* (see p. 198).

Mobile Army Surgical Hospital (MASH#)

An element with MASH equipment can tend to wounded warriors, and helps to recover their injuries between battles. During *BattleForce* play, an element with MASH equipment can accommodate infantry elements as if it has an Infantry Transport



Never making it into later eras, the Shadow Hawk Mk I LAM *nevertheless provided valuable design lessons to its beleaguered technician teams.*

(IT#) special equal to half of the element's MASH# value, rounded up. (For example, an element with a MASH6 special could act as an element with the IT3 special.)

Between battles, MASH-equipped units provide a bonus to "repairing" infantry units.

Mobile Field Base (MFB)

An element with a mobile field base is one that is equipped to handle technical servicing, maintenance, and even battlefield repairs on other elements. During *BattleForce* play, this special has no direct effect, but between battles, its presence in a player's force enables bonuses to repairing other combat elements.

Naval C3 (NC3)

This special represents an advanced large-scale version of the C^3 network system, developed for spacecraft. Up to 6 large craft elements may link into a single NC^3 network.

In abstract aerospace combat (including capital-scale combat), all units in a NC^3 network receive a –1 to-hit modifier. Naval C^3 networks are immune to ECM, but not to the SDS Jammer (JAM) system.

Nova Composite Electronic Warfare System (NOVA)

An element with the NOVA special mounts the advanced Nova composite electronic warfare system. The *BattleForce* rules for this special may be found under *Advanced Clan Equipment* (see p. 198).

Prosthetic Leg MASC (PL)

This special indicates that the infantry element has been augmented with prosthetic leg MASC system. The *BattleForce* rules for this special may be found under *Augmented Warriors*, pp. 199-201.

Prototype CASE (CASEP)

An element with the CASEP special is equipped with a prototype form of CASE. The *BattleForce* rules for this ability are found under *Advanced Prototype Systems*, on pp. 199-201.

QuadVee (QV)

A 'Mech element with this special ability has been constructed as a QuadVee. The rules for these elements may be found on pp. 206-207.

Radical Heat Sink System (RHS)

An element with the RHS special possesses a "radical heat sink system" designed for emergency coolant flushes. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (pp. 201-203).

Re-Engineered Lasers (REL)

An element that has the REL special carries enough re-engineered lasers to offset many of the benefits presented by several types of specialty armors, such as reflective. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (pp. 201-203).

RISC Advanced Point Defense System (RAMS)

An element with the RAMS special unit ability is equipped with a RISC advanced point defense system. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (pp. 201-203).

RISC Emergency Coolant System (ECS)

An element with the ECS special possesses a RISC emergency coolant system. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (pp. 201-203).

RISC Viral Jammers (DJ, HJ)

An element with RISC Viral Jammers will be noted with either a HJ special unit ability (for homing jammers), or a DJ special unit ability (for decoy jammers). The *BattleForce* rules for these abilities are found under *Dark Age and RISC Equipment* (pp. 201-203).

Robotic Drone (RBT)

Elements with this special are driven by autonomous programming that enables them to function as a drone that does not require remote human direction. The *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pp. 207-209.

SDS Drone Control System (SDCS)

Elements with this special have an extremely sophisticated and highly adaptive robotic control system superior to that of the standard robotic drone. The *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pp. 207-209.

SDS Jammer (JAM)

An element with this special ability features an advanced, high-power jamming system intended to impede robotic elements in space combat. Because of its intended function, the *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pp. 207-209.

Tight-Stream Electromagnetic Pulse Weapons (TSEMP#, TSEMP-O#)

An element with the TSEMP# or TSEMP-O# special unit ability carries a number of tight-stream EMP weapons (TSEMPs). The *BattleForce* rules for these abilities are found under *Dark Age and RISC Equipment* (pp. 201-203).

Triple-Core Processor (TCP)

This special indicates that the element is a unit commanded by a warrior who has been augmented with triple-core processor implant. The *BattleForce* rules for this special may be found under *Augmented Warriors*, pp. 199-201.

Triple-Strength Implants (TSI)

Infantry with this special have been augmented with triple-strength myomer implants. While most gameplay effects are covered under *Augmented Warriors* (see pp. 199-201), these elements are also susceptible to the effects of anti-TSM munitions (see p. 204).

Virtual Reality Piloting Pod (VR)

An element with the VR special uses a virtual reality pilot interface instead of a standard cockpit. The *BattleForce* rules for this special ability are found under *Advanced Pilot Interfaces*, pp. 198-199.

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type §	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Age of War Equipment								
Primitive Prototype Autocannon/2	DB, S	1 (1)	2 (2)	4/8/16/24 (Long)	34	0	N	Exp
Primitive Prototype Autocannon/5	DB, S	1 (1)	5 (5)	3/6/12/18 (Medium)	15	0	N	Exp
Primitive Prototype Autocannon/10	DB, S	3 (3)	10 (10)	0/5/10/15 (Medium)	8	0	N	Exp
Primitive Prototype Autocannon/20	DB, S	7 (7)	20 (20)	0/3/6/9 (Short)	4	0	N	Exp
Primitive Prototype Small Laser	DE	2 (2)	3 (3)	0/1/2/3 (Short)	N/A	0	N	Exp
Primitive Prototype Medium Laser	DE	5 (5)	5 (5)	0/3/6/9 (Short)	N/A	0	N	Exp
Primitive Prototype Large Laser	DE	12 (12)	8 (8)	0/5/10/15 (Medium)	N/A	0	N	Exp
Primitive Prototype LRM 5	M, C, S	2 (2)	1/Msl, C5/5 (3)	6/7/14/21 (Long)	18	0	N	Exp
Primitive Prototype LRM 10	M, C, S	4 (4)	1/Msl, C5/10 (6)	6/7/14/21 (Long)	9	0	N	Exp
Primitive Prototype LRM 15	M, C, S	5 (5)	1/Msl, C5/15 (9)	6/7/14/21 (Long)	6	0	N	Exp
Primitive Prototype LRM 20	M, C, S	6 (6)	1/Msl, C5/20 (12)	6/7/14/21 (Long)	4	0	N	Exp
Primitive Prototype SRM 2	M, C, S	2 (2)	2/Msl, C2/2 (2)	0/4/8/12 (Medium)	37	0	N	Exp
Primitive Prototype SRM 4	M, C, S	3 (3)	2/Msl, C2/4 (4)	0/4/8/12 (Medium)	18	0	N	Exp
Primitive Prototype SRM 6	M, C, S	4 (4)	2/Msl, C2/6 (6)	0/4/8/12 (Medium)	11	0	N	Exp
Primitive Prototype PPC	DE	15 (15)	10 (10)	3/6/12/18 (Medium)	N/A	0	N	Exp
Primitive Prototype K-F Boom	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
DropShip Docking Collar (pre-Boom)	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
DropShip Docking Collar (post-Boom)	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
DropShuttle Bays	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
Space Station K-F Adapter	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
Primitive Prototype Jump Jets	PE	x1 (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Arrow IV	AE, S, F	10 (10*)	20A (N/A)*	8 boards (N/A)	3	0	N	Exp
Prototype Artemis IV FCS	T	N/A (N/A)	* (*)	As Standard Weapon	N/A	0	N	Exp
Prototype Beagle Active Probe	E	0 (0)	N/A (N/A)	0/0/0/4 (Short)	N/A	0	N	Exp
Prototype CASE	PE	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Double Heat Sink	PE	–2 (–2)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Endo Steel Structure	Structure	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Extralight Engine	Engine	1 (1)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Ferro-Fibrous Armor	Armor	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Gauss Rifle	DB, X	1 (1)	15 (15)	2/7/15/22 (Long)	N/A	0	N	Exp
Prototype Guardian ECM Suite	E	0 (0)	N/A (N/A)	0/0/0/6 (Short)	N/A	0	N	Exp
Prototype LB 10-X Autocannon	DB, C, F, S	2 (2)	10 (6)	0/6/12/18 (Medium)	10	0	N	Exp
Prototype Narc Missile Beacon	M, E, S	0 (0)	* (*)	0/3/6/9 (Short)	5	0	N	Exp
Prototype Small Pulse Laser	P	2+1D3 (5)	3 (3)	0/1/2/3 (Short)	N/A	–1	N	Exp
Prototype Medium Pulse Laser	P	4+1D6 (10)	6 (6)	0/2/4/6 (Short)	N/A	–1	N	Exp
Prototype Large Pulse Laser	P	10+1D6 (16)	9 (9)	0/3/7/10 (Medium)	N/A	–1	N	Exp
Prototype Remote Sensors	E	0 (0)	N/A (N/A)	0/0/0/0 (Same Hex)	60	0	N	Exp
Prototype Rocket Launcher 10	M, C, OS	3 (3)	1/Msl, C5/10 (6)	0/5/11/18 (Medium)	OS	+1	N	Exp
Prototype Rocket Launcher 15	M, C, OS	4 (4)	1/Msl, C5/15 (9)	0/4/9/15 (Medium)	OS	+1	N	Exp
Prototype Rocket Launcher 20	M, C, OS	5 (5)	1/Msl, C5/20 (12)	0/3/7/12 (Medium)	OS	+1	N	Exp
Prototype TAG	E	0 (0)	N/A (N/A)	0/5/9/15 (Medium)	N/A	0	N	Exp
Star League Equipment								
Centurion Weapon System	DE, E	4 (4)	0 (0)*	0/6/12/18 (Medium)*	N/A	0	Y	Exp
SLDF Advanced Neurohelmet	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	Y	Adv
Modular Space Stations	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
Early Clan Equipment								
Improved Autocannon/2	DB, S	1 (1)	2 (2)	4/8/16/24 (Long)	45	0	Y	Exp
Improved Autocannon/5	DB, S	1 (1)	5 (5)	3/6/12/18 (Medium)	20	0	Y	Exp
Improved Autocannon/10	DB, S	3 (3)	10 (10)	0/5/10/15 (Medium)	10	0	Y	Exp
Improved Autocannon/20	DB, S	7 (7)	20 (20)	0/3/6/9 (Short)	5	0	Y	Exp
Improved Gauss Rifle	DB, X	1 (1)	15 (15)	2/7/15/22 (Long)	8	0	Y	Exp
Improved Large Laser	DE	8 (8)	8 (8)	0/5/10/15 (Medium)	N/A	0	Y	Exp
Improved Large Pulse Laser	P	10 (10)	9 (9)	0/3/7/10 (Medium)	N/A	–2	Y	Exp
Improved PPC	DE	10 (10)	10 (10)	3/6/12/18 (Medium)	N/A	0	Y	Exp
Enhanced PPC	DE	15 (15)	12 (12)	0/7/14/23 (Long)	N/A	0	Y	Exp
Improved LRM 5	M, C, S	2 (2)	1/Msl, C5/5 (3)	6/7/14/21 (Long)	24	0	N	Exp
Improved LRM 10	M, C, S	4 (4)	1/Msl, C5/10 (6)	6/7/14/21 (Long)	12	0	N	Exp
Improved LRM 15	M, C, S	5 (5)	1/Msl, C5/15 (9)	6/7/14/21 (Long)	8	0	N	Exp

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space §§ M	P	CV	SV	F	SC	DS	JS	WS	SS	MS
Age of War Equipment																
Primitive Prototype Autocannon/2	IS	C/F-X-X	2290P / NA	75,000 / 1,000	6	1	NA	1	1	1	1	1	1	1	1	1
Primitive Prototype Autocannon/5	IS	C/F-X-X	2240P / NA	125,000 / 4,500	8	4	NA	1	4	1	1	1	1	1	1	1
Primitive Prototype Autocannon/10	IS	C/F-X-X	2450P / NA	200,000 / 6,000	12	7	NA	1	7	1	1	1	1	1	1	1
Primitive Prototype Autocannon/20	IS	C/F-X-X	2488P / NA	300,000 / 10,000	14	10	NA	1	10	1	1	1	1	1	1	1
Primitive Prototype Small Laser	IS	C/F-X-X	2290P / NA	11,250	0.5	1	NA	1	1	1	1	1	1	1	1	1
Primitive Prototype Medium Laser	IS	C/F-X-X	2290P / NA	40,000	1	1	NA	1	1	1	1	1	1	1	1	1
Primitive Prototype Large Laser	IS	C/F-X-X	2306P / NA	100,000	5	2	NA	1	2	1	1	1	1	1	1	1
Primitive Prototype LRM 5	IS	C/F-X-X	2295P / NA	30,000 / 30,000	2	1	NA	1	1	1	1	1	1	1	1	1
Primitive Prototype LRM 10	IS	C/F-X-X	2295P / NA	100,000 / 30,000	5	2	NA	1	2	1	1	1	1	1	1	1
Primitive Prototype LRM 15	IS	C/F-X-X	2295P / NA	175,000 / 30,000	7	3	NA	1	3	1	1	1	1	1	1	1
Primitive Prototype LRM 20	IS	C/F-X-X	2295P / NA	250,000 / 30,000	10	5	NA	1	5	1	1	1	1	1	1	1
Primitive Prototype SRM 2	IS	C/F-X-X	2365P / NA	10,000 / 27,000	1	1	NA	1	1	1	1	1	1	1	1	1
Primitive Prototype SRM 4	IS	C/F-X-X	2365P / NA	60,000 / 27,000	2	1	NA	1	1	1	1	1	1	1	1	1
Primitive Prototype SRM 6	IS	C/F-X-X	2365P / NA	80,000 / 27,000	3	2	NA	1	2	1	1	1	1	1	1	1
Primitive Prototype PPC	IS	D/C-X-X	2439P / NA	200,000	7	3	NA	1	3	1	1	1	1	1	1	1
Primitive Prototype K-F Boom	PE	C/F-X-X	2342P / NA	1,010,000	0	NA	NA	NA	NA	NA	NA	0	NA	NA	NA	NA
DropShip Docking Collar (pre-Boom)	PE	B/CXXX	2350 / NA	500,000	1,000	NA	NA	NA	NA	NA	NA	0	0	0	0	NA
DropShip Docking Collar (post-Boom)	PE	C/D-C-C	2470 / 2470	100,000	1,000	NA	NA	NA	NA	NA	NA	0	0	0	0	NA
DropShuttle Bays	IS	C/C-X-X	2120 / NA	150,000,000	11,000	NA	NA	NA	NA	NA	NA	NA	0*	0*	0*	NA
Space Station K-F Adapter	IS/Clan	C/D-F-D	2375 / 2375	FCx20	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	NA
Primitive Prototype Jump Jets	PE	C/F-X-X	2464P / NA	TTx200x(Jump)^2	*	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prototype Arrow IV	IS	E/F-X-X	2593P / NA	1,800,000 / 40,000	16	16	NA	1	16	1	1	1	NA	NA	NA	1
Prototype Artemis IV FCS	IS	E/F-X-X	2592P / NA	300,000	+1	+1	NA	+0	+1	+0	+0	+0	+0	+0	+0	+0
Prototype Beagle Active Probe	IS	E/F-X-X	2560P / NA	600,000	2	3	NA	1	3	1	1	1	1	1	1	1
Prototype CASE	IS	E/F-X-X	2452P / NA	150,000	.5	1	NA	1	1	0	NA	NA	NA	NA	NA	NA
Prototype Double Heat Sink	IS	E/F-X-X	2559P / NA	18,000	1*	3*	NA	NA	NA	0*	0*	0*	0*	0*	NA	NA
Prototype Endo Steel Structure	IS	E/F-X-X	2471P / NA	4,800xTT	TT÷20	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prototype Extralight Engine	IS	E/F-X-X	2556P / NA	(100,000xERxTT)÷75	*	+6*	NA	2	NA	+0	NA	NA	NA	NA	NA	NA
Prototype Ferro-Fibrous Armor	IS	E/F-X-X	2557P/ NA	60,000xAT	*	16	NA	3	NA	3*	NA	NA	NA	NA	NA	NA
Prototype Gauss Rifle	IS	E/F-X-X	2587P / NA	1,200,000 / 80,000	15	8	NA	1	8	1	1	1	1	1	1	1
Prototype Guardian ECM Suite	IS	E/F-X-X	2595P / NA	1,000,000	2	3	NA	1	3	1	1	1	NA	NA	NA	1
Prototype LB 10-X Autocannon	IS	E/F-X-X	2590P / NA	1,600,000 / 80,000	11	7	NA	1	7	1	1	1	1	1	1	1
Prototype Narc Missile Beacon	IS	E/F-X-X	2580P / NA	300,000 / 18,000	3	2	NA	1	2	1	1	1	1	1	1	1
Prototype Large Pulse Laser	IS	E/F-X-X	2595P / NA	875,000	7	2	NA	1	2	1	1	1	1	1	1	1
Prototype Medium Pulse Laser	IS	E/F-X-X	2595P / NA	300,000	2	1	NA	1	1	1	1	1	1	1	1	1
Prototype Small Pulse Laser	IS	E/F-X-X	2595P / NA	80,000	1	1	NA	1	1	1	1	1	1	1	1	1
Prototype Remote Sensors	IS	E/F-X-X	2586P / NA	60,000 / 42,000	.5	1	NA	1	1	1	1	1	1	1	1	1
Prototype Rocket Launcher 10	IS/Clan	B/D-F-X	~2320P / ~2320P	15,000	.5	1	NA	1	1	1	1	1	1	1	1	1
Prototype Rocket Launcher 15	IS/Clan	B/D-F-X	~2320P / ~2320P	30,000	1	2	NA	1	2	1	1	1	1	1	1	1
Prototype Rocket Launcher 20	IS/Clan	B/D-F-X	~2320P / ~2320P	45,000	1.5	3	NA	1	3	1	1	1	1	1	1	1
Prototype TAG	IS	E/F-X-X	2593P / NA	150,000	1.5	1	NA	1	1	1	1	1	1	1	1	1
Star League Equipment																
Centurion Weapon System	IS	E/F-F-F	~2762P / NA	1,000,000	5	2	NA	1	2	1	1	1	1	1	1	1
SLDF Advanced Neurohelmet	IS	E/F-X-X	~2760 / NA	5,000*	0*	0*	NA	NA	NA	0*	NA	NA	NA	NA	NA	NA
Modular Space Stations	IS/Clan	D/E-X-X	2585 / 2585	FCx50	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	NA
Early Clan Equipment																
Improved Autocannon/2	Clan	E/X-C-X	NA / 2818	75,000 / 1,000	5	1	NA	1	1	1	1	1	1	1	1	1
Improved Autocannon/5	Clan	E/X-C-X	NA / 2818	125,000 / 4,500	7	2	NA	1	2	1	1	1	1	1	1	1
Improved Autocannon/10	Clan	E/X-C-X	NA / 2818	200,000 / 6,000	11	6	NA	1	6	1	1	1	1	1	1	1
Improved Autocannon/20	Clan	E/X-D-X	NA / 2818	300,000 / 10,000	13	9	NA	1	9	1	1	1	1	1	1	1
Improved Gauss Rifle	Clan	E/X-E-X	NA / 2822	300,000 / 20,000	13	6	NA	1	6	1	1	1	1	1	1	1
Improved Large Laser	Clan	E/X-D-X	NA / 2818	100,000	4	1	NA	1	1	1	1	1	1	1	1	1
Improved Large Pulse Laser	Clan	E/X-E-X	NA / 2820	175,000	6	2	NA	1	2	1	1	1	1	1	1	1
Improved PPC	Clan	E/X-D-X	NA / 2820	200,000	6	2	NA	1	2	1	1	1	1	1	1	1
Enhanced PPC	Clan	E/X-E-X	NA / 2823	300,000	7	3	NA	1	3	1	1	1	1	1	1	1
Improved LRM 5	Clan	E/X-D-X	NA / 2818	30,000 / 30,000	1	1	NA	1	1	1	1	1	1	1	1	1
Improved LRM 10	Clan	E/X-D-X	NA / 2818	100,000 / 30,000	2.5	1	NA	1	1	1	1	1	1	1	1	1
Improved LRM 15	Clan	E/X-D-X	NA / 2818	175,000 / 30,000	3.5	2	NA	1	2	1	1	1	1	1	1	1

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type §	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Improved LRM 20	M, C, S	6 (6)	1/Msl, C5/20 (12)	6/7/14/21 (Long)	6	0	N	Exp
Improved SRM 2	M, C, S	2 (2)	2/Msl, C2/2 (3)	0/4/8/12 (Medium)	50	0	N	Exp
Improved SRM 4	M, C, S	3 (3)	2/Msl, C2/4 (6)	0/4/8/12 (Medium)	25	0	N	Exp
Improved SRM 6	M, C, S	4 (4)	2/Msl, C2/6 (9)	0/4/8/12 (Medium)	15	0	N	Exp
Prototype ER Small Laser	DE	2 (2)	3 (3)	0/2/4/5 (Short)	N/A	0	Y	Exp
Prototype ER Medium Laser	DE	5 (5)	5 (5)	0/4/8/12 (Medium)	N/A	0	Y	Exp
Prototype LB 2-X Autocannon	DB, C, S, F	1 (1)	2 (2)	4/9/18/27 (Extreme)	45	0	Y	Exp
Prototype LB 5-X Autocannon	DB, C, S, F	1 (1)	5 (3)	3/7/14/21 (Long)	20	0	Y	Exp
Prototype LB 20-X Autocannon	DB, C, S, F	6 (6)	20 (12)	0/4/8/12 (Medium)	5	0	Y	Exp
Prototype Streak SRM 4	M, C	3 (3)	2/Msl, C2/4 (8)	0/3/6/9 (Short)	25	–1	N	Exp
Prototype Streak SRM 6	M, C	4 (4)	2/Msl, C2/6 (12)	0/3/6/9 (Short)	15	–1	N	Exp
Prototype Ultra Autocannon/2	M, C	1/Shot (2)	2/Shot (3)	3/8/17/25 (Extreme)	45	0	Y	Exp
Prototype Ultra Autocannon/10	M, C	4/Shot (8)	10/Shot (15)	0/6/12/18 (Medium)	10	0	Y	Exp
Prototype Ultra Autocannon/20	M, C	8/Shot (16)	20/Shot (30)	0/3/7/10 (Medium)	5	0	Y	Exp
Late Succession Wars Equipment								
Prototype Double Heat Sink	PE	–2 (–2)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Endo Steel Structure	Structure	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype ER Large Laser	DE	12+1D6 (18)	8 (8)	0/7/14/19 (Long)	N/A	+1	Y	Exp
Prototype Medium Pulse Laser	P	4+1D6 (10)	6 (6)	0/2/4/6 (Short)	N/A	–2	Y	Exp
Prototype Ferro-Fibrous Armor	Armor	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Gauss Rifle	DB, X	1 (1)	15 (15)	2/7/15/22 (Long)	N/A	0	N	Exp
Prototype LB 10-X Autocannon	DB, C, F, S	2 (2)	10 (6)	0/6/12/18 (Medium)	10	0	N	Exp
Prototype Triple-Strength Myomer	PE	0 (N/A)	* (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Ultra Autocannon/5	M, C	1/Shot (4)	5/Shot (7)	2/6/13/20 (Long)	20	0	Y	Exp
Special Munitions: Anti-TSM LRMs	Ammo	** (**)	1/Msl, C5/* (*)	** (**)	x1	0	N	Exp
Special Munitions: Anti-TSM SRMs	Ammo	** (**)	2/Msl, C2/* (*)	** (**)	x1	0	N	Exp
Special Munitions: Listen-Kill LRMs	Ammo	** (**)	1/Msl, C5/* (*)	** (**)	x1	–1*	N	Exp
Special Munitions: Listen-Kill SRMs	Ammo	** (**)	2/Msl, C2/* (*)	** (**)	x1	–1*	N	Exp
Clan Invasion Equipment								
Damage Interrupt Circuit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Direct Neural Interface Modification	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	Y*	Exp
Enhanced Imaging Interface	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	Y*	Exp
Virtual Reality Piloting Pod	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	Y*	Exp
Special Munitions: Dead-Fire LRMs	Ammo	** (**)	2/Msl, C5/* (*)	4/5/10/15 (Medium)	x1	0	N	Exp
Special Munitions: Dead-Fire SRMs	Ammo	** (**)	3/Msl, C3/* (*)	0/2/4/6 (Short)	x1	0	N	Exp
Special Munitions: RS SSRMs	Ammo	** (**)	0 (*)	N/A (Point)	x1	0	N	Exp
Special Munitions: SS Narcs	Ammo	** (**)	3* (*)	** (**)	x1	0	N	Exp
Jihad Equipment								
BattleMech Interface Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	Y	Exp
BattleMech Neural Interface Unit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	Y	Exp
Clan BattleMech Interface Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	Y	Exp
Clan BattleMech Neural Interface Unit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	Y	Exp
ProtoMech Interface Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N	Exp
Word of Blake Super-Jump Drive	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N	Exp
Wars of Reaving Equipment								
EDP Armor	E, Armor	0 (N/A)	* (N/A)	PHYS (N/A)	N/A	0	N	Exp
Extended Jump Jet System	PE	0 (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	N	TL
Fusillade Launcher	M, C, S*	N/A (N/A)	2/Msl, C5/3 (0)	4/5/10/15 (Medium)	N/A	0	N	Exp
Improved ATM 3	M, C, S*	2 (2)	6 (6)	4/5/10/15 (Medium)	20	0	N	Adv
Improved ATM 6	M, C, S*	2 (2)	12 (12)	4/5/10/15 (Medium)	10	0	N	Adv
Improved ATM 9	M, C, S*	2 (2)	18 (18)	4/5/10/15 (Medium)	7	0	N	Adv
Improved ATM 12	M, C, S*	2 (2)	24 (24)	4/5/10/15 (Medium)	5	0	N	Adv
Magnetic Clamp System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
Nova CEWS	E	2 (2)	0 (0)	—/—/—/3 (Short)	N/A	0	N	Exp
ProtoMech Quad Melee System	ME	0 (N/A)	Var* (N/A)	PHYS (N/A)	N/A	0	N	Adv
Special Munitions: IMP ATMs	Ammo	** (**)	1/Msl, C5/* (*)	0/3/6/9 (Short)	x1	0	N	Exp
Special Munitions: IIW ATMs	Ammo	** (**)	* (*)	4/5/10/15 (Medium)	x1	0	N	Exp

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space §§ M	P	CV	SV	F	SC	DS	JS	WS	SS	MS
Improved LRM 20	Clan	E/X-D-X	NA / 2818	250,000 / 30,000	5	4	NA	1	4	1	1	1	1	1	1	1
Improved SRM 2	Clan	E/X-D-X	NA / 2817	15,000 / 27,000	1	1	NA	1	1	1	1	1	1	1	1	1
Improved SRM 4	Clan	E/X-D-X	NA / 2817	90,000 / 27,000	2	1	NA	1	1	1	1	1	1	1	1	1
Improved SRM 6	Clan	E/X-D-X	NA / 2817	120,000 / 27,000	3	2	NA	1	2	1	1	1	1	1	1	1
Prototype ER Small Laser	Clan	E/X-D-X	NA / 2819P	11,250	0.5	1	NA	1	1	1	1	1	1	1	1	1
Prototype ER Medium Laser	Clan	E/X-D-X	NA / 2819P	80,000	1.5	1	NA	1	1	1	1	1	1	1	1	1
Prototype LB 2-X Autocannon	Clan	E/X-D-X	NA / 2820P	150,000 / 3,300	6	5	NA	1	5	1	1	1	1	1	1	1
Prototype LB 5-X Autocannon	Clan	E/X-D-X	NA / 2820P	250,000 / 15,000	8	6	NA	1	6	1	1	1	1	1	1	1
Prototype LB 20-X Autocannon	Clan	E/X-D-X	NA / 2820P	600,000 / 34,000	14	12	NA	1	12	1	1	1	1	1	1	1
Prototype Streak SRM 4	Clan	E/X-D-X	NA / 2819P	90,000 / 54,000	3	2	NA	1	2	1	1	1	1	1	1	1
Prototype Streak SRM 6	Clan	E/X-D-X	NA / 2819P	120,000 / 54,000	4.5	2	NA	1	2	1	1	1	1	1	1	1
Prototype Ultra Autocannon/2	Clan	E/X-D-X	NA / 2820P	120,000 / 1,000	7	4	NA	1	4	1	1	1	1	1	1	1
Prototype Ultra Autocannon/10	Clan	E/X-D-X	NA / 2820P	320,000 / 12,000	13	8	NA	1	8	1	1	1	1	1	1	1
Prototype Ultra Autocannon/20	Clan	E/X-D-X	NA / 2820P	480,000 / 20,000	15	11	NA	1	11	1	1	1	1	1	1	1
Late Succession Wars Equipment																
Prototype Double Heat Sink	IS	E/X-F-X	3022P / NA	30,000	1*	3*	NA	NA	NA	0*	0*	0*	0*	0*	NA	NA
Prototype Endo Steel Structure	IS	E/X-F-X	3035P / NA	4,800xTT	TT÷20	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prototype ER Large Laser	IS	E/X-F-X	3030P / NA	600,000	5	2	NA	1	2	1	1	1	1	1	1	1
Prototype Medium Pulse Laser	IS	E/X-F-X	3031P / NA	240,000	2	1	NA	1	1	1	1	1	1	1	1	1
Prototype Ferro-Fibrous Armor	IS	E/X-F-X	3034P / NA	60,000xAT	*	16	NA	3	NA	3*	NA	NA	NA	NA	NA	NA
Prototype Gauss Rifle	IS	E/X-F-X	3038P / NA	1,200,000 / 80,000	15	8	NA	1	8	1	1	1	1	1	1	1
Prototype LB 10-X Autocannon	IS	E/X-F-X	3030P / NA	2,000,000 / 80,000	11	7	NA	1	7	1	1	1	1	1	1	1
Prototype Triple-Strength Myomer	IS	E/X-F-X	3028P / NA	32,000xTT	0	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prototype Ultra Autocannon/5	IS	E/X-F-X	3029P / NA	1,000,000 / 45,000	7	2	NA	1	2	1	1	1	1	1	1	1
Special Munitions: Anti-TSM LRMs	IS	E/X-F-F	3027 / NA	x2	*	*	NA	*	*	*	*	*	*	*	*	*
Special Munitions: Anti-TSM SRMs	IS	E/X-F-F	3027 / NA	x2	*	*	NA	*	*	*	*	*	*	*	*	*
Special Munitions: Listen-Kill LRMs	IS	E/X-F-X	3037P / NA	x1.1	*	*	NA	*	*	*	*	*	*	*	*	*
Special Munitions: Listen-Kill SRMs	IS	E/X-F-X	3037P / NA	x1.1	*	*	NA	*	*	*	*	*	*	*	*	*
Clan Invasion Equipment																
Damage Interrupt Circuit	IS	E/X-X-F	3055P / NA	150	0*	0*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Direct Neural Interface Modification	IS	E/X-X-F	3055 / NA	500,000	0*	0*	NA	0*	0*	0*	NA	NA	NA	NA	NA	NA
Enhanced Imagining Interface	Clan	F/X-X-F	NA / 3048	400,000	*	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Virtual Reality Piloting Pod	IS	F/X-X-F	3052P / NA	1,250,000	3	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Special Munitions: Dead-Fire LRMs	IS	C/X-X-E	3052P / NA	x0.6	*	*	NA	*	*	*	*	*	*	*	*	*
Special Munitions: Dead-Fire SRMs	IS	C/X-X-E	3052P / NA	x0.6	*	*	NA	*	*	*	*	*	*	*	*	*
Special Munitions: RS SSRMs	IS	E/X-X-F	3045P / NA	x1.1	*	*	NA	*	*	*	*	*	*	*	*	*
Special Munitions: SS Narcs	IS	E/X-X-F	3046P / NA	x1.1	*	*	NA	*	*	*	*	*	*	*	*	*
Jihad Equipment																
BattleMech Interface Cockpit	IS	E/X-X-F	~3078P / NA	1,500,000	4	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BattleMech Neural Interface Unit	IS	E/X-X-F	~3078P / NA	650,000	0.1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Clan BattleMech Interface Cockpit	Clan	F/X-X-F	NA / 3083P	1,500,000	4	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Clan BattleMech Neural Interface Unit	Clan	F/X-X-F	NA / 3083P	650,000	0.1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ProtoMech Interface Cockpit	IS	E/X-X-F	3071 / NA	1,000,000	.5	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Word of Blake Super-Jump Drive	IS	F/X-X-F	~3059P / NA	25,000,000	0	NA	NA	NA	NA	NA	NA	NA	0	0	NA	NA
Wars of Reaving Equipment																
EDP Armor	Clan	F/X-X-F	NA / 3071P	1,250xAP	*	NA	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA
Extended Jump Jet System	Clan	F/X-X-F	NA / 3075	TTx500x(Jump)^2	*	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fusillade Launcher	Clan	F/X-X-F	NA / 3072P	100,000 / 400	1.5	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Improved ATM 3	Clan	F/X-X-F	NA / 3070	100,000 / 3,750	1.5	2	NA	1	2	1	1	1	1	1	1	1
Improved ATM 6	Clan	F/X-X-F	NA / 3070	250,000 / 7,500	3.5	3	NA	1	3	1	1	1	1	1	1	1
Improved ATM 9	Clan	F/X-X-F	NA / 3070	450,000 / 10,715	5	4	NA	1	4	1	1	1	1	1	1	1
Improved ATM 12	Clan	F/X-X-F	NA / 3070	700,000 / 15,000	7	5	NA	1	5	1	1	1	1	1	1	1
Magnetic Clamp System	Clan	F/X-X-F	NA / 3075	25,000	*	NA	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nova CEWS	Clan	F/X-X-F	NA / 3065P	1,110,000	1.5	1	NA	1	1	1	1	NA	NA	NA	NA	NA
ProtoMech Quad Melee System	Clan	F/X-X-F	NA / 3072	70,000	1	NA	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA
Special Munitions: IMP iATMs	Clan	F/X-X-F	NA / 3070P	x2	*	*	NA	*	*	*	*	*	*	*	*	*
Special Munitions: IIW iATMs	Clan	F/X-X-F	NA / 3070P	x1.3	*	*	NA	*	*	*	*	*	*	*	*	*

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type §	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Dark Age Equipment								
Anti-Penetrative Ablation Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Heat-Dissipating Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Impact-Resistant Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Ballistic-Reinforced Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
HarJel II Self-Repair System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
HarJel III Self-Repair System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Radical Heat Sink System	PE	* (*)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Small Re-Engineered Laser	P	4 (4)	4 (4)	0/1/2/3 (Short)	N/A	–1	Y	Adv
Medium Re-Engineered Laser	P	6 (67)	6 (6)	0/3/6/9 (Short)	N/A	–1	Y	Adv
Large Re-Engineered Laser	P	9 (9)	9 (9)	0/5/10/15 (Medium)	N/A	–1	Y	Adv
Remote Drone Command Console	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
TSEMP Cannon	DE, X	10 (10)	*	0/5/10/15 (Medium)	N/A	0	Y	Adv
TSEMP One-Shot	DE, X, OS	10 (10)	*	0/5/10/15 (Medium)	N/A	0	Y	Adv
RISC Advanced PDS (Standard)	PD	2 (N/A)	0 (0)	—/—/—/3 (N/A)	12	0	N	Adv
RISC Advanced PDS (Battlesuit)	PD	N/A (N/A)	0 (0)	—/—/—/3 (N/A)	2.5 kg (6)	N/A	N	Adv
RISC Laser Pulse Module	PE, X	+2* (+2*)	+0 (0)	As Standard Weapon	N/A	–1*	Y*	Exp
RISC Emergency Coolant System	PE, X	* (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
RISC Heat Sink Override Kit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
RISC Hyper Laser	DE, X	24 (24)	20 (20)	0/8/15/25 (Extreme)	N/A	+0	Y	Exp
RISC Repeating TSEMP Cannon	DE, X	10 (N/A)	* (*)	0/5/10/15 (Medium)	N/A	+0	Y	Exp
RISC Super-Cooled Myomer	PE, X	N/A* (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
RISC Viral Jammer (Decoy)	E	12 (N/A)	N/A (N/A)	—/—/—/17 (N/A)	N/A	N/A	N/A	Exp
RISC Viral Jammer (Homing)	E	12 (N/A)	N/A (N/A)	—/—/—/17 (N/A)	N/A	N/A	N/A	Exp
Expanded ProtoMech Components								
Ultraheavy ProtoMech Structure	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Ultraheavy ProtoMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Quadruped ProtoMech Structure	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Glider ProtoMech Structure	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Land-Air BattleMech Components								
LAM Conversion (Bimodal)	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
LAM Conversion (Standard)	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
LAM Bomb Bay	Bomb	0 (0)	* (*)	* (*)	1	0	N	TL
LAM Fuel Tanks	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	80 pts	N/A	N/A	TL
Primitive and RetroTech Components								
Primitive BattleMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Primitive Aerospace Fighter Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	0/+1*	N/A	Adv
Primitive IndustrialMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	+1*	N/A	Adv
Primitive 'Mech Musculature	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Primitive Aerospace Fighter Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Primitive 'Mech/Industrial Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
QuadVee Components								
QuadVee Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
QuadVee Conversion Equipment	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
QuadVee Wheels	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Robotic and Drone Unit Systems								
Smart Robotic Control System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Adv
Shielded Aerospace SRCS	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Exp
SDS (Caspar) Drone Control System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Caspar II Advanced SRCS	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Autonomous Tactical Analysis Comp.	E	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Direct Tactical Analysis Control System	E	N/A (N/A)	N/A (N/A)	N/A (*)	N/A	*	N/A	Exp
Advanced Robotic Transport System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
SDS Self-Destruct System	AE, OS	N/A (0)	* (*)	N/A (*)	N/A	0*	N/A	Exp
SDS Jammer System	E	N/A (N/A)	N/A (N/A)	* (Extreme-C)	N/A	N/A	N/A	Exp
Dragon's Breath MCM Launch System	CAP, AE	N/A (0)	* (*)	* (Extreme-C)	OS	0*	N/A	Exp
Superheavy 'Mech Components								
Superheavy BattleMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy IndustrialMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space §§ M	P	CV	SV	F	SC	DS	JS	WS	SS	MS
Dark Age Equipment																
Anti-Penetrative Ablation Armor	IS	E/X-X-X-E	3114 / NA	15,000xAT	*	6	NA	1	1*	1*	NA	NA	NA	NA	NA	NA
Heat-Dissipating Armor	IS/Clan	E/X-X-X-E	3123 / 3126	25,000xAT	*	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Impact-Resistant Armor	IS	E/X-X-X-E	3103 / NA	20,000xAT	*	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ballistic-Reinforced Armor	IS	E/X-X-X-E	3131 / NA	25,000xAT	*	10	NA	1	1*	2*	NA	NA	NA	NA	NA	NA
HarJel II Self-Repair System	Clan	F/X-X-X-F	NA / 3136	240,000	2*	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HarJel III Self-Repair System	Clan	F/X-X-X-F	NA / 3139	360,000	3*	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radical Heat Sink System	IS	E/X-X-X-E	3122 / NA	250,000	4*	3	NA	NA	NA	1	NA	NA	NA	NA	NA	NA
Small Re-Engineered Laser	IS	E/X-X-X-E	3130 / NA	25,000	1.5	1	1	1	1	1	1	1	1	1	1	1
Medium Re-Engineered Laser	IS	E/X-X-X-E	3130 / NA	100,000	2.5	2	1	1	2	1	1	1	1	1	1	1
Large Re-Engineered Laser	IS	E/X-X-X-E	3130 / NA	250,000	8	5	1	1	5	1	1	1	1	1	1	1
Remote Drone Command Console	IS	E/X-X-X-F	3140 / NA	50,000	2	1*	NA	NA	NA	1	NA	NA	NA	NA	NA	NA
TSEMP Cannon	IS	E/X-X-X-E	3109 / NA	800,000	6	5	1	1	5	1	1	NA	NA	NA	NA	1
TSEMP One-Shot	IS	E/X-X-X-E	3095 / NA	500,000	4	3	1	1	3	1	1	NA	NA	NA	NA	1
RISC Advanced PDS (Standard)	IS	E/X-X-X-E	3137 / NA	200,000 / 2,000	3	2	NA	1	2*	NA	NA	NA	NA	NA	NA	1
RISC Advanced PDS (Battlesuit)	IS	E/X-X-X-E	3134 / NA	50,000 / 500	0.35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RISC Laser Pulse Module	IS	F/X-X-X-F	3137P / NA	200,000	1	1*	+0*	+0*	+1*	+0*	+0*	+0*	+0*	+0*	+0*	+0*
RISC Emergency Coolant System	IS	F/X-X-X-F	3136P / NA	460,000	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RISC Heat Sink Override Kit	IS	D/X-X-X-F	3134P / NA	500	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RISC Hyper Laser	IS	F/X-X-X-F	3134P / NA	750,000	8	6	NA	1	6	1	1	1	1	1	1	1
RISC Repeating TSEMP Cannon	IS	E/X-X-X-F	3133P / NA	1,200,000	8	7	1	1	7	1	1	NA	NA	NA	NA	1
RISC Super-Cooled Myomer	IS	F/X-X-X-F	3132P / NA	10,000xTT	0	6*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RISC Viral Jammer (Decoy)	IS	F/X-X-X-F	3135P / NA	990,000	2.5	1	1	1	1	NA	NA	NA	NA	NA	NA	1
RISC Viral Jammer (Homing)	IS	F/X-X-X-F	3135P / NA	990,000	2.5	1	1	1	1	NA	NA	NA	NA	NA	NA	1
Expanded ProtoMech Components																
Ultraheavy ProtoMech Structure	Clan	D/X-X-D	NA / 3083	400xTT	TTx0.1	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ultraheavy ProtoMech Cockpit	Clan	F/X-X-D	NA / 3083	800,000	0.75	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Quadruped ProtoMech Structure	Clan	D/X-X-E	NA / 3083	500xTT	TTx0.1	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Glider ProtoMech Structure	Clan	F/X-X-E	NA / 3084	600xTT	TTx0.1	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Land-Air BattleMech Components																
LAM Conversion (Bimodal)	IS	E/E-F-X	2680 / NA	WSCx0.65	TTx0.15	6*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LAM Conversion (Standard)	IS	E/D-E-F	2688 / NA	WSCx0.75	TTx0.1	6*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LAM Bomb Bay	IS/Clan	B/E-E-E	2680 / NA	5,000	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LAM Fuel Tanks	IS/Clan	B/A-A-A	ES / ES	200	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Primitive and RetroTech Components																
Primitive BattleMech Cockpit	IS	D/D-X-X	2449 / NA	100,000	5	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Primitive Aerospace Fighter Cockpit	IS	D/D-X-X	ES / NA	100,000	5	NA	NA	NA	NA	0*	NA	NA	NA	NA	NA	NA
Primitive IndustrialMech Cockpit	IS	C/C-X-X	2300 / NA	50,000	5	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Primitive 'Mech Musculature	IS	D/D-X-X	2300 / NA	1,000xTT	x1	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Primitive Aerospace Fighter Armor	IS	C/B-C-B	~2315 / NA	5,000xAT	*	NA	NA	NA	NA	0	NA	NA	NA	NA	NA	NA
Primitive 'Mech/Industrial Armor	IS/Clan	C/B-C-B	2430 / 2430	5,000xAT	*	0	NA	0	NA	0	0	0	0	0	0	0
QuadVee Components																
QuadVee Cockpit	Clan	F/X-X-X-F	NA / 3135	375,000	4*	6*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
QuadVee Conversion	Clan	F/X-X-X-F	NA / 3135	WSCx0.5	TTx0.1*	4*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
QuadVee Wheels	Clan	F/X-X-X-F	NA / 3150	(750xERxTT)÷75	TTx0.15*	4*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Robotic and Drone Unit Systems																
Smart Robotic Control System	IS/Clan	C/E-X-F	3067 / ES	5,000+(10,000xIT)*	Var*	0*	NA	0*	0*	0*	0*	0*	0*	0*	0*	0*
Shielded Aerospace SRCS	IS/Clan	C/E-X-F	3089 / 2755	6,250+(12,500xIT)*	Var*	NA	NA	NA	0*	0*	0*	NA	NA	NA	0*	NA
SDS (Caspar) Drone Control System	IS	C/E-X-X	2695 / NA	500,000+(50,000xIT)*	Var*	NA	NA	NA	NA	NA	0*	0*	NA	0*	0*	NA
Caspar II Advanced SRCS	IS	E/X-X-F	3082 / NA	50,000+(20,000xIT)*	Var*	NA	NA	NA	NA	NA	0*	0*	NA	0*	0*	NA
Autonomous Tactical Analysis Comp.	IS/Clan	E/F-X-F	2705 / NA	100,000xIT	Var*	NA	NA	NA	NA	NA	NA	NA	NA	0*	0*	NA
Direct Tactical Analysis Control Sys.	IS	F/X-X-F	3082 / NA	50,000xIT	Var*	NA	NA	NA	NA	NA	NA	NA	NA	0*	0*	0*
Advanced Robotic Transport System	IS/Clan	E/D-E-E	3068 / NA	+1,000,000	Var*	NA	NA	NA	NA	NA	1*	1*	NA	1*	1*	NA
SDS Self-Destruct System	IS	C/D-F-X	2695 / NA	1,000,000	Var*	NA	NA	NA	NA	NA	0*	0*	NA	0*	0*	NA
SDS Jammer System	IS	E/F-F-X	2776P / NA	800M	30,000	NA	NA	NA	NA	NA	NA	NA	NA	1*	NA	NA
Dragon's Breath MCM Launch System	IS	E/X-X-F	3077P / NA	15,000,000	5,000*	NA	NA	NA	NA	NA	NA	NA	NA	0*	0*	NA
Superheavy 'Mech Components																
Superheavy BattleMech Cockpit	IS	E/X-X-F	3076 / NA	300,000	4*	5*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Superheavy IndustrialMech Cockpit	IS	D/X-F-F	2940 / NA	200,000	4*	5*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type §	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Superheavy 'Mech Actuators	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Musculature	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Standard I.S.	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Endo-Comp. I.S.	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Endo-Steel I.S.	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Industrial I.S.	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Gyro	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Thermobaric Weapons								
Fuel-Air Bomb (Small)	Ammo	** (**)	N/A (20A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Bomb (Large)	Ammo	** (**)	N/A (30A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Missile (Arrow IV, IS)	Ammo	** (**)	20A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Missile (Arrow IV, Clan)	Ammo	** (**)	20A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Thumper)	Ammo	** (**)	10A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Sniper)	Ammo	** (**)	20A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Long Tom)	Ammo	** (**)	30A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Thumper Cannon)	Ammo	** (**)	10A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Sniper Cannon)	Ammo	** (**)	20A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Long Tom Cannon)	Ammo	** (**)	30A (N/A)	** (**)	N/A	N/A	N/A	Adv
Tripod 'Mech Components								
Tripod 'Mech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy Tripod 'Mech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Tripod 'Mech Structure	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Warrior Augmentations								
Belter Infantry Package	PE, Armor	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Belter Fighter Pilot Package	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Belter Vacuum-Resistance Package	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Enhanced Imaging Implants	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Artificial Pain Shunt	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Communications Implant	PE, E	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Boosted Communications Implant	PE, E	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Sensory Implants (IR/EM/Audio)	PE, E	N/A (N/A)	0 (N/A)	0/0/0/2* (N/A)	N/A	N/A	N/A	Exp
Sensory Implants (Laser/Telescopic)	PE, E	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	–1	N	Exp
Multi-Modal Sensory Implants	PE, E	N/A (N/A)	0 (N/A)	0/0/0/2* (N/A)	N/A	–1	N	Exp
Enhanced M-M Sensory Implants	PE, E	N/A (N/A)	0 (N/A)	0/0/0/3* (N/A)	N/A	–1	N	Exp
Filtration Implants	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Gas Effuser Implant, Pheromone	PE, AE	N/A (N/A)	* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Gas Effuser Implant, Toxin	PE, AE	N/A (N/A)	0.25* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Dermal Armor Implants	PE, Armor	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Dermal Camouflage Implants	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Triple-Strength Myomer Implants	PE	N/A (N/A)	0.14* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Triple-Core Processor Implant	PE, E	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	*	Y	Exp
Vehicular Direct Neural Interface	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	–1	Y	Exp
Buffered VDNI	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	–1	Y	Exp
Prototype Direct Neural Interface	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	–2	Y	Exp
Explosive Suicide Implant	AE	N/A (N/A)	0.57* (N/A)	* (N/A)	N/A	N/A	N/A	Exp
Prosthetic Leg MASC	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Prosthetic Limb, Enhanced	PE	N/A (N/A)	* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Prosthetic Limb, Improved Enhanced	PE	N/A (N/A)	* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Prosthetic Limb, Extraneous	PE	N/A (N/A)	* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Prosthetic Tail, Enhanced	PE	N/A (N/A)	0.21* (N/A)	0/0/0/0* (N/A)	N/A	+2	N	Exp
Prosthetic Glider Wings	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Prosthetic Powered Flight Wings	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Weapons of Mass Destruction								
Chemical Weapon (Class I)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Chemical Weapon (Class II)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Chemical Weapon (Class III)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Chemical Weapon (Class IV)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Biological Weapon (Class IV)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Chemical Weapon (Class V)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space §§ M	P	CV	SV	F	SC	DS	JS	WS	SS	MS
Superheavy 'Mech Actuators	IS	D/X-F-F	2940 / NA	2 x Standard Cost	*	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Superheavy 'Mech Musculature	IS	E/X-F-F	2940 / NA	12,000xTT	*	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Superheavy 'Mech Standard I.S.	IS	E/X-X-F	3076 / NA	4,000xTT	*	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Superheavy 'Mech Endo-Comp. I.S.	IS	E/X-X-F	3135 / NA	6,400xTT	*	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Superheavy 'Mech Endo-Steel I.S.	IS	E/X-X-F	3076 / NA	16,000xTT	*	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Superheavy 'Mech Industrial I.S.	IS	D/X-F-F	2940 / NA	3,000xTT	*	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Superheavy 'Mech Gyro	IS	D/X-F-F	2940 / NA	500,000xIT	ER÷50*	2*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thermobaric Weapons																
Fuel-Air Bomb (Small)	IS/Clan	C/E-F-E-E	PS / PS	18,000	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fuel-Air Bomb (Large)	IS/Clan	C/E-F-E-E	PS / PS	35,000	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fuel-Air Missile (Arrow IV, IS)	IS	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fuel-Air Missile (Arrow IV, Clan)	Clan	C/X-E-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fuel-Air Shell (Thumper)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fuel-Air Shell (Sniper)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fuel-Air Shell (Long Tom)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fuel-Air Shell (Thumper Cannon)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fuel-Air Shell (Sniper Cannon)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fuel-Air Shell (Long Tom Cannon)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tripod 'Mech Components																
Tripod 'Mech Cockpit	IS	F/F-F-X-F	2602 / NA	400,000	4*	5*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Superheavy Tripod 'Mech Cockpit	IS	E/X-F-X-F	2940 / NA	500,000	5*	5*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tripod 'Mech Structure	IS	E/E-F-X-E	2602 / NA	SCx1.2	STx1.1*	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Warrior Augmentations																
Belter Infantry Package	IS	C/E-D-D	2570 / NA	200,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belter Fighter Pilot Package	IS	C/D-D-E	2570 / NA	25,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belter Vacuum-Resistance Package	IS	C/C-C-C	2570 / NA	20,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Enhanced Imaging Implants	Clan	F/X-X-D	NA / 3040	1,500,000	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA	NA
Artificial Pain Shunt	IS/Clan	C/F-F-F	ES / ES	500,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Communications Implant	IS/Clan	E/E-F-D	2600 / 2600	8,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boosted Communications Implant	IS	E/X-X-D	3060 / NA	8,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sensory Implants (IR/EM/Audio)	IS/Clan	E/E-F-C	2610 / 2610	650,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sensory Implants (Laser/Telescopic)	IS/Clan	E/D-E-C	2610 / 2610	600,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Multi-Modal Sensory Implants	IS	E/X-X-D	3055 / NA	900,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Enhanced M-M Sensory Implants	IS	E/X-X-E	3060 / NA	1,600,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Filtration Implants	IS/Clan	C/A-A-A	2580 / 2580	60,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gas Effuser Implant, Pheromone	IS	E/X-X-F	3060 / NA	40,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gas Effuser Implant, Toxin	IS	F/X-X-F	3060 / NA	10,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dermal Armor Implants	IS	E/X-E-E	2950 / NA	1,500,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dermal Camouflage Implants	IS	F/X-X-F	3065 / NA	1,100,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Triple-Strength Myomer Implants	IS	F/X-X-E	3060 / NA	2,500,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Triple-Core Processor Implant	IS	E/X-X-F	3068 / NA	3,000,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vehicular Direct Neural Interface	IS	F/X-X-E	3055 / NA	1,400,000	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA
Buffered VDNI	IS	F/X-X-F	3065 / NA	2,000,000	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA
Prototype Direct Neural Interface	IS	F/X-X-F	3052P / NA	2,500,000	*	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Explosive Suicide Implant	IS/Clan	C/B-B-B	PS / PS	250	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prosthetic Leg MASC	IS	E/X-X-F	3065 / NA	255,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prosthetic Limb, Enhanced	IS/Clan	E/F-F-E	ES / ES	100,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prosthetic Limb, Improved Enhanced	IS/Clan	E/F-F-F	2650 / 2650	202,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prosthetic Limb, Extraneous	IS	F/X-X-F	3068 / NA	400,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prosthetic Tail, Enhanced	IS	E/X-X-F	3068 / NA	60,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prosthetic Glider Wings	IS	E/X-X-E	3069 / NA	90,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prosthetic Powered Flight Wings	IS	F/X-X-F	3070 / NA	120,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Weapons of Mass Destruction																
Chemical Weapon (Class I)	IS/Clan	A/C-C-C	PS / PS	1K	†	†	†	†	†	†	†	†	†	†	†	†
Chemical Weapon (Class II)	IS/Clan	B/C-C-C	PS / PS	10K	†	†	†	†	†	†	†	†	†	†	†	†
Chemical Weapon (Class III)	IS/Clan	B/C-D-C	PS / ES	250K	†	†	†	†	†	†	†	†	†	†	†	†
Chemical Weapon (Class IV)	IS/Clan	C/D-D-D	ES / ES	1M	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biological Weapon (Class IV)	IS/Clan	C/D-D-D	ES / ES	10M	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemical Weapon (Class V)	IS/Clan	C/E-F-F	ES / ES	† / 5M	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type §	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Biological Weapon (Class V)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Nuclear Weapon (Custom Tactical)	NW, AE	* (*)	*	As Launcher	*	0	N/A	Exp
Nuclear Weapon (Custom Strategic)	NW, AE	* (*)	*	As Launcher	*	0	N/A	Exp
Nuclear Weapon (Type Ia)	NW, AE	N/A (N/A)	*	2 boards (N/A)	OS	0	N/A	Exp
Nuclear Weapon (Type Ib [Arrow IV])	NW, AE	** (**)	*	8 boards (N/A)	1	0	N/A	Exp
Nuclear Weapon (Type Ib [Long Tom])	NW, AE	** (**)	*	30 boards (N/A)	1	0	N/A	Exp
Nuclear Weapon (Type II)	NW, AE	** (**)	*	20 boards (Medium)	OS	0	N/A	Exp
Nuclear Weapon (Type III [Launcher])	NW, AE	N/A (N/A)	*	10,000 boards (N/A)	40 t/Msl	0	N/A	Exp
Nuclear Weapon (Type III [C-Missile])	NW, AE	** (**)	*	N/A (Extreme)	40 t/Msl	0	N/A	Exp
Nuclear Weapon (Type IV [Launcher])	NW, AE	N/A (N/A)	*	20,000 boards (N/A)	50 t/Msl	0	N/A	Exp
Nuclear Weapon (Type IV [C-Missile])	NW, AE	** (**)	*	N/A (Extreme)	50 t/Msl	0	N/A	Exp
Nuclear Weapon (Elias)	NW, AE	N/A (N/A)	*	—/—/—/0 (N/A)	0.005	–2	N/A	Exp
Nuclear Weapon (AMW)	NW, AE	** (**)	*	N/A (Extreme)	30 t/Msl	0	N/A	Exp

*See Item rules

BATTLEFORCE WEAPON CONVERSION TABLE – ALTERNATE ERA EQUIPMENT

Weapon	Heat	Short	Med.	Long	Ex.	TC	Special
Age of War Equipment							
Primitive Prototype AC/2	1	1.32	2	2	2	N	AC
Primitive Prototype AC/5	1	3.75	5	5	—	N	AC
Primitive Prototype AC/10	3	10	10	—	—	N	AC
Primitive Prototype AC/20	7	20	20	—	—	N	AC
Primitive Prototype Small Laser	2	3	—	—	—	N	PNT
Primitive Prototype Med. Laser	5	5	5	—	—	N	
Primitive Prototype Large Laser	12	8	8	—	—	N	
Primitive Prototype LRM 5	2	1.5	3	3	—	N	LRM, IF
Primitive Prototype LRM 10	4	3	6	6	—	N	LRM, IF
Primitive Prototype LRM 15	5	4.5	9	9	—	N	LRM, IF
Primitive Prototype LRM 20	6	6	12	12	—	N	LRM, IF
Primitive Prototype SRM 2	2	2	2	—	—	N	SRM
Primitive Prototype SRM 4	3	4	4	—	—	N	SRM
Primitive Prototype SRM 6	4	6	6	—	—	N	SRM
Primitive Prototype PPC	15	7.5	10	10	—	N	
LRM 5 w/ Prototype Artemis IV	2	1.5	3	3	—	N	IF
LRM 10 w/ Prototype Artemis IV	4	3	6	6	—	N	IF
LRM 15 w/ Prototype Artemis IV	5	4.5	9	9	—	N	IF
LRM 20 w/ Prototype Artemis IV	6	6	12	12	—	N	IF
SRM 2 w/ Prototype Artemis IV	2	4	4	—	—	N	
SRM 4 w/ Prototype Artemis IV	3	6	6	—	—	N	
SRM 6 w/ Prototype Artemis IV	4	8	8	—	—	N	
Prototype Arrow IV	10	*	*	*	*	N	ART-AIS
Prototype Gauss Rifle	1	12.45	15	15	—	N	
Prototype LB 10-X Autocannon	2	6.3	6.3	6.3	—	N	FLK
Prototype Small Pulse Laser	4	3.15	—	—	—	N	
Prototype Medium Pulse Laser	7	6.3	6.3	—	—	N	
Prototype Large Pulse Laser	13	9.45	9.45	—	—	N	
Prototype ER Large Laser	18	7.6	7.6	7.6	—	Y	
Prototype Rocket Launcher 10	3	0.6	0.6	0.6	—	N	
Prototype Rocket Launcher 15	4	0.9	0.9	—	—	N	
Prototype Rocket Launcher 20	5	1.2	1.2	—	—	N	
Early Clan Equipment							
Improved Autocannon/2	1	1.32	2	2	2	Y	AC
Improved Autocannon/5	1	3.75	5	5	—	Y	AC
Improved Autocannon/10	3	10	10	—	—	Y	AC
Improved Autocannon/20	7	20	20	—	—	Y	AC
Improved Gauss Rifle	1	12.45	15	15	—	Y	
Improved Large Laser	8	8	8	—	—	Y	
Improved Large Pulse Laser	10	9.9	9.9	—	—	Y	
Improved PPC	10	7.5	10	10	—	Y	
Enhanced PPC	15	12	12	12	—	Y	
Improved LRM 5	2	1.5/2	3/4	3/4	—	N	LRM, IF
Improved LRM 10	4	3/4	6/8	6/8	—	N	LRM, IF
Improved LRM 15	5	4.5/6	9/12	9/12	—	N	LRM, IF
Improved LRM 20	6	6/8	12/16	12/16	—	N	LRM, IF
Improved SRM 2	2	2/4	2/4	—	—	N	SRM
Improved SRM 4	3	6/6	6/6	—	—	N	SRM
Improved SRM 6	4	8/10	8/10	—	—	N	SRM
Prototype ER Small Laser	2	3	3	—	—	Y	PNT
Prototype ER Medium Laser	5	5	5	—	—	Y	
Prototype LB 2-X Autocannon	1	0.69	1.05	1.05	1.05	Y	FLK
Prototype LB 5-X Autocannon	1	2.36	3	3	—	Y	FLK
Prototype LB 20-X Autocannon	6	12.6	12.6	—	—	Y	FLK
Prototype Streak SRM 4	3	8.4	8.4	—	—	N	
Prototype Streak SRM 6	4	12.6	12.6	—	—	N	
Prototype Ultra Autocannon/2	2	2.25	3	3	3	Y	
Prototype Ultra Autocannon/10	8	15	15	15	—	Y	
Prototype Ultra Autocannon/20	16	30	30	—	—	Y	
Late Succession Wars Equipment							
Prototype ER Large Laser	18	7.6	7.6	7.6	—	Y	
Prototype Medium Pulse Laser (3031)	7	6.6	6.6	—	—	Y	
Prototype Gauss Rifle (3038)	1	12.45	15	15	—	Y	
Prototype LB 10-X Autocannon (3030)	2	6.3	6.3	6.3	—	Y	FLK
Prototype Ultra Autocannon/5	2	6.23	7.5	7.5	—	Y	
Wars of Reaving Equipment							
Fusillade Launcher	0	4.5	3	—	—	N	IATM
Improved ATM 3	2	9	6	3	3	N	IATM
Improved ATM 6	4	18	12	10	6	N	IATM
Improved ATM 9	6	27	18	9	9	N	IATM
Improved ATM 12	8	36	24	12	12	N	IATM

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space §§ M	P	CV	SV	F	SC	DS	JS	WS	SS	MS
Biological Weapon (Class V)	IS/Clan	C/E-F-F	ES / ES	† / 50M	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nuclear Weapon (Custom Tactical)	IS	C/F-F-F	PS / NA	† / [1M/Kiloton]	*	*	NA	*	*	*	*	*	*	*	*	*
Nuclear Weapon (Custom Strategic)	IS	C/F-F-F	PS / NA	† / [10M/Megaton]	*	*	NA	*	*	*	*	*	*	*	*	*
Nuclear Weapon (Type Ia)	IS	E/F-F-F	2412 / NA	1M / 500K	3*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nuclear Weapon (Type Ib [Arrow IV])	IS	E/F-F-F	2480 / NA	† / 500K	† / 1	†	NA	†	†	†	†	†	NA	NA	NA	†
Nuclear Weapon (Type Ib [Long Tom])	IS	E/F-F-F	2595 / NA	† / 500K	† / 1	†	NA	†	†	†	†	†	NA	NA	NA	†
Nuclear Weapon (Type II)	IS	E/F-F-F	2200 / NA	† / 1M	† / 5	NA	NA	NA	NA	†	NA	NA	NA	NA	NA	NA
Nuclear Weapon (Type III [Launcher])	IS	E/F-F-F	2300 / NA	250K / 15M	160 / [1/40]	NA	NA	NA	15	NA	NA	1	NA	NA	NA	1
Nuclear Weapon (Type III [C-Missile])	IS	E/F-F-F	2300 / NA	† / 15M	† / [1/40]	NA	NA	NA	†	NA	†	†	†	†	†	†
Nuclear Weapon (Type IV [Launcher])	IS	E/F-F-F	2220 / NA	500K / 40M	210 / [1/50]	NA	NA	NA	20	NA	NA	1	NA	NA	NA	1
Nuclear Weapon (Type IV [C-Missile])	IS	E/F-F-F	2220 / NA	† / 40M	† / [1/50]	NA	NA	NA	†	NA	†	†	†	†	†	†
Nuclear Weapon (Elias)	IS	E/F-F-F	ES / NA	NA / 10K	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nuclear Weapon (AMW)	IS	E/F-F-F	2790 / NA	† / 100M	† / [1/30]	NA	NA	NA	NA	NA	†	†	†	†	†	†

*See Item rules
**Heat and Range values for special munitions are the same as their firing weapon unless otherwise specified.
†As per the weapon launcher used (See item rules). If no launcher required, no cost is applied.

Cost and Weight Formula Notes: "AC" = Normal Actuator Cost; "SC" = Total Structure Cost; "WSC" = Total cost of the unit's Weapons, Equipment, and Internal Structure; "ST" = Normal Structure Tonnage; "TT" = Total Tonnage; "ER" = Engine Rating; "C" = Desired Capacity (in tons); "FC" = Final Unit Cost

Notes:
Intro Date ending in P indicates item only existed as prototype form, and never achieved widespread manufacture.
New Weapon Class codes: NW = Nuclear Weapon; CW = Chemical/Biological Weapon

BATTLEFORCE WEAPON CONVERSION TABLE – ALTERNATE ERA EQUIPMENT

Weapon	Heat	Short	Med.	Long	Ex.	TC	Special
Dark Age Equipment							
Small Re-Engineered Laser	5	4	—	—	—	Y	REL, PNT
Medium Re-Engineered Laser	7	6	6	—	—	Y	REL
Large Re-engineered Laser	10	9	9	—	—	Y	REL
ER Small Laser w/ Laser Pulse Module	4	3.15	3.15	—	—	Y	PNT
ER Medium Laser w/ Laser Pulse Module	7	5.25	5.25	—	—	Y	
ER Large Laser w/ Laser Pulse Module	14	8.4	8.4	8.4	—	Y	

Weapon	Heat	Short	Med.	Long	Ex.	TC	Special
Small Laser w/ Laser Pulse Module	3	3.15	—	—	—	Y	PNT
Medium Laser w/ Laser Pulse Module	5	5.25	5.25	—	—	Y	
Large Laser w/ Laser Pulse Module	10	8.4	8.4	—	—	Y	
RISC Hyper Laser	24	20	20	20	20	Y	
ER PPC w/ Capacitor (Clan)	15	10	10	10	—	Y	

Note: Any weapon that lists a "Y" under the TC column is compatible with a targeting computer, and may be modified accordingly (see p. 361, SO).

BATTLEFORCE ARTILLERY CONVERSION TABLE – ALTERNATE ERA EQUIPMENT

Weapon	Heat	Max Range	Damage	TC	Notes
Prototype Arrow IV	10	3 BF Maps / 45 BF Hexes	2	N	ART-AIS
Fuel-Air Bomb (Small)	NA	NA	3	N	BOMB
Fuel-Air Bomb (Large)	NA	NA	5/2	N	BOMB
Fuel-Air Missile (Arrow IV, IS)	10	3 BF Maps / 45 BF Hexes	2	N	ART-AIS
Fuel-Air Missile (Arrow IV, Clan)	10	3 BF Maps / 51 BF Hexes	2	N	ART-AC
Fuel-Air Shell (Thumper)	6	7 BF Maps / 119 BF Hexes	1	N	ART-T
Fuel-Air Shell (Sniper)	10	6 BF Maps / 102 BF Hexes	2	N	ART-S
Fuel-Air Shell (Long Tom)	20	10 BF Maps / 170 BF Hexes	3/1	N	ART-LT
Fuel-Air Shell (Thumper Cannon)	5	5 BF Hexes	1	N	ART-TC
Fuel-Air Shell (Sniper Cannon)	10	4 BF Hexes	2	N	ART-SC
Fuel-Air Shell (Long Tom Cannon)	20	6 BF Hexes	3	N	ART-LTC

FALLING INTO FIRE

Herbert A. Beas II

THE OVERWATCH (FORMERLY THE 418TH SLDF MECHANIZED INFANTRY DIVISION HEADQUARTERS)
SABARI CONTINENT, BOLAN
FREE WORLDS LEAGUE
18 MARCH 2785

Colonel Salam Tutt scowled at the holographic projection hovering over the table, as if he could simply intimidate it into changing the data it displayed. The massive orb of Bolan, rendered in an easy-to-read, three-dimensional wireframe of glowing blue and green grid-work, refused to cooperate, flashing several icons of hateful red in far too many sectors above and upon its surface. Even at a glance, one could see the purple icons—those depicting the troops and ships of his native Free Worlds League—stood hopelessly outnumbered.

Even as he watched, grinding his teeth into the soggy stump of his long-extinguished cigar, the purple icons at Calcutta—Bolan's largest city on the distant Kashmir continent—winked out in the presence of three times their number in reds. The icon for the city itself went from black to red.

"We've lost the 101st, Colonel," Force Commander Faisel Hasheem confirmed. His dark eyes stared absently through the holo while he listened to the reports coming through the headset covering his right ear. "Looks like a fire-bombing mission and heavy arty."

"Inside the city," Tutt growled without moving his jaw. "Bastards didn't even pretend to give Malak a fair fight."

The sentiment was a concession to a concept that Salam already found meaningless. "Honor" was a fool's notion. It was the kind of word Kuritans and Davions used to justify wars, the kind of word Camerons and that thrice-damned Kerensky used to claim some moral high ground for their doomed campaigns.

Honor was a romantic ideal that might have helped meet recruitment quotas since the dawn of time, but in Salam's experience, it always killed more people than it saved.

Practical commanders knew that honor always came secondary to victory—even if they always hoped their enemies would show some when the odds seemed the most bleak.

But, as much as he hated to admit it, Salam *was* bitterly disappointed in the Lyrans' lack of it right now, even as he knew he could not fault the Elsies. Digging the 101st out of Calcutta should have been long, arduous, and costly. Lieutenant Colonel Omar Malak had orders to make the Steiners pay for every meter they took from him. Mines, sappers, and artillery batteries were ready to saturate every street in that city wide enough to accommodate a tank. The Elsies likely would have won in the end—but they should have *bled* for that victory!

Unfortunately, the enemy must have taken the time for a simple "profit-and-loss assessment" of their own, and determined the price they'd have to pay sooner than he'd hoped. The irony wasn't lost on him; no matter who won and how, Calcutta would have been a flaming wasteland in the end.

"They're already on the move," Hasheem added after another moment. The red icons in Calcutta began blinking. Even without League troop formations left in the area to oppose them, the Lyran forces could be tracked by the few scouts left in the area, whatever remained of the planetary satellite network, and by the two destroyers still trying to hold the line in orbit. "Doesn't look like they're going to leave much to secure the city."

"They'll let it burn for a while," Salam said. "Probably eager to back up their assault on the capital." He scratched at the stubble that now crept hallway down his neck, irritating him with every

turn of his head. It was not like him to go this long without a good shave, but House Steiner's offensive had been relentless since it began two weeks before.

His eyes flicked to the orbital space above Calcutta, picking out the largest purple icon that floated there. He frowned.

"Can the *Talwar* get a solution on any of them?"

Hasheem blinked and threw Salam a dubious glance. His mouth opened for a moment, but no words came out at first.

"One moment, sir," he finally said, as he touched his headset. "*Talwar*, this is Overwatch, report your status…"

Salam gave Hasheem time to collect his data, while his own eyes assessed the big picture once again.

The Steiners' invasion began by capturing Bolan's zenith recharge station, hiding their marine assault on a JumpShip flagged as a free merchant vessel. Their fighters—two squadrons, stowed aboard what Salam now knew to be an old *Mule*, specially modified to serve as a stealth carrier—struck at the local patrol ships as quickly as possible, but not before a shuttle jock with more guts than sense managed to beam a warning to the dirtside tracking stations.

Of course, by the time that word reached the Overwatch, the Elsies had the recharge station locked down and the jump pulses of their other vessels were easily detectable. It took the local satellites, observatories, and mid-range trackers about two hours to confirm what everyone on the ground knew from the start: a full-blown invasion was rolling in.

To be honest, Salam didn't think Archon Jennifer Steiner had it in her.

By all estimates, the force was big—in all, two flotillas of JumpShips and their WarShip escorts materialized not just at the zenith station, but also at a LaGrange point on Bolan's orbital plane only three days out. Judging by the thermals, each group included four corvettes and two cruisers, totaling enough DropShips for at *least* three 'Mech regiments and their support.

And, thanks to some brilliant timing, all Salam had to defend Bolan were three destroyers, one cruiser, and two 'Mech regiments. He also presided over both a feast and a famine—an arsenal of munitions intended to outfit reinforcements who had instead been yanked away, redeployed by a Captain-General currently bent on staking a claim on the Terran Hegemony's wealthy, now-defenseless worlds.

His destroyers, the *League*-class *Talwar*, *Turk*, and *Tyberium*, managed to inflict some punishment on the Lyran *Mako*-class corvettes that made up the first wave's vanguard. Their combined



firepower sent two of the smaller ships into retreat, and was on its way to seeing off the third before the looming arrival of a pair of *Commonwealth* cruisers and attendant fighter transports convinced the destroyers' captains to fall back to orbit.

Since then, the capital ships engaged an orbital game of cat-and-mouse, the first-wave Lyran vessels using their numbers and fighter screen to clear their DropShips' approach to the planet and hold the line until a second wave of transports—and a third *Commonwealth*—arrived from the zenith point. In the fighting, the Lyrans lost another two *Mako*s, and a *Commonwealth* was forced to withdraw, but not before crippling both the *Tyberium* and the *Aegis*-class cruiser *Manaslu*.

The loss of the *Manaslu* hurt most. The Steiners now held an upper hand in orbit, but their focus on securing the planetary capital of Mumbai kept their ships largely clustered over the southern continent of Kashmir.

After Mumbai, they'll come here, Salam reminded himself. *They just want to shut down the capital, cut off our fallback position, and—*

"Sir, *Talwar* thinks she can give it a try."

Salam inhaled, finally plucked the dead cigar from his mouth, and discarded it in the overcrowded ashtray. His eyes tightened on the red icons flashing around Calcutta—or, more specifically, on the flattened-egg symbols in their vicinity, which he magnified with a virtual tap against the display field.

"There's her targets," he growled. "Scrap their Droppers; if they want to get to Mumbai, let the bastards walk."

Hasheem regarded the holo, the dark pools of his eyes absorbing the information in moments. "*Talwar*, this is Overwatch," he spoke into thin air, "focus fire mission on grounded aerospace assets in the designated sector. Fire for maximum effect."

The temptation to order that fire mission on the Lyran 'Mechs themselves still burned in Salam's mind, but he knew the SOP for ground ops under a persistent threat of enemy artillery. The Lyrans weren't stupid, no matter what the propaganda said; their 'Mechs and vehicles would have spread themselves out, forcing *Talwar* to scatter her fire as they moved toward the waiting ships. The countryside between Calcutta's burning remains and the open plains they'd in which they'd set down was peppered with smaller communities—communities that would bear the brunt of all that orbital fire, sent in the blind hope of destroying enough of the enemy to matter.

But if *Talwar* destroyed enough of their DropShips on the ground, the Elsies would need to make their way to the capital the hard way. Mumbai would still fall—hell, *Bolan* would still fall!—but Salam's forces would buy themselves a little more time.

"Colonel," a new, feminine voice called out from the darkness beyond the holo field. The illusion that Salam, Hasheem, and the simulated globe of Bolan were all that existed here was shattered as his eyes zeroed in on the comm-tech who called him.

With the after-image glow of the display seared into his vision, he could not actually see her, but she caught his silent acknowledgement. "Sir," she continued, "we're getting another broadcast from the enemy Actual."

"Standard surrender request?" Hasheem asked before Salam could.

"No, sir," replied the disembodied voice. "They're requesting direct contact with Overwatch Actual."

Hasheem grunted. Salam's eyes tightened.

"Put it through here, Lieutenant."

A new vid-panel popped up in the air before Salam, interposing itself between himself and the projected globe. It bore the Steiner crest, a mailed fist, set against a blue square. Presently, the symbol dissolved to reveal a fair-skinned man with shaved-short blond hair and piercing blue eyes, clad in a blue field jacket remarkably light on décor for an LCAF officer.

That he was looking at a real-life caricature of the Lyran stereotype would have made Salam snort out a laugh under any other circumstances.

"This is Colonel—"

"Colonel Salam Tutt, commander of the Sixth Bolan Defenders regiment, and de facto commander of the entire planetary defense at present," the Elsie arrogantly barked, his German accent struggling against his English. "Yes, we know this. Indeed, we know a great many things about you and your operations here."

Salam suppressed a sneer. "Oh, *do* you?"

"I am Leutnant-General Richart Johonson von Eilenburg, commander of the peace-keeping force you are presently flailing against in a desperate effort to avoid the inevitable."

"Oh, *this* one's a real piece of work!" Hasheem grumbled softly.

"Seriously?" Salam asked the caricature, ignoring Hasheem's remark. "If you are calling just to rattle off some pre-scripted self-indulgence, I'm just going to have to stop you right there. You see, we're waiting for your forces to surrender right now, and we wouldn't want to tie up the comm lines at such a time."

Johonson's smug expression faltered only for an instant.

"I'll get to my point, then, *Herr* Colonel," he said. "You are sitting on a fortress brimming with weapons and munitions intended for use against the people of the Commonwealth, but as fate would have it, they are useless to you with so few troops at your disposal. Meanwhile, your forces at the capital are being slaughtered by mine as we speak, as I am sure you are aware. We have enough ships and firepower to flatten all that remains of you without risking any further casualties of our own, and no help from out-system will arrive in time to stop us.

"I therefore appeal to your duty, to your men, and to the good people of Bolan: Stand down, and surrender your command, your base, and your forces to the Lyran Commonwealth. If you cease all hostilities immediately and unconditionally, we will afford you all protections of prisoners of war in accordance with the Ares Conventions. Otherwise, I assure you, you will all perish in flames."

"The *Ares Conventions*?" Salam ground his teeth so hard he thought he tasted enamel. "You have a lot of nerve citing those outdated rules of war to me, right after fire-bombing a whole city!"

"Ah, *Herr* Colonel, but whose troops chose to make that city a battlefield to begin with? Your decisions killed those civilians before we even fired the first shots."

Almost automatically, Salam's eyes darted up to the holo-globe, where the icon representing the *Talwar* now settled directly over the site where Calcutta and its Lyran attackers lingered. At the image's scale, kilometers were reduced to mere centimeters, but instinctively, he knew the destroyer was lining up its attack. Any second now—if the Elsie DropShips didn't already see it coming—they would suffer a hail of capital Gauss slugs

and naval laser fire powerful enough to shatter an *Overlord* in a single volley.

And then, Salam told himself, *this stuffed shirt of a Steiner officer will have his answer.*

"Arguing *semantics*?" he countered aloud. "Is that how your Archon plans to excuse this act of war?"

"Do not take us for fools, Marik *abschaum*!" Johonson spat. His expression suddenly hardened, all trace of civility lost. "A wise man once said, 'Do unto others *before* they do unto you', and that is why we have come here. We have orders to eradicate a very clear and *very* present danger to our people, and—mark my words—we *shall* do just that!

"There is no Star League Council that will bring us to heel this time; no Camerons, Kerenskys, *or* Amarises will ride to your treacherous League's rescue! We will not allow you to hold Bolan against us like an assassin's dagger, and we are prepared to use *any* means necessary to end this threat! When we are done, your ships, your bases, your depots, and your weapons will be nothing but ash-filled craters. And so I offer you, one final time, the opportunity to surrender, before we obliterate you from orbit!"

"From orbit?" Hasheem hissed. "Sir…!"

Salam felt his mouth go dry even as he glanced once again at the *Talwar*'s icon. The display flashed a line of gold between the ship and the red icons below her. Callouts of text appeared in the air nearby, identifying volley strength, hit percentages, estimated damage.

But the death of Lyran DropShips was no longer on his mind now. He, too, caught the Steiner commander's implication.

Calcutta was just a warning.

The gloves were off.

"So be it," Salam muttered. Turning his gaze back toward the image of the enemy commander, he allowed himself a grim smile. "*Ad respirationem ultimam*, Leutnant-General. The Bolan Defenders will not surrender today. Prepare yourself for Hell."

With a savage stab at the panel below, Salam severed the connection and paused just long enough to heave a sigh and reach for his steel cigar case. His eyes met Hasheem's a moment later.

"Send word to the all sub-commanders, Force Commander," he said evenly. "All non-essential personnel and support staff are to commence evacuation protocols. Anyone unable to make it to outbound transports is to seek the nearest disaster shelters. Advise the planetary council that the Defenders will try to hold as long as possible, but civilians and government personnel should also take to emergency shelters.

"And get me Lieutenant-Colonel Chisholm. Tell him it's an Omega-level priority."

Hasheem's expression blanked, but he nodded without any further comment. As the young aide keyed his communicator and got to work, Salam finally lit his cigar, noticing the tremor in his own hands as he did so.

"If the Lyrans really want to take it this far," he mumbled to himself, "then let's show them the kind of war they've asked for."

▲▼▲

Despite being strapped into his gee-couch, pressed deep into its cushioning by just over two gees of acceleration, Force Commander Faisal Hasheem managed to crane his neck far enough toward the portal to catch the faintly glowing arc of Bolan below. As the DropShip burned away, he even thought he could make out the two columns of metal, glinting in the fading rays of local sunlight, holding their altitude as their weapon bays fired invisibly at planet-side targets.

The *Talwar* and the *Turk* would cover the Defenders' escape if the Elsies tried to circle their own ships around to claim any stragglers. But thus far, it seemed, they were content with raining their own fire on the 'Mechs that Colonel Tutt personally led toward the ruins of Mumbai. Unless that changed, the two WarShips were under orders to ensure that nothing remained on Bolan that could be turned against the League later on.

A diversion, he'd called it. Suicide was more like it, as Faisal recalled the colonel's last determined repetition of the Defenders' motto, both battle cry and farewell in one:

"*Ad respirationem ultimam*," Faisal whispered. "To the last breath."

Flashes of golden light rippled across the darkened lands now hundreds of kilometers below him. Below the graying clouds, he could almost see enough coastline to identify the Sabari continent's eastern Amawar Province—but only for a moment, before the flashes reached them.

He tried to prevent any mental calculations, but the moment he'd heard Colonel Tutt order for the Omega Protocol, he knew every nuclear weapon in the Overwatch arsenal would be in play, knew the exact number of them available, knew the yield of each. And the number of civilian casualties they would reap once those keys were turned.

Horrific as it was, the scorched earth protocol was Tutt's only option once he knew the Steiners were ready to use their own nukes on Bolan to kill off the Defenders without a real fight. Instead, as they laid claim to a scorched world, the Lyrans would understand that their new war against the League could only end one way.

Yet, as the world he'd called home for more than a decade fell away beneath him in fire, Faisal felt only a cold and dreadful certainty, rising from the pit of his stomach. Soon, he knew, the entire Inner Sphere would be falling into fire.

What have we done?



The culmination of years of strategic planning, tactical manuevering, and technological advancements finally place two great factions on a contested battlefield.

STRATEGIC BATTLEFORCE: STANDARD RULES

Strategic BattleForce is an expansion of the *BattleForce* game system from *Strategic Operations* (*SO*). Like standard *BattleForce* and *Alpha Strike*, *Strategic BattleForce* (*SBF*) abstracts regular *Total Warfare* (*TW*) units to a relative handful of stats, exchanging rules detail for ease and speed of play. However, *SBF* takes this process even further, allowing a player to field entire battalions and even regiments on a battlefield potentially spanning kilometers in scope.

While playing *Strategic BattleForce* does not require the use of any other BattleTech rules, it is assumed that the players are familiar with the basics of *Total Warfare* and either *BattleForce* (see p. 212, *SO*) or *Alpha Strike*. These rules will focus on the direct game play rules assuming players know the context of general BattleTech game play and the game universe.

WHY ALPHA STRIKE?

Players familiar with *Alpha Strike* will see great familiarity in these *BattleForce* rules. This is no coincidence. While *Alpha Strike* is designed for miniatures play, it is directly based on the *BattleForce* rules found within *Strategic Operations*. As such, the enhancements to *BattleForce* found here will bear striking resemblance to the rules found in *Alpha Strike* and the *Alpha Strike Companion*. Numerous references in these rules indicate when they can be used to enhance *Alpha Strike* games (and/or provide comparison for those used to playing that game system).

GAME TERMS

The following terms are used throughout the rules. These definitions below will allow readers to better understand the rules.

BattleForce

The base *BattleTech* mass combat system, as found in *Strategic Operations* (see p. 212, *SO*). All references to "*BattleForce*" refer to this original ruleset. Whenever *Strategic BattleForce* is discussed, it will always be specifically labeled as *Strategic BattleForce* or as "*SBF*". In *BattleForce*, one playing piece is generally equal to four Elements, and the map and turn scales are 90 meters and 30 seconds, respectively.

Alpha Strike

A *BattleTech* combat system based on the *BattleForce* system and primarily intended for play with miniatures on terrain as opposed to hex-based maps. In *Alpha Strike*, one playing piece is equal to one Element. *Alpha Strike Companion* is a supplement that adds additional rules and options for play.

Element

Elements are still the basic building blocks of *SBF*, just as in standard *BattleForce*. An Element is equal to a single BattleMech, aerospace fighter, vehicle, and so on. Elements are solely used to construct the larger Units and Formations that see play in *Strategic BattleForce*: the scale of *SBF* is too large for individual machines except in rare instances.

Unit

A Unit is a collection of individual Elements: a Lance, Level II or Star in size. In *Strategic BattleForce*, Units are not fielded on the board by themselves. Instead, a Unit is also used as a building block, this time for the standard *SBF* gameplay grouping: the Formation.

It is important to note that this is different than *Total Warfare*'s "unit"—not capitalized—which represents an individual BattleMech, vehicle, aerospace fighter, and so on.

Formation

In *Strategic BattleForce*, the individual playing piece represents a Formation. Formations are made up of one or more Units. These Formations are usually a Company, two Level IIs, a Binary, or a Trinary. A Formation may not be made up of more than 20 Elements, and is limited to four Units.

Squadron: This term is used to describe an aerospace Formation in *SBF*. A Squadron ranges from a minimum of two Units (two Elements to an aerospace Unit) to a maximum of six Units.

Force

A Force is comprised of all the Formations on one side of the engagement.

COMPONENTS

A complete list of *Total Warfare* units, along with their *Alpha Strike* statistics, is available at www.masterunitlist.info. *Alpha Strike* stats are identical to *BattleForce* stats, with the exception of movement rates (for all non-aerospace entries, divide *Alpha Strike* inches of Move in half (rounding down) to find an Element's *BattleForce* MP. This gives players access to a ready database of Elements from which to build their Forces.

RECORD SHEETS

Players use record sheets to track various types of information while playing *Strategic BattleForce*. Each Unit has its own list of statistics, or its stat block. The conversion rules (see Conversion Rules pp. 326-339) provide the information needed to derive the statistics listed below.

Units are organized into Formations on the record sheets. Though the number of Units in a Formation varies by faction and Formation type, the base record sheet will remain unchanged.

Strategic BattleForce Formation Stat Block

Most relevant details of a Formation reflect the same details of the Units that comprise it.

Type: A Formation may be classified as Aerospace, Large Aerospace, BattleMechs, ProtoMech, Conventional Infantry, Battle Armor, Vehicles, or Mobile Structures. If there is no predominant Unit Type within a ground Formation, the Formation Type will be Mixed Ground. If there are any Large Aerospace Units in a Squadron, the entire Squadron is classified as Large Aerospace.

Size: The Formation's size class (in *BattleForce* scale). This is an average of the Unit Sizes that make up the Formation.

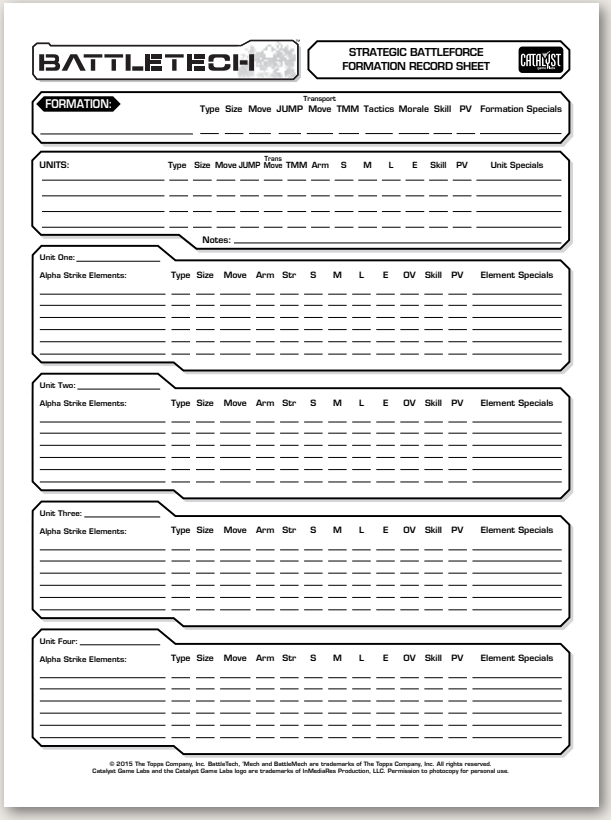
Move: The Formation's available Movement Points (MP), and its movement mode (tracked, wheeled, and so on), if any.

Transport MP: Because Formations may contain Elements that are both significantly slower and can be carried, Formations may have a Transport MP, representing their movement speed when these slower Elements are being transported.

TMM: Target Movement Modifier. This modifies the to-hit chance of most attacks made against units within the Formation.

Tactics: An ability representing a combination of the Formation's skill and speed. It is used to determine Engagement Control (see *Engagement Control*, p. 237), Range (see *Step 3: Determine Range*, p. 239) and damage distribution (see *Apply Damage*, p. 240).

Morale: The value consulted when the Formation is forced to make a Morale check (see *Morale*, p. 242**)**.


BATTLETECH

STRATEGIC BATTLEFORCE FORMATION RECORD SHEET

CATALYST game labs

FORMATION:

Type | Size | Move | Transport JUMP Move | TMM | Tactics | Morale | Skill | PV | Formation Specials

UNITS:

Type | Size | Move | JUMP | Trans Move | TMM | Arm | S | M | L | E | Skill | PV | Unit Specials

Notes:

Unit One:

Alpha Strike Elements: Type | Size | Move | Arm | Str | S | M | L | E | OV | Skill | PV | Element Specials

Unit Two:

Alpha Strike Elements: Type | Size | Move | Arm | Str | S | M | L | E | OV | Skill | PV | Element Specials

Unit Three:

Alpha Strike Elements: Type | Size | Move | Arm | Str | S | M | L | E | OV | Skill | PV | Element Specials

Unit Four:

Alpha Strike Elements: Type | Size | Move | Arm | Str | S | M | L | E | OV | Skill | PV | Element Specials

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Skill: The Formation's average Skill Rating, and the base number for attack rolls.

PV: The Point Value required to select this Formation as part of your Force, and the value of the Formation when determining victory conditions (see p. 244). This is simply the total PV of all Units within the Formation.

Special Abilities: Any special abilities that apply to the Formation; for example, Artillery (ART).

Strategic BattleForce Unit Stat Block

Within each Formation are stat blocks for each Unit of which the Formation is comprised. Each Unit's stat block consists of the following:

Type: A Unit's Type. Categories are the same as Formation Types at left.

Size: The Unit's size class (in *BattleForce* scale). This is an average of the Element Sizes that make up the Unit.

Move: The Unit's available Movement Points, and its movement mode (tracked, wheeled, VTOL, and so on), if any. Units cannot move individually; this statistic is usually only relevant for determining the speed of the parent Formation and any terrain in which it is hindered or restricted from entering.

JUMP: An abstracted game stat representing Elements in the Unit that are jump capable and thus have greater mobility on the battlefield.

TMM: The Unit's Target Movement Modifier, used primarily to calculate the Formation's TMM value.

Armor: How much damage the Unit can take before being destroyed.

S/M/L: The Unit's Damage Values when making attacks at short, medium and long ranges.

Skill: The Unit's Skill Rating.

PV: The Point Value needed to select this Unit as part of a Formation. Point Values of individual Elements are converted from BattleForce/ *Alpha Strike* Point Values during conversion for Strategic BattleForce (see p. 327).

Special Abilities: Any special abilities—such as Leader (LEAD), Indirect Fire (IF), or Active Probe (PRB)—are recorded here. Note that at this level of play many of the standard special abilities have no effect. *Strategic BattleForce* uses a reduced subset of special abilities, with their effects altered to suit *SBF*'s larger scale. See *Special Abilities Details*, pp. 331-338, for details.

MAPS AND MINIATURES

Strategic BattleForce uses the same maps and miniatures (or counters) as *Total Warfare*, with the following exceptions: each miniature (or counter) represents a Formation, and the scale represented by each hex is modified (see below).

Blip Counters

Blip Counters allow for play with a fog-of-war that conceals information by keeping data about the details of Formations hidden unless detected. These tokens—referred to as "Blip Counters"—will thus indicate each Formation's position on the battlefield until it gets close enough to be seen or otherwise identified by sensor systems, leaving the opponent guessing until that time. (See *Detection and Reconnaissance Phase*, pp. 265-268.) Blip Counters have a formation side and a radar blip side.

Players can download a free PDF of these counters from bg.battletech.com, which they can cut out and use, or they can create their own.



FORMATION SIDE



RADAR BLIP SIDE

SCALE

The primary aspect setting *Strategic BattleForce* apart from *BattleForce* is scale. *Strategic BattleForce* rules allow for larger battles representing battalions and regiments instead of lances and companies.

The following rules explain *SBF* game scale:

MAP SCALE

One *SBF* hex is 500 meters (0.5 kilometers), making a standard *BattleTech* mapsheet such as those found in the *Introductory Box Set* equal to 8.5 kilometers by 8 kilometers.

Levels: Elevated hexes (hills, mountains, buildings) are 30 meters per Level.

Water: Depth is calculated using the *Total Warfare* scale, in which each Depth is equal to six meters.

TURN LENGTH

Each *SBF* turn constitutes three minutes of game time. Six *BattleForce* or thirty Total Warfare turns pass for each turn of *SBF* Play.

FORCE STRUCTURE

This difference in scale extends to each player's Force. In *Alpha Strike*, one Element typically equals one Unit, and in *BattleForce*, the players use Elements to build Units made up of four to six Elements. However, in *Strategic BattleForce* the player begins creating their Force with those same *BattleForce* Units, using them to build Formations. The standard Formations for each major faction grouping follows:

- **Inner Sphere/Periphery:** One Inner Sphere or Periphery Formation represents one company of three to four Units.
- **The Clans:** One Clan Formation represents either a Binary (two Units, ten Elements) or a Trinary (three Units, fifteen Elements). Clan players may choose to field either Formation type, and can mix both within the same Force.
- **ComStar/Word of Blake:** These factions have no "natural" organizational grouping at this scale, as their Level II is six Elements, while their Level III is thirty-six. However, for the purposes of *SBF* gameplay, ComStar and Word of Blake Formations may be comprised of one or two Level IIs.

The number of Elements within a Unit varies depending on the Element type. For example, a Clan Binary is ten 'Mechs, but twenty vehicles. Consult the Standard Force Organization Schemes Table (see p. 233) to determine how many Elements comprise each Unit on a per-faction basis. Players are encouraged (but not required) to field their Formations in such a way as to form the natural military structures of their faction. For example, three formations of two Level IIs each (six Level IIs total) together form a Level III, and three formations of one company each forms a battalion.

The exceptions to the above are aerospace, Large and Very Large Elements. Rules for these Elements are covered in either *Advanced Strategic Aerospace* (see p. 250-264) or *Advanced Strategic BattleForce* (see p. 264-299).

VISUAL AND SENSOR RANGE

The scale of *Strategic BattleForce* allows for maps that extend well beyond standard visual detection ranges of *Total Warfare* (see p. 221, *TO*) and *Alpha Strike* (see p. 89, *AS*). Where as a 2 x 2 map layout in *Total Warfare* represents roughly one square kilometers and a 2 x 2 map layout in *BattleForce* is just over nine square kilometers, in *Strategic BattleForce*, the same map layout would be equal to 289 square kilometers (17 kilometers on a side).

Rules for visual and sensor ranges are covered in the advanced rules, *Detection and Reconnaissance* Phase (see pp. 265-268).

SETUP

For a standard one-off game, players may convert forces from *BattleForce* or *Alpha Strike* (see *Conversion Rules*, pp. 326-339).

BattleTech has a variety of campaign-play rules, which can be used in conjunction with SBF in the following manner:

- For *Total Chaos* campaigns, use the *Alpha Strike Campaign Rules* (see p. 114, *AS*).
- For generic scenario setup guidance, consult the *Scenarios* section of the *Alpha Strike Companion* (see p. 158, *ASC*) or the *Linked Scenarios* section of *Strategic Operations* (see p. 47, *SO*)

CHOOSING MAPS

Strategic BattleForce uses the same maps as *Total Warfare*, but modifies the game scale and effects of terrain to fit the *SBF* game scale. Maps may be chosen using any of the existing *BattleTech* rules or through mutual agreement of the players.

STANDARD FORCE ORGANIZATION SCHEMES TABLE

General Inner Sphere and Periphery Force Groups		
Organization	**Definition**	**Command Rank**
*Infantry Formations**		
Squad (Battle Armor)	4 troopers	Sergeant
Squad (Conventional)	2-8 troopers	Corporal
Platoon (Conventional)	3-4 squads	Sergeant
Aerospace/Conventional Fighter Formations		
Flight	2 fighters	Lieutenant
Squadron	3 flights	Captain
Wing	3-4 squadrons	Major
Ground Formations		
Lance	4 ground units	Lieutenant
Company	3-4 lances	Captain
Battalion	3-4 companies	Major
Regiment	3-4 battalions	Colonel
Brigade	3-6 regiments	General

ComStar and Word of Blake Force Groups		
Organization	**Definition**	**Command Rank**
*Infantry Formations**		
Level I (Battle Armor)	6 troopers	Acolyte
Level I (Conventional)	30-36 troopers	Acolyte
All Other Formations		
Level I	1 unit	Acolyte
Level II (Demi-Company)	6 Level Is	Adept
Level III (Battalion)	6 Level IIs	Adept (Demi-Precentor)
Level IV (Division)	6 Level IIIs	Precentor
Level V (Army)	6 Level IVs	Precentor

General Clan Force Groups		
Organization	**Definition**	**Command Rank**
*Infantry and ProtoMech Formations**		
Point (Battle Armor)	5 troopers	Point Commander
Point (Conventional)	20-25 troopers	Point Commander
Point (ProtoMech)	5 ProtoMechs	Point Commander
'Mech Formations		
Star	5 'Mechs	Star Commander
Nova	5 'Mechs, 5 infantry Points	Star Commander or Nova Commander
Binary	2 Stars	Star Captain or Nova Commander
Supernova Binary	2 Novas	Star Captain or Nova Captain
Trinary	3 Stars	Star Captain
Supernova Trinary	3 Novas	Star Captain or Nova Captain
Cluster	3-5 Binaries or Trinaries	Star Colonel
Galaxy	3-5 Clusters	Galaxy Commander
Vehicle and Fighter Formations		
Point	2 units	Point Commander
Star	5 Points	Star Commander
Binary	2 Stars	Star Captain
Trinary	3 Stars	Star Captain
Cluster	3-5 Binaries or Trinaries	Star Colonel
Galaxy	3-5 Clusters	Galaxy Commander

*Above this level of organization, these infantry unit types use the 'Mech formation standards appropriate to their faction group (i.e. Lance for Inner Sphere/Periphery, Star for Clan, Level II for ComStar/Word of Blake).

FORCE COMMANDER AND FORMATION LEADERS

Each player must designate a single Unit in their Force to be their Force Commander. This Unit is assigned the COM special ability, which is then inherited by the Unit's parent Formation. Additionally, any Formation with two or more Units must assign one Unit as the Formation Leader. This Unit receives the LEAD special ability.

The COM and LEAD abilities play a role in determining damage and morale, and in several of the optional *Advanced Strategic BattleForce* rules (see p. 264-299).

DEPLOYMENT

Formations begin play deployed on the battlefield. Both players roll 2D6. The player with the higher result chooses his Deployment Zone and decides whether to set up first or second. The player who sets up first places one his Formations on the map—in his Deployment Zone—and then the player who sets up second places one of his Formations on the map. Continue alternating placement until all Formations have been placed. If necessary, refer to *Unequal Number of Formations* (see p. 234).

Optionally, should players agree, Formations may begin play off the board and enter the battlefield on the first turn.

PLAYING THE GAME

This section provides an overview of the *Strategic BattleForce* gameplay sequence. For simplicity, these rules presume that each game is made up of two sides, each controlled by an individual player or by two teams of players. Whenever the rules refer to a "player," that term refers to a team of players as well as an individual.

1: Initiative Phase

Each player rolls 2D6 and adds the results together to determine Initiative; re-roll ties. The player with the higher result (the Initiative Winner) wins the Initiative for that turn.

2: Movement Phase

The Initiative Loser moves one of their Formations first. If there is an equal number of Formations on the two sides, the Initiative winner then moves one of their Formations, and the players continue alternating their movements until all Formations have been moved.

If the number of Formations per side is unequal, the player with the higher number of Formations must move more Formations in proportion to that of their opponent. See *Unequal Number of Formations* (see p. 234) for details.

3: Combat Phase

The Initiative Loser acts first in the Combat Phase. This player declares and resolves all of their Formations' combat actions at this time, followed by the Initiative Winner.

In the Combat Phase, each Formation may execute one attack per Unit within the Formation. Damage from these attacks is resolved immediately, using a Tactics roll to determine which Unit within a Formation is damaged. The effects do not take place until the turn's End Phase. This means that a destroyed Formation will normally have a chance to return fire.

4: End Phase

Both players conduct the End Phase simultaneously. In this phase, each player removes any destroyed Formations and checks for Morale. Victory conditions are also checked, as appropriate, during the End Phase.

After resolving all End Phase actions, the turn ends and the players return to the Initiative Phase, repeating all steps until one side meets its victory conditions for the scenario. Once victory has been determined, players may also determine salvage for campaign games.

INITIATIVE PHASE

Each player rolls 2D6 and adds the results together to determine Initiative; re-roll ties. The player with the higher result wins the Initiative for that turn.

As with all other *BattleTech* combat systems, because movement and combat occur simultaneously in the course of an *SBF* game turn, the Initiative Winner actually executes movement and combat actions after the player(s) with the lower Initiative roll. This simulates a greater awareness of the tactical situation.

MOVEMENT PHASE

Every Formation has a base MP allowance listed on its record sheet. This value is the maximum number of hexes the Formation may move during its turn. A Formation may move in any direction. Formations need not move their full amount; in place of moving, a Formation may simply remain in its hex. A Formation may make multiple turns during the course of its movement to maneuver around obstacles so long as the total number of hexes traveled are within its maximum Move rating.

Minimum Movement

As long as a Formation is mobile (meaning it has at least 1 MP it can expend), it can always move 1 hex in any direction in a turn, regardless of the terrain's movement costs (unless the terrain in question is prohibited to Formations of its Type).

FACING

Facing has no effect on *SBF* game play.

STACKING

As noted earlier, one *Strategic BattleForce* hex is equal to 500 meters, or the equivalent of one *BattleTech* mapsheet. However, for ease of play (and because Elements are usually not packed into a space like a crowded car park), *SBF* limits stacking to one friendly Formation of any Type and one friendly Infantry Formation, as well as an equal number and Type of enemy Formations. This results in a total of four Formations allowed; one infantry and one Formation of any Type per side. In *Total Warfare* terms, this is equivalent to roughly two companies per side, or approximately forty-eight machines or infantry platoons on a single mapsheet.

A Formation may freely move into and out of hexes occupied by friendly Formations, but they may not exceed the hex capacity at the end of the turn. Formations may enter the hex of an enemy Formation, but only if it would not break the friendly stacking limit. It may not leave the hex of an enemy Formation if the enemy Formation chooses to oppose the friendly Formation's movement (see *Engagement Control*, p. 237), unless they conduct a successful overrun or evade (see p. 238) A Formation that starts the turn in the same hex as an enemy Formation may attempt to leave, but the presence of the enemy may prevent this (see *Engagement Control*, p. 234).

UNEQUAL NUMBER OF FORMATIONS

The Movement Phase requires each player to alternate moving his army's Formations. In a turn consisting of an equal number of Formations on each side, this simply means that each player takes a turn moving a single Formation before his opponent does the same, and so on, until all Formations are moved. But if the numbers of Formations per side are not equal, this procedure must be altered accordingly.

To maintain fairness, unequal numbers of Formations must be moved in proportion. If prior to any pair of Formation movements one side has twice as many Formations left to move as the other side, the player with twice as many Formations must move two Formations on his side, rather than one. If a side has three times as many Formations as its opponent, it must move three Formations at a time to every one of its opponent's Formations moved, and so forth.

If using the Advanced *Detection and Reconnaissance Phase* (see p. 265-268), Undetected Formations (i.e. that are not Blip counters already placed on the playing area) do not count against a Force's Formation count for the purposes of Initiative.

TERRAIN

Terrain can impede the movement of any ground Formation (unless capable of flying over it, such as VTOLs and WiGE units). This difficulty is demonstrated by an extra Move cost per hex of travel through such terrain. These extra costs are shown on the Movement Cost Table (see p. 235). Note that multiple terrain conditions may combine for higher movement costs (such as when changing levels while moving through water or woods).

Terrain Type: *Strategic BattleForce* hexes represent 500 meter hexes, which will often contain more than one terrain type. For game play simplicity, the terrain shown on a hex is considered to be the predominant terrain in the hex and is what the Formation must pay to move through the hex.

This means that some agreement between players may be required. Players are encouraged to go over the playing area and ensure that everyone agrees to the terrain before play begins.

Prohibited Terrain: Certain Formation Types (or Formations lacking in specific equipment) may not enter certain terrain types. These prohibited terrain types and movement restrictions are defined in the Movement Cost Table (see p. 235). Once again, these prohibitions apply only if the Formation attempts to move through the terrain. Formations that can rise above the underlying terrain (such as VTOLs in flight) will ignore these prohibitions.

Levels: Higher or lower level hexes such as hills and mountains may be entered by paying an additional 1 MP for each level difference between the starting hex and the destination hex. If the difference between these hexes is more than three levels, the hex cannot be

MOVEMENT COST TABLE

Terrain Type	Move Cost per Hex	Prohibited Movement Mode/Formation Type
Base Move	1	—
Clear	+0	Naval
Paved/Road/Bridge	+0[1]	Naval
Rough	+1*	Naval
Rubble	+1	Naval, Rail
Woods	+1*[2]	Air, Naval, Rail
Water[3]		
Surface Only	+0	All except Hover, Naval, WiGE[4]
Depth 0	+0	Ground, Infantry[5]
Depth 1	+1[6]	Ground, Infantry[5], IndustrialMechs[7]
Depth 2+	+6[6]	Ground, Infantry[5], IndustrialMechs[7]
Level Changes (up or down)		
1 level	+1 ('Mechs, VTOLs, submarines, ProtoMechs) +2 (infantry, ground vehicles)	
2 levels	+2 ('Mechs, VTOLs, submarines)	
3+ levels	+1/level (VTOLs, submarines)	
Urban Hexes (Buildings)		
Light	+1[8]	Naval
Medium	+2[8]	Naval
Heavy	+3[8]	Naval
Hardened	+4[8]	Naval
Hostile Occupied Hex	+1[9]	—

Note: Airborne formations (including Air vehicles and Aerospace formations) ignore all terrain conditions until they attempt to occupy the same space and level of them (including attempts to land or liftoff). If airborne units attempt to enter terrain prohibited to them, treat the result as a crash.

* Wheeled and Hover may enter but must pay 3 movement points per hex reflecting their carefully moving through the clear terrain of the hex.

[1]All Tracked or Wheeled formations gain a +1 MP on any turn where the formation spends its entire Movement on this terrain.

[2]Infantry reduce MP cost to enter this terrain by 1.

[3]See *Water*, *Edge Water Hexes* and *River Hexes*, p. 236).

[4]Wheeled or Tracked formations with the Amphibious (AMP) special ability can move on water surfaces at a MP cost of +1.

[5]Infantry formations can move through water of any Depth only if they have the UMU special ability.

[6]This is the cost to move along the bottom of a water area. No additional cost applies if using submarine movement.

[7]IndustrialMech formations can only enter water of depth 1 or greater if they have the environmental sealing (SEAL) special ability.

[8]Infantry and Battle Armor formations reduce MP costs by 2, to a minimum of 1.

[9]The +1 MP is paid to move out of the hex. See *Engagement Control*, p. 237.

Unit Types Key	
'Mechs	Includes BattleMechs and IndustrialMechs
ProtoMechs	ProtoMech units only
Infantry	Includes conventional infantry and battle armor
Vehicles	Includes all motive types covered by Air, Ground, and Naval
Air	Combat or support vehicles with VTOL or WiGE movement types
Ground	Combat or support vehicles with wheeled, tracked, hover, WiGE, or rail movement types
Naval	Combat or support vehicles with naval or submarine movement types
Hover	Combat or support vehicles with hover movement type only
Sub	Combat or support vehicles with submarine movement type only
Tracked	Combat or support vehicles with tracked movement type only
VTOL	Combat or support vehicles with VTOL movement type only
Wheeled	Combat or support vehicles with wheeled movement type only
WiGE	Combat or support vehicles with WiGE movement type only
Aerospace	Includes conventional fighters, aerospace fighters, small craft, and DropShips

entered. In Urban hexes (see *Urban Hexes* below), the level represents the tallest buildings in the hex. The hex may be entered at ground Level by paying the appropriate MP for that Urban hex.

Bridge: A hex with a bridge or a paved road over water is considered to cross the water in the hex. If the bridge construction factor is not listed, roll 2D6. A result of 2-4 it's a Light Bridge (CF 5), 5-7 it's a Medium Bridge (CF 10), 8-10 it's a Heavy Bridge (CF 25) and 11-12 a Hardened Bridge. See *Bridges*, p. 269, for details on a bridge's carrying capacity.

Buildings (Urban Hexes): A hex with buildings is considered an Urban Hex with multiple structures filling the hex. The class of building indicates predominant building type in the hex and the type of Urban hex for purposes of game play. All Urban hexes are considered paved for movement purposes. See the Movement Cost Table (see p. 235) for the costs to move through an Urban hex.

Paved: Hexes with a road are considered to have sufficient paved roads in them to speed movement. The hex is considered clear for movement and any Formations that are exclusively tracked or wheeled gain a +1 MP when moving across them.

Rubble: A hex with rubble represents destruction of the hex's contents, leaving behind debris that impedes both movement and sight lines.

Water: Depth is measured in *Total Warfare* scale, so 1 depth of water is approximately 6 meters deep.

If a Formation wishes to cross a water hex, they must first determine how wide and how deep the water is. If the hex is completely water, add +2MP, in addition to the normal water hex MP cost. If there is any ground terrain in the hex, roll 2D6; the result is the water's width in terms of the number of *Total Warfare* (30 meter) water hexes present. For 2-6 *TW* Hexes, add +1MP, and for 7-12 *TW* hexes add +2MP to move across the hex. Once the width of the water hexes is determined, roll 1D6, with the result being their depth. Add +1 MP for depth 4 or greater water. Formations equipped with Bridge Layers (BRID) (see p. 335) can bridge the water at the rate of one BRID per *TW* hex.

Players are encouraged to make any such rolls before play begins. However, if this roll occurs during game play, note the results for that hex so all future movement through it encounters the same modifiers.

Ground Formations that are made up of all VTOL, WiGE or Amphibious Elements may cross water hexes as if they were clear hexes.

Super-Heavy vehicles may enter Depth 1 water hexes at an additional +1 MP to enter. Movement costs are as listed once it has entered a water hex.

- **Edge Water Hexes:** In any hex that has water and ground in it (such as a hex with a river going through it) the player may decide if they are entering the water or remaining on the ground. If they remain on the ground, they may only enter a hex that does not require crossing the water. If they wish to cross the water, consult the Water rules above.

Woods: Wood hexes impede movement, providing a movement modifier for each hex traversed. Wood hexes also impact Line of Sight during the Combat Phase (see p. 239-241).

MOVEMENT MODES AND UNIT TYPES

Formations that have certain movement types will be limited in their ability to move through certain terrain. If the movement mode of a unit type is prohibited in a certain terrain, then any Formation with an Element that has this mode or type (and cannot be carried by Elements that do not) may not enter that terrain type. An example would be a mixed company with two VTOL Elements. The remainder of the Formation are not able to fly, so the Formation is restricted to ground movement and would not be able to cross a water hex without paying the MP to enter the water and cross.

Note that when constructing Units and Formations, all other movement restrictions apply for all other movement modes (including UMU). Thus, it is best to combine Units of a similar movement mode together in a Formation (see *Step 1D: Determine Movement Stats* and *Step 2C: Determine Movement Stats*, p. 327 and p. 329).

Terrain Modifiers on Movement: If a movement mode or type gains a bonus for moving through a terrain type, all Elements in the Formation must have this mode or type (or be carried by one that does) to gain the bonus.

If any Element in a Formation must pay additional MP to cross a given terrain, then treat the entire Formation as having to pay that cost. For example, an Inner Sphere Formation with one 'Mech Unit and two Hover Tank Units would need to pay the cost to cross water as if it were made up entirely of 'Mechs.

The Movement Cost Table lists prohibited terrain for movement and Formation types. All movement types follow standard movement rules with the following exceptions below.

Hover Movement: This movement type may only move through woods if there is a road through the hex or by paying 3x the MP required to enter the hex normally.

Naval Movement: Any hex with water on it is considered to have enough water to support standard and Large (LG) naval Formations (Elements). Very Large (VLG) and Super Large (SLG) naval movement type may only enter a water hex that is completely water or has only a single "shore" of land that takes up less than 1/4 of the hex.

Submarine Movement: Standard and Large (LG) submarine movement mode Formations may enter any hex with water, while they are on the surface. When submerged, all submarines are treated as VLG and SLG for naval movement, limited to only full water hexes.

VTOL Movement: All Units in a Formation must be VTOLs for the Unit to employ VTOL movement. VTOLs pay only 1 MP to enter any hex, regardless of the underlying terrain type.

VTOL Formations, Units and Elements are always assumed to be one elevation higher than the hex it currently occupies, unless it is landing.

WiGE Movement: A WiGE Unit must expend 1 MP a turn to remain airborne. Even if the Formation containing this Unit does not change hexes in a given turn, it must expend 1 MP. A WiGE with 0 MP is removed from play.

ADDITIONAL MOVEMENT RULES

The following rules also impact movement and game play.

Hostile Formation in the Same Hex

If a Formation's hex contains an enemy Formation at the beginning of its movement phase, the Formation must pay an additional +1 MP to move out of the hex and movement may be opposed (see *Engagement Control*, p. 237).

Jumping

In *SBF*, jumping has been abstracted to a special ability (JUMP) that provides both a defensive bonus and an attack penalty rather than being considered a movement mode itself (see *Step 1D: Determine Movement Stats* and *Step 2C: Determine Movement Stats*, p. 327 and p. 329). At the beginning of a Formation's movement, it must declare if it is using some or all of its JUMP ability. The amount declared then acts as an Attacker Modifier and a Target Modifier for the rest of the turn (see: Determine To-Hit Number, p. 240).

Transporting Infantry

Formations with the Infantry Transport (IT#) special ability may carry any number of infantry or battle armor Elements as long as the total number of these Elements (noted on the record sheet by the CAR# special ability rating) does not exceed the transporting Formations' IT# special ability rating. For example, the Maxim Heavy Hover Transport has the IT12 special ability. This means a Unit of Maxims (4 Elements) may transport up to 48 Elements worth of infantry, such as 12 squads of Cavalier battle armor, each of which has the CAR4 special ability. Carried infantry Formations may not be split across multiple transport Formations.

If the transport Formation loses one or more Units to destruction, any of the infantry Formation's Units it was carrying are placed on the map immediately, as if they had dismounted. If there is nowhere to dismount due to stacking rules, place them as close to the destroyed transport as possible. If the resulting terrain is prohibited (for example, a foot infantry Unit carried by a Hover Unit which is destroyed on a water hex), the carried Unit is destroyed.

Mounting and Dismounting: It costs an infantry transport Formation 1 MP of Move to mount (pick up) or dismount (drop off) battle armor or infantry. Mounting infantry must be done at the beginning of the transporting Formation's movement, and airborne transport Formations must be landed to take on any infantry or battle armor Formations for transport. (For aerospace units, landing is covered in Advanced Strategic Aerospace; see *Aerospace Squadrons on the Ground Map*, p. 251-253.)

Dismounting may be done at any point in the transport's movement at the cost of 1 MP. Airborne vehicle transports (such as VTOLs or WiGEs) may dismount jump-capable infantry (including battle armor or infantry that have the advanced paratroopers (PAR) special ability) while airborne, but must land to dismount all other infantry types. Other aerospace Formations with IT# special abilities may also dismount jump-capable infantry and battle armor as well. Infantry deployed from airborne Formations must use the *Dropping Troops* rules (see p. 279).

Regardless of the infantry Formation's type, once dismounted it may move normally in the same Movement Phase at a –1 MP on the turn it dismounted, and may attack normally in the Combat Phase.

Mechanized Battle Armor: Battle armor Formations with the Mechanized (MEC) or Extended Mechanized (XMEC) special abilities may mount OmniMechs and OmniVehicles (Formations with the OMNI special ability), even if such Formations lack the Infantry Transport special ability.

Mounting and dismounting battle armor from an Omni Formation follows all the same movement rules as mounting and dismounting infantry from a dedicated infantry transport. Though mechanized battle armor mounts up externally on an Omni Formation, battle armor units may not attack or be directly attacked while mounted in this fashion.

Extended Mechanized Special Ability: Formations with the Extended Mechanized (XMEC) special ability are equipped to mount any type of 'Mech or vehicle (but not Fixed-wing Support Vehicles or Aerospace) in the same manner as mechanized battle armor. However, the transport mounted by these Formations will lose 1 MP of Move per turn as long as the XMEC Formation remains on board. All other rules for mechanized battle armor apply to XMEC Formations (and their transports) as well.

ENGAGEMENT CONTROL

Once two Forces are engaged in direct combat, it can be difficult to disentangle them from that combat even when (or perhaps because they are) taking heavy losses. At other times, a commander may wish to avoid combat completely, but the opposing side has other ideas. The Engagement Control rules provide a framework for players to determine if two hostile Formations stay in combat or are able to disengage.

Any time a Formation attempts to move through or out of an a hex containing an enemy formation, an Engagement Control Roll may occur to determine if combat unfolds or whether both Formations continue to move as normal.

If neither Formation wishes to engage with the other Formation, then both Formations may continue to move normally, paying an additional +1 MP to move through the hostile occupied hex. Formations with a Morale of Shaken, Broken or Routed (see *Morale*, pp. 242-247) or suffering from Forced Withdrawal (see p. 242)must choose to *not* engage.

If *either* Formation wishes to engage the other Formation, both sides must make an Engagement Control Roll on 2D6, with a target number equal to their Tactics value. Formations with a Morale of Shaken, Broken or Routed receive a penalty to their roll. The Formation with the higher Margin of Success (MoS) decides whether the engagement continues. A result of 2 is an automatic failure. If the MoS is a tie, the decision lies with the player controlling whichever Formation has the lower Tactics value (if that too is tied, the Engagement Control Roll must be repeated until there is a winner). If both sides fail their rolls, the forces do not become engaged and can complete their movement as normal (electing to remain in the hex if they wish).

The Formation that wins the Engagement Control Roll decides if combat occurs. If combat is chosen, both Formations are engaged—their movement ends immediately and they do not act again until the Combat Phase (see Resolving Attacks, p. 239). If combat is not chosen, the Formations are allowed to complete their movement and neither incurs another Engagement Control Roll against each other. Regardless, Formations must always pay an additional +1 MP to exit a hostile occupied hex.

So long as a Formation is engaged in a hex with a hostile Formation, it may not move from the hex (see *Ending Engagements* p. 242).

If two Formations are already engaged in the Combat Phase, their next Engagement Control Roll happens during the End Phase of the current turn (see *Ending Engagements*, p. 242).

The outcome of an Engagement Control Roll determines if combat will occur, not the result of the combat. Unless noted below, players must still proceed to Resolving Combat to determine the range at which combat will occur and the result of that combat.

Forced Engagement: A Formation may go out of its way to hinder the movement of the enemy. Forced Engagement sacrifices damage to increase a Formation's ability to pin another Formation down. Prior to the Engagement Control Roll, a player may declare their Formation to be forcing an engagement with an enemy Formation (stacking limits apply, limiting the number of Formations that may attempt to force engagement with a hostile Formation to 2). To force an engagement, a Formation must have a Long Range Damage Value of at least 1, and must have at least 1 MP remaining (after entering the hex). If it meets these requirements, the Formation applies a –3 to their Engagement Control Roll target number.

If the Formation wins the Engagement Control Roll, it has Forced Engagement: both Formations are engaged, their movement ends immediately and combat will occur during the Combat Phase (see Resolving Attacks, p. 239). A Formation that has successfully Forced Engagement has its Damage Values halved (rounding down) until its next Engagement Control Roll. It also may not make artillery attacks, but may spot for them. However, it only takes half damage from all attacks from the enemy Formation it is engaging (rounding down).

Overrun: Sometimes a Formation needs to get through a hostile occupied hex and does not have the time to eliminate the enemy first. During the Movement Phase, if a Formation has sufficient MP to exit a hex occupied by an enemy Formation (including the +1 MP required for a hostile occupied hex) and a Short Range Damage Value of at least 2, it may declare an Overrun attempt against an enemy Formation.

Make an Engagement Control Roll as normal, with the following modifier: compare the Size of each Formation and apply any difference as a modifier to the Engagement Control Roll. If the Formation attempting the Overrun is larger than the target Formation, subtract the difference from the target number. If the Formation attempting the Overrun is smaller than the target Formation, add the difference. For example, an assault Formation with a Size of 4 attempts to Overrun a light company. The assault Formation is larger, so it subtracts the target's Size of 1 from its Size of 4 and applies a –3 modifier to its target number.

If the overrunning Formation is successful, there is no engagement and it may pay its MP to move into any adjacent hex (the overrunning Formation may continue moving if it has not completed its movement yet this turn). The target Formation is damaged by a successful Overrun. However, because the overrunning Formation is focused on blasting a hole through which to move, rather than specifically destroying the enemy, the damage is only equal to one-quarter the overrunning Formation's Short Range Damage Value (rounded down). The target Formation deals one half its Medium Range Damage Value (rounded down) to the overrunning Formation. A Formation that has been Overrun may not attempt to further engage (normal, Forced or Overrun) other Formations this turn. It may still be the targeted for engagement by other Formations, attack and perform other actions as normal. All damage taken during an Overrun (for both Formations) takes effect immediately, including the effects of critical hits.

If the overrunning Formation failed, both Formations become engaged—their movement ends immediately in the target hex. Damage from the Overrun attempt is assigned and engagement proceeds as normal (meaning that overrunning Formations might receive double damage; once for the Overrun attempt and then again during the Combat Phase).

A Formation may not make more than one Overrun attempt (whether it succeeds or fails) per turn. Whether it succeeds or fails, the overrunning Formation may not make any attacks in the Combat Phase of that turn.

ENGAGEMENT CONTROL ROLL MODIFIERS TABLE

Type of Engagement	TN Modifier
Standard	—
Forced Engagement*	–3
Overrun**	+ (target Formation Size – overrunning Formation Size)
Evade	–3
Morale	**TN Modifier**
Shaken	+1
Broken	+2
Routed	+3

*Formation must have a Long Range Damage Value of at least 1, and must have at least 1 MP remaining.

** Formation must have sufficient MP to exit the hex and a Short Range Damage Value of at least 2.

Evade: Not all Formations can power their way through an opposing Formation. When faced with a superior force a Formation might eschew combat and put all their efforts toward bypassing the enemy Formation. If a Formation has sufficient MP to exit a hex occupied by an enemy Formation (including the +1 MP required for a hostile occupied hex), it may declare an attempt to Evade and apply a –3 modifier to their Engagement Control Roll target number.

If the Evading Formation wins the Engagement Control Roll, it evades the hostile Formation and it may pay its MP to move into any adjacent hex (the evading Formation may continue its moving if it has not completed its movement yet this turn). An evading Formation may not engage in any combat this turn, including returning fire from an attack. However the hostile Formation gets one free attack (the player of the hostile Formation may select which Unit conducts the attack), applying +1 to-hit modifier and reducing damage from a successful attack by one-quarter (rounding down). This damage applies immediately, including the effects of critical hits. This attack does not count against the number of attacks the Formation may make in the Combat Phase. The evading Formation may still be engaged in combat in subsequent hexes. If it becomes engaged, all attacks against the evading Formation apply a +1 to-hit modifier and all damage is reduced by one-quarter (rounding down).

If the Evading Formation fails the Engagement Control Roll, both Formations become engaged—their movement ends immediately in the target hex with the hostile Formation. Attacks against it apply +1 to-hit modifier and reduce damage by one-quarter (rounding down). The evading Formation applies a +2 to-hit modifier to any attacks and reduces its damage by half. It also may not use any artillery attacks.

Three companies of the Davion Heavy Guards encounter three Kuritan companies. The Kuritans move into the same hexes as the Davion forces, trying to delay the Guards. Two of the three Davion Guard Formations attempt to disengage. The Kuritan player naturally chooses to remain engaged, and the Davion Formations now must roll for Engagement Control.

The first Davion Formation is facing a Kuritan Formation whose controlling player has opted for a Forced Engagement; it applies a –3 modifier to its Engagement Control Roll. The Davion Formation has a Tactics Rating of 6. The Kuritan Formation has a Tactics Rating of 5, modified to a Target Number of 2 (Tactics Rating 5 – 3 for Forced Engagement = TN 2). The Davion player rolls a 7, for a Margin of Success of 1. The Combine player rolls an 5 for a Margin of Success of 3, winning the Engagement Control Roll and choosing for combat to occur. However, the Kuritan Formation will do only half its normal damage in the Combat Phase, and in turn will only receive half damage from the Davion Formation.

The Davion player's other Formation is an assault company. Choosing to rely on firepower over tactics, the Davion player decides to attempt an Overrun. The second Kuritan Formation is not as nimble as its sister Formation and is only attempting a standard Engagement. The Davion Formation has a Tactics Rating of 6. It also applies a –1 modifier for attempting an Overrun (The Davion Formation is Size 4, larger than the Kuritan Formation's Size 3 by 1) for a modified target number of 5. The Kuritan Formation has a Tactics Rating of 7. Both sides roll, with the Davion player rolling a 7 and the Kuritan player rolling an 8. The Davion player's Margin of Success is 2 and the Kurita player only has a MoS of 1, so the Davion player wins the Engagement Control Roll. The Davion Heavy Guard Formation smashes through the Kuritan company. It only deals one-quarter damage as the Davion assault 'Mechs are more interested in getting through than fighting.

COMBAT PHASE

The following section describes the rules governing combat.

TYPES OF ATTACKS

Formations may make one standard attack per Unit per turn. A Formation may target a maximum of two enemy Formations per turn, applying a +1 to-hit modifier for attacks against the second Formation.

Artillery: If using the optional *Artillery* rules (see p. 273), artillery attacks may occur in addition to any standard Formation attacks made, as noted above.

Artillery attacks (ART) are made per individual Formation, and a Formation may make only one artillery attack for each type of artillery it possesses. For example, if the Formation includes Units with Long Tom and Arrow IV artillery, it may make an attack with each. Artillery attacks occur first in sequence and receive no to-hit modifier. If the artillery Formation also conducts standard attacks, it applies a +1 to-hit modifier for each artillery attack it conducted in the same turn. Using the example above, a Formation that made both a Long Tom and Arrow IV attacks would have a +2 to-hit modifier for standard attacks.

Large and Very Large Units (such as Mobile Structures or ground DropShips) may have multiple attacks per turn. This is covered under the special rules for those Unit types (see *Exceptionally Large Elements*, p. 282).

Indirect Fire: Formations with the IF special ability (see *Conversion Rules*, p. 326) may fire on a Formation that is in a hex other than its own. A Unit that makes an IR attack does so instead of its standard attack for the turn (it can still make its artillery attacks, if applicable).

Additionally, a spotter is "required in the same hex as the target to designate the target; this does not require any special abilities, and any friendly Formation may act as a spotter. The spotter must have LOS to the target. IF attacks apply +1 to-hit modifier as shown on the To-Hit Modifiers Table. Finally, each spotter may only designate one target per turn for IF. Multiple attacking Units with the IF special ability may attack the same target using the same spotters.

Aerospace Squadrons can act as spotters, but may not make attacks of their own in a turn they serve as a spotter. They use the rules for *Aerial Recon* (see p. 266) to determine if a Ground Formation is in range to be spotted by the aerospace Squadron.

Note: Due to the scales involved, special attacks such as physical or Anti-'Mech attacks are not used these rules.

ATTACK DECLARATION

All attacks are declared prior to any combat resolution. The loser of Initiative chooses a Formation, and declares a target Formation to attack. The winner of Initiative then selects a Formation and declares its attack. Attack declaration continues, following the same pattern as used in the Movement Phase. An engaged Formation must target a Formation it is engaged with.

Once all attacks have been declared, play proceeds to *Resolving Attacks* (see below).

RESOLVING ATTACKS

The sequence for resolving attacks is as follows:

Step 1: Verify Line of Sight
Step 2: Determine Range
Step 3: Determine To-Hit Number
Step 4: Roll To Hit
Step 5: Determine and Apply Damage
Step 6: Roll For Critical Hits (if applicable)

Repeat steps until all Formations have attacked.

LINE OF SIGHT DETERMINATION TABLE

Condition	Line of Sight Blocked
Attacker's hex is woods, rubble or urban AND target hex is woods, rubble or urban	Yes
One hex is two or more levels higher than Attacker's hex	Occupant Decides*
One hex is woods, rubble or urban AND other hex is clear (including water, paved)	Occupant Decides*
Game effect indicates LOS is blocked	Yes**

* The occupant of the hex in questions determines LOS. If the occupant makes an attack on the other hex, LOS is automatically established.

** Some game effects can block line of sight (smoke artillery rounds). If these conditions occur, LOS is blocked.

Step 1: Verify Line of Sight

Unless otherwise noted, Formations in the same hex are always in Line of Sight and may be attacked.

Attacks into adjacent hexes (using Long or Extreme range) have LOS blocked if any of the conditions in the Line of Sight Determination Table show LOS as blocked. Otherwise the attackers have Line of Sight.

Step 2: Determine Range

At the scale of *Strategic BattleForce*, exact range to the target is not a precise measure of distance and instead is an abstraction of two company-sized forces jockeying for position on the battlefield.

Because most combat will occur between opposing formations in the same hex, range is determined by an opposed Maneuver Roll instead of measuring distance as in other *BattleTech* combat systems. Maneuver Rolls work the same way as Engagement Rolls, with each player rolling 2D6 against their Tactics Value. In addition, if the Formation did not move its full MP during the Movement Phase, add a –1 to its target number. A natural roll of a 2 is always considered a failure, regardless of the modifiers.

The Formation with the highest Margin of Success (MoS) determines the range at which combat will take place. In the event of a tie, the decision lies with the player controlling whichever Formation has the higher current MP (if that too is tied, the Maneuver Roll must be repeated until there is a winner).

If one Formation succeeds at its Maneuver Roll and its opponent fails, the Formation with the successful roll has successfully outmaneuvered its opponent and is "behind" the other Formation. The Formation that is out-maneuvered reduces the number of its attacks by one-half (rounding up) and takes 1 additional point of damage per attack made against it.

If both Formations fail their Maneuver Control Rolls, the combat exchange is considered to be at Long Range.

The Maneuver Roll to determine range between two Formations in same hex is only performed once per turn, and the result affects both their To-Hit Numbers.

If the opposing formations are in the same hex but are not engaged, then all combat between them is at Long range and no Maneuver Roll is made. If the opposing formations are in adjacent hexes, then all combat is at Long, Extreme, Indirect or Artillery range and no Maneuver Roll is made.

Short Range Attack (S): Can only be made against targets in the same hex as the attacker, and carries a To-Hit modifier of +0.

Medium Range Attack (M): Can only be made against targets in the same hex as the attacker, and carries a To-Hit modifier of +1.

Long Range Attack (L): Can be made against targets in the same or adjacent hex as the attacker, and carries a To-Hit modifier of +2.

Extreme Range Attack (E): Can be made against targets two hexes away, and carries a To-Hit modifier of +3.

Indirect Fire Attack (IF): Can only be made against targets at Long and Extreme Range, adding a +1 to-hit modifier to the existing range modifiers.

VTOL Formations: VTOL Formations can never be attacked at Short Range unless the player controlling the VTOL Formation wins the Maneuver Roll and chooses to attack at Short Range. Treat all other Short Range attacks as being at Medium Range.

TO-HIT MODIFIERS TABLE

RANGE MODIFIERS	
Range	**Modifier**
Short Range	+0
Medium Range	+1
Long Range	+2
Extreme Range	+3
Indirect Fire	additional +1
ATTACKER MODIFIERS	
Attacker	**Modifier**
Each Unit in formation that did not fire	–1*
Has the BFC special	+1
Is a Drone	+1
Is also spotting for Indirect Fire	+1
Is targeting a secondary target	+1
Has made an artillery attack in the same turn	+1 per ART attack
Used JUMP value	+1 per JUMP point used
Has Targeting Critical Hit	+1 per Critical
Has dismounted from a transporting Formation	+1
TARGET MODIFIERS	
Target	**Modifier**
Used JUMP value	+1 per JUMP point used
Target Movement Modifier (TMM) Value	+TMM
Has successfully Evaded	+1
is Shaken	–1
is Broken	–2
is Routed	–3
TERRAIN MODIFIERS	
Terrain	**Modifier**
Underwater	+1†
Light Woods	+1
Heavy Woods	+2
Light or Medium Urban Hex	+1
Heavy or Hardened Hex	+2

*Maximum of –2

†Only if attacker is underwater (or is on the water surface and using the TOR X/X/X special).

Step 3: Determine To-Hit Number

A Formation's Base To-Hit number, for all attacks, is the Formation's Skill Rating (see *Determine Skill Value*, p. 327). The number is then modified by the target Formation's TMM value, if any, and any appropriate to-hit modifiers found on the To-Hit Modifiers Table (see below).

A Formation may gain a bonus to its To-Hit Modifier by withholding fire from one or more of its Units. For each Unit that does not fire, the Formation gains a cumulative to-hit modifier of –1.

Note: If a Formation is attacking another Formation in the same hex, it still applies any target modifiers called for by the terrain.

Step 4: Roll To-Hit

A Formation rolls 2D6 for each Unit that fires and compares the total of each roll to the modified to-hit number identified in the previous step. If the dice roll equals or exceeds the modified to-hit number, the attack is successful. Otherwise, the attack fails.

Step 5a: Determine Damage

If an attack is successful, damage is recorded immediately, but does not take effect until the End Phase. Before damage can be recorded, the amount of damage and which specific Unit within a Formation was damaged must be determined.

The damage of an attack is equal to the numerical value of the attack for that range value (for example, a Unit with a Short Range attack value of 5 does 5 damage). Extreme Range damage is equal to Long Range -1.

Damage From Behind: Add 1 point of damage to any successful attack that strikes its target from behind, as determined by the results of the Maneuver Rolls.

Step 5b: Apply Damage

When battalions and regiments engage in combat, destroying just a single 'Mech or even a single lance has more to do with a commander's tactics than with wielding raw firepower indiscriminately.

Tactics Check: When an attacking Formation has made one or more successful hits on a target Formation, both Formations make Tactics checks. Each player rolls 1D6, the player controlling the Formation with the lower Tactics value adds the difference between Tactics values as a modifier to the Tactics roll result. The player with the highest roll (or in the case of a tie, the Target Formation) gets to choose how to apply the damage from the attacking Formation against the target Formation that turn. For example, if the attacker wins the Tactics check, all damage dealt by their Formation could be directed against a single Unit within the enemy Formation. If the defender wins the check, they could apply attacks from the enemy Formation to the Unit most able to take the damage, spread each attack around, or ensure that one Unit in particular is not hit (such as the Leader).

If a Unit in the target Formation has the LEAD or COM special, the defender applies a +2 modifier to their Tactics roll result.

Bypassing Tactics: Tactics checks are only made for standard attacks. Indirect Fire and artillery attacks bypass the Tactics process; instead, the Unit that is damaged is randomly determined (See *Simplified Damage* below). Additionally, a Formation with only one Unit remaining does not make Tactics checks when being attacked (as they have only one Unit to allocate the damage to).

Concentration of Fire: Units in an attacked Formation may not be damaged more than twice in one exchange, unless all other Units have also been damaged twice. For example, a Formation with three Units would have to be successfully damaged seven times for a single Unit to be damaged three times.

Simplified Damage: Players wishing faster game play, at the loss of some tactical control, can randomly assign damage by rolling 1D6. In two Unit Formations, a result of 1-3 is the first Unit and 4-6 is the second Unit. In three Unit Formations, a result of 1-2 is the first Unit, 3-4 is the second Unit and 5-6 is the third Unit. In four Unit Formations, a result of 1 is the first Unit, 2 is the second Unit, 3 is the third Unit and 4 is the fourth Unit; reroll any result of 5 or 6.

Step 6: Roll for Critical Hits

At the *Strategic BattleForce* scale, individual critical hits on Elements are impractical to track. Instead, if an attack reduces a Unit to less than half of its starting Armor value (rounding up), that Unit is considered *damaged*. The player that made the attack rolls 2D6 and consults the Critical Hit Table, applying the result (if any) to the now-damaged Unit.

Each time a damaged Unit suffers further Armor loss, another roll on the table is required. Critical Hit effects can occur multiple times, and all effects are cumulative. For example, if Unit took two Weapon Damage critical hits, its weapon values would all be reduced by 2 points from their starting value.

If the Unit has no Armor left, it is considered destroyed. (See *End Phase*, p. 242)

To speed gameplay, stats or special abilities within a Formation are not recalculated if component Units are destroyed, with the sole exception of the Formation's MP and movement mode (but not its TMM or any other aspect reliant on movement). However, recalculation of any or all stats and special abilities due to Unit destruction is available as an optional rule, if all players agree before the game begins. (See *Adjusting Formations*, p. 268.)

If all Units in a Formation are destroyed, the Formation is destroyed and removed from the game.

Matt's Wolf's Dragoons Formation is a heavy 'Mech company with three lances (3 Units). It is firing on Brian's Jade Falcon Formation (a two-Unit Binary of 'Mechs).

Both Formations are in the same Light Woods hex, so range is determined by an opposed Maneuver Roll. Matt's Formation has a Tactics value of 6 and Brian's Formation has a Tactics value of 5. They both roll 2D6, with Matt rolling 7 and Brian a 4. Matt succeeded in his roll with an MoS of 1 while Brian failed his roll. Matt gets to decide the range at which attacks will take place. He decides on Medium Range, as his Formation can deal the most damage at this range.

Additionally, because Matt made his Maneuver Control Roll and Brian failed it, Matt has positioned his Formation "behind" Brian's, giving him a bonus to damage and reducing the number of Brian's attacks.

Matt next determines the base to-hit number. This is equal to his Formation's Skill Value, which is 3. Both Formations are together in the same Light Woods hex, Brian's Formation has a TMM of 3, and Matt is attacking at Medium Range for a +1 modifier. This means Matt's to-hit target number is 8 (Base to-hit of 3, +3 TMM, +1 terrain modifier, +1 for range).

Matt rolls three times, once for each of the attacking Units in his Formation. He scores a 9, a 7, and an 11. This means that his first and third Units have successfully attacked Brian's Formation—a promising start.

CRITICAL HIT TABLE

2D6	Effect on the Unit
2-4	No Appreciable Effect
5-7	Targeting Damage: +1 to-hit modifier to all attacks*
8-9	Weapon Damage: -1 damage for all attack ranges.
10-11	Movement Damage: Permanent -1 MP.
12	Mission Kill: Unit is destroyed†

*The third Targeting Damage critical renders the Unit unable to fire. If the Unit possesses the LEAD ability treat the third critical as killing the leader for morale purposes (see Morale, p. 242).

†It is unlikely that every Element within the Unit is destroyed. Rather, this represents a mixture of crew kills, engine/gyro destruction, immobilizations, and ammo/fuel hits that renders the Unit combat ineffective. See End Phase (p. 242) for final determination of destroyed Units.

The players now move to determining and applying damage. The Tactics value of Matt's attacking Formation is 6, while Brian's defending Formation has a Tactics value of 5. Each player rolls 1D6 and since Brian has the lower Tactics value, adds the difference between them (6 – 5= + 1) to his result. Matt rolls a 3. Brian only rolls a 2. He adds +2 for the LEAD Unit in his Formation, as he is the defender. This gives Brian a result of 5 (2 + 2 + 1): Brian wins the Tactics check. He may now allocate the two successful attacks however he wishes. He chooses to place both on his non-LEAD Unit, to preserve his Binary commander. Matt announces the damage dealt by both his attacks, and Brian records the damage to the second Unit's Armor value. If this damage takes the Unit below half its starting Armor value, he would need to roll for a possible Critical Hit (see p. 241).

Note that if Matt had hit with his third Unit, Brian would not have been able to place the damage caused by that Unit on the same Unit that absorbed the first two attacks, even though Brian won the Tactics check. This is because the Concentration of Fire rules prohibit stacking damage from more than two Units on any single Unit, unless Brian only had one Unit left in his Formation.

UNDERWATER COMBAT

A Unit underwater may only attack targets in the same hex as it occupies, using only its Medium or Long Range attack values. If a Unit only has a Short Range attack, it cannot attack underwater. All attack values are halved underwater (rounding down, to a minimum of 0).

The only exception lies with Units that have Torpedo attacks. Such Units have the TOR X/X/X special ability, where X is the damage the Unit can do at that range bracket. Each TOR attack does its full value in damage underwater and may conduct Short Range attacks. Torpedo attacks may be made in addition to a standard attack, similar to artillery attacks.

Whenever a Unit underwater requires a roll on the Critical Hits Table (see above), that Unit makes two rolls instead of one.

END PHASE

The following section describes rules for the End Phase of a turn as well of End of Combat for the scenario.

ENDING ENGAGEMENTS

During the End Phase of a turn, players controlling Formations involved in engagements can choose to continue the battle into the next turn or break off the engagement. Each end of an engagement must be resolved separately, with the turn's Initiative winner choosing the order of engagements to resolve for his Formations.

If both players choose to continue an engagement, the engaged Formations remain in the same hex during the next turn's Movement Phase.

If both players choose to end an engagement, the Formations disengage and may move normally next turn (paying +1 MP to exit the hex).

If one player chooses to continue an engagement and the other wishes to end it, both players must repeat the Engagement Control Roll (see p. 237) to determine if the engagement continues. If both sides fail their Engagement Control Rolls, the engagement automatically breaks off.

Only if a Formation has no engagements remaining can it move to a new hex during the next Movement Phase.

Formations A1 and B1 are in hex 0909. Formations A2 and B2 are in hex 0910 and are actively engaged. During the End Phase, each Formation can attempt to break engagements.

Side A decides wants Formation A1 to break its engagements. Formation B1 also chooses to break; that engagement is automatically broken.

However, Formation A2 has taken heavy damage and side A wishes to break off the fight. Formation B2 wants to continue the engagement. Both make an Engagement Control Roll. Formation A2 rolls an 9. Its Tactics Rating is 7, so it has an MoS of 2. Formation B2 rolls an 8. Its Tactics Rating is 4, giving it an MoS of 4. B2 wins the engagement roll and combat will continue into the next turn.

If A2 had a higher MoS, then it could have left the hex in the next turn. Likewise, if both A2 and B2 had failed their rolls, the engagement would have ended.

FORCED WITHDRAWAL (OPTIONAL)

Under the Forced Withdrawal rule, crippled Formations must retreat from the battlefield once they have sustained enough damage to render them useless or in imminent danger of being destroyed (see *Crippling Damage*, below). A Formation making a forced withdrawal must move toward its home map edge at its best possible speed. Once it reaches the home map edge, the unit retreats from battle and is removed from the game. If the withdrawing Formation is immobilized before it can reach the map edge, it will Scatter (see *Morale*, pp. 242-244) and is considered destroyed. Withdrawing Formations may still attack an enemy unit that is within range—but they may not attempt to engage them (see *Engagement Control*, p. 237) and must opt for "no combat" if any Engagement Control Roll is forced on them. While Forced Withdrawal is an optional rule, and all players should agree to its use in a given scenario before play begins, it is highly recommended for basic gameplay.

Inner Sphere at War: If using *SBF* to resolve *ISW* combat, Forced Withdrawal is a mandatory game rule. However, factions with the Fanatical Defense trait may ignore the Forced Withdrawal rule, as may any unit of Heroic or higher experience.

Crippling Damage

For the purposes of the Forced Withdrawal rule, a unit that meets any of the following conditions is considered crippled and will be forced to withdraw:

Formation is reduced to 1MP (unless Formation starting MP was 2 or less).

One-half or more (rounding up) of the Units in the Formation have a damage rating at all ranges of 0 (unless their starting damage rating at all ranges was 0).

One-half or more (rounding up) of the Units in the Formation have had their armor reduced to 20% (rounding down) or less of its starting armor value. For example, a Formation consists of three Units with armor of 12, 16 and 18. The Formation's Units are later reduced to 1, 2 and 5 armor respectively. The Formation would be forced to Withdrawal as its first two Units are at 20% or less armor (12 X .2= 2.4, rounded down to 2. 16 x .2= 3.2 rounded down to 3 and 18 x .2= 3.6 rounded down to 3.)

One-Half or more of the Units in the Formation have suffered two or more Targeting Critical Hits.

Adjusting Formations (Optional): If the Adjusting Formations rules (see *Advanced Movement Options*, p. 268) are being used, a Formation can Detach or Split so that some of the Formation can remain in combat while the crippled Units withdraw. This adds additional complexity and should only be used if all players agree to use the Adjusting Formation rules. Alternately, players may decide to use the Adjusting Formations rule only for Forced Withdrawals and not for other play. **Note:** This optional rule does not apply to failed morale checks, which require the entire Formation to withdraw.

DAMAGE TAKES EFFECT

All damage inflicted during the Combat Phase takes effect during the End Phase. Any Critical Hits inflicted against Units take effect, all destroyed Units are removed from their Formation Record Sheets, and all destroyed Formations are removed from play at this time.

MORALE

Other than the most fanatical warriors, Formations rarely fight to the death. As heat rises, ammo grows short, and armor vanishes, many combat pilots begin to think about greener pastures.

To better simulate this in-universe reality during gameplay, units are periodically required to perform a "morale check" at the end of any turn in which certain demoralizing conditions are met. Failure of this check may trigger a forced withdrawal (see p. 242).

Unless exempted (see *Morale Check Exemptions* below), a Formation must make a Morale check during the End Phase of a turn in which any of the following occur:

- A Formation has suffered Crippling Damage (see *Forced Withdrawal*, p. 242).
- A Unit in the Formation has its armor value is reduced to 50% or less (rounding up).
- A Unit in the Formation is destroyed.
- Formation is attacked by Inferno Bomb, Cruise Missile, or Orbital Fire.
- Infantry or Battle Armor Formation is attacked by Artillery.
- The Formation's Leader (LEAD) Unit (if any) is destroyed.
- The Force's Commander (COM) Unit is destroyed.

Morale Check Exemptions

The following unit types are exempt from making morale checks, but may still be subject to Forced Withdrawal conditions, if those rules are in play:

- Large Units: Any ground unit with the LG, VLG or SLG special, including all Mobile Structures.

- Large Aerospace Units: All DropShips, JumpShips, WarShips, and space stations.
- Drones: Any unit with the DRO, RBT, or SDCS special features is exempt from morale checks—even if it is of a unit type and/or size that ordinarily would not be exempt.
- Stationary Units: Fortifications, gun emplacements, and other units that possess no Move are exempt from morale rules.

Making a Morale Check

The Morale check is a 2D6 roll against a target number equal to the Formation's Morale Value (see *Determine a Formation's Morale Value*, p. 329) and modified by any applicable modifiers listed in the Morale Check Table. If the roll is equal to or higher than the modified target number, the Formation's morale remains intact and it may continue to act normally. Otherwise, the Formation is considered Shaken.

Shaken: A Shaken Formation is temporarily unnerved by the damage it has taken, but is still in the fight. The Formation must move at its best possible speed in order to get out of visual detection range (if using the optional Detection and Reconnaissance Phase, see *Detecting Hostile Forces*, p. 265) or impose terrain that blocks line of sight (LOS). Once the Formation reaches such a location, it makes a new Morale check during every End Phase, modifiers for Recovering Morale may apply (see *Recovering Morale*, p. 244). If it passes, it recovers its nerve and is able to move and attack normally.

MORALE CHECK TABLE

TARGET NUMBER MODIFIERS	
Condition	**Modifier**
Unit in Formation destroyed this turn	+3
Each Unit in Formation at 50% or less armor*	+1 (cumulative)
Formation Move has been reduced to 0	+2
Is not in LOS of enemy Formation	–1
Is in LOS of enemy Formation	+1
Is Shaken	+1
Is Broken	+3
Is Enraged	–2
Lost Formation Leader in this turn	+1
Lost Force Commander in this turn	+2
Lost Sub-Commander in this turn	+2
Attacked by Orbital Fire in last five turns	+2
Attacked by Cruise Missile in last two turns	+1
ISW Morale Level	†
Formation is primarily BattleMech or ProtoMech††	–2
Formation is primarily Battle Armor ††	–1
Formation is primarily Conventional Infantry ††	+1
Formation is primarily support vehicles ††	+2
Infantry Only Modifiers ††	
Attacked by BattleMech† Formation this turn	+1
In an Urban Hex (Light, Medium, Heavy)	–2
In an Urban Hex (Hardened)	–3

* Rounding Up
†See ISW Morale Ratings Table, p. 366
††Two thirds of Units must be this unit type to qualify for the modifier

Shaken Formations may not attack (unless engaged), conduct recon attempts (see Detection and Reconnaissance Phase, p. 266), or establish control over objectives (see *Capturing Objectives*, p. 244). If they are attacked, the enemy Formation receives a –1 modifier to its to-hit rolls. The Shaken Formation may only move to escape visual detection. Finally, they may not attempt to engage hostile Formations (see *Engagement Control*, p. 237) and must opt for "no combat" if any Engagement Control Roll is forced on them.

A Shaken Formation that is forced to take another Morale check and fails becomes Broken.

Broken: A Broken Formation is subject to *Forced Withdrawal* (p. 242), and must move toward its home map edge at its best possible speed.

Broken Formations may make a Morale check during End Phases with a -3 modifier; other modifiers for Recovering Morale may apply (see *Recovering Morale*, p. 244). If they succeed, the Formation is considered Shaken.

If a grounded aerospace Unit is broken, it spends its next turn lifting off. Once airborne, a Broken aerospace Unit must move toward its home map edge in the same way as a Broken ground Unit.

A Broken Formation has the same limits on its actions as a Shaken Formation, but opposing Formations receive a –2 to-hit modifier when attacking it.

Routed: A Broken Formation that is forced to make another Morale check and fails the check is considered Routed. Any Unit which is part of a Routed Formation with an armor value reduced to 50% or less is considered destroyed. If the Formation still has active Units, it continues to retreat as a Broken, but opposing Formations receive a –3 to-hit modifier for all attacks.

Routed Formations need not make any further Morale Checks, but may attempt to recover their nerve if the Formation including the force's commander (COM) is within two hexes. If successful, they are treated as Broken (see *Recovering Morale*, p. 244).

Other Morale Events and Modifiers

Loss of Commander: Seeing your commanding officer go down in a hail of fire can have a decidedly detrimental effect on your perception of the battle.

If the Unit including the Formation's leader (LEAD) is destroyed, it must make an automatic Morale check with a +1 modifier.

If the Unit including the Force commander (COM) is destroyed, the player rolls 2D6. On a result of an 11 or 12, the entire Force is enraged at the loss. All Formations gain a –2 modifier to all Morale check target numbers for the rest of the game, and increase their Short Range damage by 1 for the next two turns. An enraged Force need not make a Morale Check on the turn they become enraged. On any other result, the Force is demoralized and all Formations must make an immediate Morale check with a +2 modifier to the roll.

The Formation which included the Force commander's Unit must make two Morale checks, one for the loss of the Force leader and one for the loss of their Formation leader.

Inner Sphere at War: For each *ISW* Morale Rating lower than Normal, apply a +1 modifier to any Morale check target number. For each *ISW* Morale Rating higher than Normal, apply a –1 modifier to any Morale check. For example, a Force with an *ISW* Morale Rating of Very High would apply a –2 modifier to any Formation making a Morale check, while a Force with an *ISW* Morale of Broken would apply a +3 modifier to any Morale Check.

Campaign Scenarios: Certain scenarios may designate that certain Forces begin the game either enraged or demoralized.

Recovering Morale

A Formation may attempt to recover morale during the End Phase of any turn in which it is Shaken, Broken or Routed. The roll is handled the same as a standard Morale Check with additional modifiers found in the Morale Recovery Modifiers Table (see below). If the roll is successful, morale improves by one level (from Broken to Shaken or Shaken to Normal).

MORALE RECOVERY MODIFIERS TABLE

Condition	Modifier
Force Commander is within LOS (Visual/Sensor Range*)	–2
Friendly Sub-Commander is within LOS (Visual/Sensor Range*)	–1
Friendly non-Broken/Routed BattleMech† Formation within two hexes	–2
Friendly non-Broken/Routed vehicle† Formation within two hexes	–1
No enemy Formation in LOS	–1
Any Friendly Broken/Routed Formations within two hexes ††	+1
Every turn the Formation is not attacked and no hostile force enters its hex	–1
Formation cannot move	+2

* See Visual and Sensor Range, p. 265.
†Two thirds of Units must be this unit type to qualify for the modifier.
††Applies to Infantry Formations only.

SALVAGE

Salvage is not determined until the final End Phase of combat.

A Unit that has had all of its armor marked off during gameplay is considered destroyed. Units that received a Critical Hit result of Mission Kill are likewise considered destroyed. For most such units, there remains a chance that the remains can be salvaged and repaired later.

If both players agree to allow salvage as part of a campaign, any Unit that has been destroyed by damage or a Mission Kill Critical Hit has a chance to be salvaged unless it is a conventional infantry Unit of any kind, an aerospace Unit that crashed, or any Unit type that had its final point of armor marked off due to artillery or bomb damage.

For each Unit that could be salvaged, roll 2D6. On a result of 8 or higher, the destroyed Unit is salvageable, and may be repaired or scrapped per campaign rules (see below). If the roll is 7 or less, the destroyed Unit is too far gone to be of any use. Units that were destroyed via a Mission Kill Critical Hit gain a +2 to their roll.

Inner Sphere at War: Salvage is more abstract at the *ISW* scale. A Unit considered salvageable is equal to 50% of its starting armor value. In addition, players should total the starting armor points for all destroyed and non-salvageable Units. Once totaled, roll on the *ISW* Salvage Recovered Table (see p. 364) with a -2 modifier.

Total Chaos: Follow standard *Alpha Strike* Salvage and Selling rules (see p. 119, *AS*).

Strategic Operations Maintenance, Repair, Salvage and Customization: If playing a detailed *Strategic Operations* campaign game, players need to first break up each Unit into its individual Elements. Then use the *Converting BattleForce to BattleTech* rules (see p. 379, *SO*) to convert the damage back *Total Warfare* scale. Once this is done, *Maintenance, Repair, Salvage and Customization* rules (see p. 166, *SO*) may be used as normal.

Other Campaign Systems: Players and a GM, if any, should agree on how salvage is handled after combat is complete.

VICTORY CONDITIONS

In a standard pickup game, victory conditions can be as simple one player destroying the Force of another player. Formations that have retreated from the map, either through Forced Withdrawal (see p. 242) or of their own volition, are counted as destroyed.

Inner Sphere at War

Players using *SBF* to resolve combat in an *ISW* campaign will determine victory based on the Military Actions being conducted (see *ISW Military Phase* p. 354).

Alternate Victory Conditions

Kill counts alone may not actually be the defining measure of victory in a scenario. Scenarios in which objective markers are in play, for example, will place equal or greater importance on the capture of one or more designated objectives (see *Capturing Objectives*, below). Alternately, a mixture of victory conditions may be in play, making a scoring system necessary to measure success (see *Victory Points*, below). Other scenario-specific victory conditions may also be a factor, based on the nature of the campaign; these might include objectives such as breaking through the enemy's line and evacuating as many friendly units through the enemy's home edge as possible. The ultimate goal of the scenario can be anything the players agree upon.

Players wishing more detail may modify the scenarios in the *Alpha Strike Companion* (see p. 158, *ASC*) or *Total Chaos* product to fit their *Strategic BattleForce* games.

Capturing Objectives

Another common victory condition is based on one side reaching and capturing a designated objective. To capture an objective, a Unit must be in the same hex as that of the objective marker, and must remain within the same hex as the objective for two consecutive End Phases. At the end of the second End Phase, the objective is considered successfully captured, and removed from the field.

Victory Points

Each unit in *Strategic BattleForce* is assigned a Point Value, and these points can be used as a method to determine the winner in a scenario and the quality of their victory. While there are many ways to score a win based on the scenario being played, these rules provide a suggested framework for working a scoring system into a scenario.

Under this system, players start the scenario with no victory points, and only accrue points based on the events described in the Victory Points Table. The player with the most points at the end of the game wins. If the difference between the two players' scores is greater than the number of points used to purchase forces for the winning side, the victory is Decisive. Otherwise, the victory is Marginal. If both players' scores are tied, the game is considered a draw.

VICTORY POINT TABLE

Event	Points Awarded
Enemy Unit Destroyed	+(Destroyed Unit's PV x 0.2)
Enemy Formation Withdrawn*	+(Destroyed Unit's PV x 0.1)
Objective Occupied†	+(Objective's Point Value x 0.25)
Objective Captured†	+(Objective's Point Value x 1)
Other Event	(Varies, players choice)

*To count toward Victory Points, the unit must have withdrawn under the Forced Withdrawal rules.
†Points are not awarded for occupying the same objective multiple times; do not award points for occupying an objective if it is captured (see *AS*, p. 26)

STRATEGIC AEROSPACE RULES

At the scale of *Strategic BattleForce*, aerospace becomes a more integral part of the battle. As entire regiments vie for control of the surface, aerospace fighters fly in close support of their ground-bound comrades.

The *Strategic Aerospace*, or *SAS* rules cover the use of aerospace Squadrons in the airspace above and around the terrain on which the ground battle takes place. For aerospace operations outside an atmosphere, see the *Advanced Strategic Aerospace* Rules (p. 250).

As with *Strategic BattleForce*, these rules assume players are familiar with aerospace combat (see p. 234, *TW*) or the Abstract Aerospace System (see p. 52, *AS*).

EXPANDED GAME TERMS

The following are some additional terms used throughout this chapter.

Atmospheric Radar Map

The Atmospheric Radar Map is used in accordance with the rules for air combat over a ground battle area. The Atmospheric Radar Map represents the battle region over a ground map.

Aerospace Force Structure

Strategic Aerospace uses the same Force structure as *Strategic BattleForce*, with the following changes:

- **Flight:** In Strategic Aerospace, Units are referred to as Flights to keep ground Units and aerospace Flights distinct during game play. A Flight is equal to 2 Elements for aerospace fighters, conventional fighters and small craft. A Flight for AirShips is one Element.
- **Squadrons:** In Strategic Aerospace, Formations are referred to as Squadrons to keep ground Formations and aerospace Squadrons distinct during game play. Squadrons may range from 2 Flights to 6 Flights (2 to 12 Elements). Airship Squadrons may consist one to six Elements.
- **Large Aerospace Squadrons:** Squadrons containing DropShips, WarShips, Space-Stations or JumpShips are not part of standard *Strategic Aerospace*. These Squadron types are covered in *Advanced Strategic Aerospace* (see p. 250).
- **Mixed Squadrons:** Squadrons may be of mixed Element types. However, they are limited to the lowest common denominator of movement and *SBF Special Abilities* (see p. 334). For example, if a Squadron combined two Airship Flights and four aerospace Flights, the Squadron would be limited to atmospheric only flight based on the Airship movement modes.

Thrust

Thrust is a Squadron's nearest equivalent to a Formation's Move value. A Squadron's Thrust value is equal to that of the lowest of the Flights that make up the Formation.

TURN SCALE

A *Strategic Aerospace* turn constitutes three minutes of game time, the same as a SBF ground game turn.

AEROSPACE SETUP

The abstract aerospace game is set up alongside the standard *Strategic BattleForce* game (see pp. 230-244). Because these rules presume that players are conducting the aerospace battle in concert with the action on the ground, the order of setup is the same as that of the ground scenario. For the sake of simplicity, it is recommended that the players set up all terrain and ground forces before setting up their aerospace forces.

DEPLOYING FORCES

In place of standard *BattleTech* mapsheets, *Strategic Aerospace* uses a special mapsheet called the Atmospheric Radar Map, described below, upon which players will place miniatures representing their aerospace Squadrons.

THE ATMOSPHERIC RADAR MAP

The Atmospheric Radar Map, located at the back of this book, represents the airspace around a playing area. It is divided into a series of concentric rings, each reflecting an area of increasing distance from the ground battle. Each ring is further divided into one or more zones to regulate movement. When playing both *Strategic BattleForce* and *Strategic AeroSpace*, the Radar Map should be kept near the table on which *Strategic BattleForce* is being played, so that players can easily move between the two maps.

As an abstraction of the local airspace, the Radar Map does not have a fixed scale; aerospace movement on this map is not measured in hexes, as it is in the ground-level game. Instead, movement occurs between zones in each of the map's four main areas, which are described below.

The Central Zone

The Central Zone corresponds to the *Strategic BattleForce* playing area. Players should designate the direction on both the *SBF* and the *SAS* maps that represents "north" for the purposes of the scenario, and orient the Atmospheric Radar Map accordingly.

The Inner Ring

The Inner Ring reflects the airspace immediately near the ground battle area, but just outside of the immediate reach of ground Formations. Aerospace Squadrons in this area can quickly react to events on the ground.

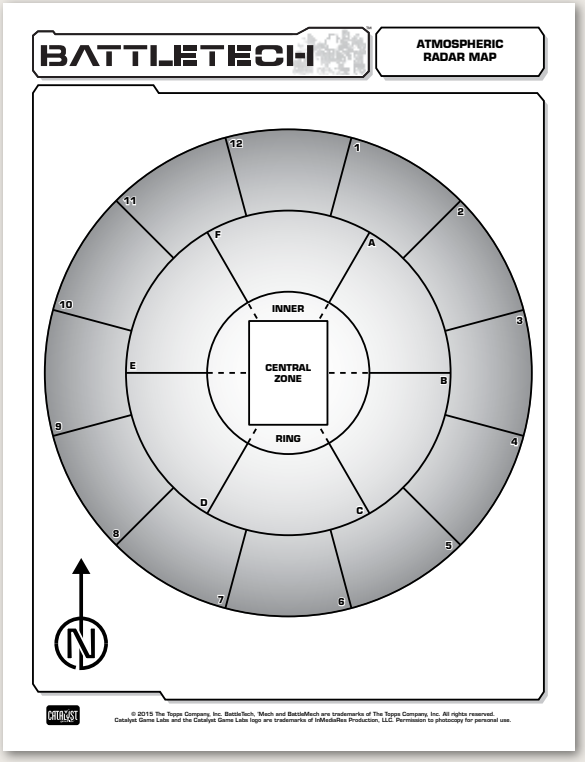
The Inner Ring is divided by dotted lines into six parts to aid players in determining each aerospace Squadron's direction of approach into and through the Central Zone. Otherwise, the Inner Ring is treated as a single game zone, unlike the Middle and Outer Rings.

The Middle Ring

The Middle Ring represents an intermediate distance from the ground playing area. Aerospace Squadrons in this ring are a considerable distance from the battlefield, but sufficiently fast Squadrons can still react to events on the ground. This ring is divided into six zones, lettered A through F.

The Outer Ring

The Outer Ring represents the farthest distance from the ground playing area at which aerospace Squadrons may still be considered part of the fight and in the atmosphere. This ring is divided into twelve zones, numbered 1 to 12. These zones correspond to the face of a clock, with the 12 o'clock zone located at due north.



• ATMOSPHERIC RADAR MAP DIAGRAM •

PLACING AEROSPACE FORCES ON THE ATMOSPHERIC RADAR MAP

Unless a scenario's rules dictate otherwise, aerospace forces should begin play in the Outer Ring, directly opposite each other and on the edges of the Atmospheric Radar Map. Their starting positions should be in the Outer Ring zone best corresponding to their side's ground Force deployment.

AEROSPACE GAMEPLAY

Strategic Aerospace uses the standard *Strategic BattleForce* gameplay sequence, with aerospace Squadrons for any given side receiving the same Initiative and Movement sequence as their ground Force.

ABSTRACT AEROSPACE MOVEMENT

Aerospace movement on the Atmospheric Radar Map is greatly abstracted to reflect the scale of the map and in-game time, as well as the fluid nature of aerospace over the battlefield. Aerospace Squadrons on the Atmospheric Radar Map possess a limited amount of movement between regions, based on their current Thrust ratings. Squadrons with 5 points or less of Thrust at the start of a turn can move only one zone in that turn. Squadrons with 6-10 points of Thrust can move two zones in a turn, and Squadrons with 11 or more points can move between three zones in a turn.

If a Squadron has the Bomb (BOMB#) special ability, and is carrying bombs in the current scenario, it must reduce its current Thrust by 1 point for every bomb carried (to a minimum of 1 Thrust). If a bomb-capable aerospace Squadron does not specify that it is carrying bombs at the start of a scenario, it is presumed to be carrying no bombs.

Maintaining Position

Squadrons on the Atmospheric Radar Map must have a minimum of 1 point of Thrust in order to remain in flight. However, because of the greater scale of *Strategic Aerospace*, they are not required to move between zones in a turn; a Squadron may elect to stay in its current zone. A Squadron with 0 Thrust is considered to have crashed during the End Phase of the turn during which its Thrust was reduced to 0, and is removed from game play.

Entering and Leaving the Central Zone

Any aerospace Squadron that ends its movement in the Central Zone is assumed to be making a ground attack on the *Strategic BattleForce* map and must indicate a flight path on the map. Aerospace Squadrons leaving the *Strategic BattleForce* map are placed in the Central Zone of the Atmospheric Radar Map at the start of their movement.

Stacking

Unlike *Strategic BattleForce*, most aerospace zones are large enough to hold multiple Squadrons. The only stacking limit is in the Central Zone, which is limited to three Friendly and three hostile Formations in any one turn.

Exiting the Atmospheric Radar Map

Aerospace Squadrons moving outward from the Outer Ring are considered to have retreated from the battle. Such Squadrons are removed from play and cannot reenter the game.

However, if the *Advanced Strategic Aerospace* rules are in play, Squadrons exiting the Outer Ring may (movement mode permitting) enter the Central Zone of the Capital Aerospace Map (see p. 251). Additionally, Squadrons attempting a landing via the Central Zone also exit the Atmospheric Radar Map, but are not considered to have left the battle (see *Landing and Liftoff*, below).

Landing and Liftoff

Under standard *SAS* rules, aerospace Squadrons are treated only as either airborne or grounded through the entire game scenario; as a result, landing and liftoff rules do not appear in this chapter. Players wishing to incorporate aerospace landing and liftoff rules in their games should consult the *Advanced Strategic Aerospace* rules (pp. 250-264).

Air-to-Air Engagements

If aerospace Squadrons from opposing Forces occupy the same zone at any time during movement, Engagement Control must be determined in order to see if combat occurs. The *Strategic BattleForce* Engagement Control rules apply (p. 237) with a +2 modifier to their target number for operating in an atmosphere. However, the roll determines only whether an engagement will occur. The player with the higher Margin of Success may decide whether they want to continue with an Air-to-Air engagement. The losing Squadron may choose to not engage with its attacker, instead saving its attack for another Squadron (see Multiple Engagements, below) or to conduct an Air-To-Ground Attack (see p. 248).

Aerospace Squadrons do not pay additional Thrust to move through a zone with a hostile Squadron.

Multiple Engagements: Because an aerospace zone can hold multiple Squadrons, it is possible to have multiple engagements and a single Squadron engaged with more than one opposing Squadron. Once a Squadron is engaged with another Squadron, it may not declare an attack on another Squadron. However, it may be engaged by another Squadron that has not already made an attack.

An aerospace Squadron must be free of all engagements before it can move to a new zone (see *Air-to-Air Combat*, p. 247).

AEROSPACE COMBAT

SQUADRON ATTACKS

As with *Strategic BattleForce*, aerospace Squadrons receive one attack for each Flight in the Squadron.

RESOLVING AEROSPACE AIR-TO-AIR ATTACKS

If a Squadron tries to move through or out of a region on the Atmospheric Radar Map that contains an enemy Squadron, they may engage in combat if one or both choose to do so. If either side chooses to engage in combat, players will conduct an Engagement Control Roll (see *Air-to-Air Engagements*, p. 246). If neither player wishes to engage in combat, the Squadrons continue to move as normal.

If an engagement occurs, both Squadrons will maneuver for advantage. If the defending Squadron in an air-to-air attack has not yet declared its own attack, it may decide whether it will return the attack, attempt to move through the zone, or save its action for an attack against a different target (such as an air-to-ground attack if the engagement occurs in the Central Zone). If the defender chooses not to return the attack when an engagement is initiated, it cannot choose to engage its attacker later in the same turn.

Air-to-air engagements end when one of the engaged Squadrons is destroyed and the victorious squadron has no other opposing squadrons engaging it. For another way to end an engagement, see *Ending Air-to-Air Engagements* (p. 249).

The sequence for resolving air-to-air attacks follows roughly the same process as weapon attacks in standard *Strategic BattleForce*:

Step 1: Verify line of sight (LOS)
Step 2: Determine range
Step 3: Determine to-hit number
Step 4: Roll to hit
Step 5: Determine and apply damage
Step 6: Roll for critical hits (if applicable)

Step 1: Verify Line of Sight

Airborne aerospace Squadrons in the same zone on the Atmospheric Radar Map always have LOS to each other.

Step 2: Determine Range

Range is determined by both Squadrons making a Maneuver Roll. Maneuver Rolls function the same as in ground combat, with each player rolling 2D6 against a the Squadron's Tactics Value. A natural roll of a 2 is always considered a failure, regardless of the modifiers.

The Squadron with the highest Margin of Success (MoS) determines the range at which combat will take place. In the event of a tie, the Squadron with the higher current Thrust (if that too is tied, the Maneuver Roll must be repeated until there is a winner).

If one Squadron succeeds in its Maneuver roll, while its opponent fails, the Squadron with the successful roll has successfully outmaneuvered its opponent and is "tailing" the other Squadron. The Squadron that is out-maneuvered reduces the number of its attacks by one-half (rounding up) and takes 1 additional point of damage per attack made against it.

If both Squadrons fail their Maneuver Control Rolls, they are considered engaged at Long Range.

If a Squadron is involved in multiple engagements, determine range for each engagement separately.

Step 3: Determine To-Hit Number

The Aerospace To-Hit Modifiers Table (see right) provides the to-hit modifiers used in *Strategic Aerospace* combat. When delivering an air-to-air attack, aerospace Squadrons use the attacking Squadron's Skill rating as their base to-hit number, as well as any modifiers for range and damage done to the attacking aerospace Squadron (such as a previous Targeting critical hit). Air-to-air attacks do not apply modifiers for the target's movement or terrain, but all other applicable modifiers shown in the Aerospace To-Hit Modifiers Table apply.

AEROSPACE TO-HIT MODIFIERS TABLE

RANGE MODIFIERS	
Range	**Modifier**
Short Range	+0
Medium Range	+1
Long Range	+2
Extreme Range	+3
TARGET MODIFIERS	
Target Type	**Modifier**
Airborne Aerospace	+2*
Airborne DropShip	–2
Airborne VTOL or WiGE	+1
Small Craft	–1
AIR-TO-GROUND ATTACK MODIFIERS	
Attack Type	**Modifier**
Altitude Bombing	+3
Dive Bombing	+2
Strafing	+4
Striking	+2
Cluster Bomb	–1
MISCELLANEOUS MODIFIERS	
Condition	**Modifier**
Attacker is a Drone	+1
Attacker is Grounded DropShip	–2
Attacker is "Behind" the Target	–2
Attacker is Support Vehicle with:	
Advanced Fire Control (AFC)	+0
Basic Fire Control (BFC)	+1
No AFC or BFC special	+2
Targeting Hit (per hit)	+2**

*Apply only if attacker is not an airborne aerospace Squadron. Airborne aerospace also includes fixed-wing support vehicles, conventional fighters, small craft, and DropShips.

**Targeting critical hits may apply multiple times.

Step 4: Roll to Hit

Roll 2D6 for each Squadron and compare the total to the modified to-hit number identified in the previous step. If the dice roll equals or exceeds the modified to-hit number, the attack is successful. Otherwise, the attack fails.

Step 5: Determine and Apply Damage

The determination and application of damage functions the same as in *Strategic BattleForce* (p. 240). This includes the use of the Tactics check. Players wishing simplicity may also use the *Simplified Damage* rules (p. 241).

Step 6: Roll for Critical Hits

The determination of critical hits functions the same as in *Strategic BattleForce* (see p. 241).

RESOLVING AEROSPACE AIR-TO-GROUND ATTACKS

Aerospace Squadrons declaring air-to-ground attacks may choose between four types of attacks: strafing, striking, altitude bombing, or dive-bombing. However, bombing attacks may only be made by aerospace Squadrons that possess the Bomb (BOMB#) special ability.

The sequence for resolving air-to-ground attacks—regardless of type—follows the same process as weapon attacks in standard *Strategic BattleForce*:

Step 1: Verify Line of Sight
Step 2: Determine Range
Step 3: Determine to-hit number
Step 4: Roll to hit
Step 5: Determine and Apply Damage
Step 6: Roll for critical hits (if applicable)

Types of Attacks

Strafing Attacks: This allows a Squadron to attack up to four formations along its flight path. Each attack requires separate to-hit rolls for each Flight, with a successful attack doing one-quarter (rounding up) of its Short Range attack value.

Striking Attacks: A Strike Attack targets a single Formation and delivers the full Short Range Damage value on a successful attack.

Altitude Bombing: Similar to a strafing attack, only using bombs, altitude bombing allows an aerospace Squadron with the BOMB special ability to select two or more hexes of impact along its flight path, attacking each hex with a minimum of 1 BOMB point. A single to-hit roll is made for each hex targeted, no matter how many bombs are dropped in that hex. If the aerospace Squadron carries multiple bomb types, it may determine which bombs target which hexes. (Battle armor with BOMB special abilities may *not* attempt altitude bombing attacks.)

Dive Bombing: An aerospace Squadron with the BOMB special ability may perform a dive bomb attack against a single Formation using 1 or more of its BOMB points. Bombs are dropped in groups of five, with a separate to-hit roll made for every five bombs dropped, instead of every individual bomb. (Dive bombing is also available to battle armor Squadrons that possess the BOMB special ability and which are hovering over the target hex using VTOL movement.)

Targeting: While *Strategic Aerospace* air-to-ground attacks target Formations, this is an abstraction; to-hit rolls are determined as if they targeted a ground hex. A Formation's TMM is not factored into the to-hit roll.

Attack Limitations: If a Squadron is made up of both aerodyne (a) and spheroid (s) movement types, then it may only conduct Striking and Altitude bombing attacks.

Step 1: Verify Line of Sight

An airborne aerospace Squadron always has LOS to a Formation, unless the Formation is completely submerged, underground, or inside a fortification (see pp. 289-290). While submerged Formations and Formations concealed by fortifications may not be targeted directly, the spot they occupy may be chosen for a bombing attack.

Step 2: Determine Range

Regardless of the type of attack used, air-to-ground attacks always occur at Short range.

Step 3: Determine To-Hit Number

The Aerospace To-Hit Modifiers Table provides additional modifiers for air-to-ground attacks. When delivering an air-to-ground attack, aerospace Squadrons use the attacking Squadron's Skill rating as the base to-hit number, as well as any modifiers for damage suffered by the attacking aerospace Squadron (such as previous Crew Hit or Fire Control Hit Critical Hits). Bombing attacks do not apply modifiers for the target's movement, type, or terrain, but all other air-to-ground attacks must apply these modifiers.

Step 4: Roll to Hit

A Squadron rolls 2D6 for each Flight making an attack and compares the total of each roll to the modified to-hit number. If the dice roll equals or exceeds the modified to-hit number, the attack is successful. Otherwise, the attack fails.

Bombing: As with strafing attacks, an attack roll is required for every hex attacked. If a bomb attack fails and friendly Formations are present in the target hex, the bombing player rolls 1D6. On a result of 6, the friendly Formation takes damage to a randomly determined Unit. If more than one friendly Formation occupies the hex, randomly determine which is hit by the failed bomb attack. If no friendly Formations are present in the hex, the failed bomb attack does no damage.

Step 5: Determine and Apply Damage

Determining Damage: A Flight does damage equal to its damage value at the given range. As noted above, strafing attacks do one-quarter of their Short Range damage. Bombs do damage based on their type; High Explosive (HE) Bombs do 2 points of damage per bomb attack, while Cluster Bombs do only 1 point of damage. Inferno Bombs reduce movement and can damage Vehicle (V), Infantry (CI) and Battle Armor (BA) Units (see *Alternate Munitions*, p. 275).

Applying Damage: Follow the same steps as for *Strategic BattleForce* (see Apply Damage, p. 240).

Step 7: Roll for Critical Hits

Critical hits from air-to-ground attacks are resolved in the same manner as standard *Strategic BattleForce* weapon attacks.

RESOLVING GROUND-TO-AIR COMBAT

Any time an aerospace Squadron enters the Central Zone on the Atmospheric Radar Map, it must pass over some part of the ground battlefield, and may be subject to ground-to-air weapons fire. Ground-to-Air fire is resolved using the weapon attack rules in *Strategic BattleForce*, but with the following modifications.

Verify Line of Sight

For ground-to-air combat purposes, all non-aerospace Formations (including grounded aerospace Squadrons) not submerged in water, underground, or within a structure always have line of sight to airborne aerospace Squadrons (if using the *Detection and Reconnaissance* rules, the Squadron must be within visual range. See *Visual Ranges*, p. 265). As the aerospace Squadron is airborne, ground terrain does not interfere with LOS.

Determine Range

To determine the range between a non-aerospace Formation and an airborne aerospace Squadron, determine the number of hexes between the aerospace Squadron and ground Formation. If the Squadron is in the same hex or adjacent hex as the ground Formation, the range is Short. If the Squadron is two hexes away, range is Medium. If the Squadron is three to four hexes away, the range is Long.

If the attacking Formation is within 1 hex of the aerospace Squadron's flight path, disregard the above measurement rules and treat the range to the target Squadron as Short.

Determine To-Hit

Ground-to-air attacks against Squadrons do not receive a target movement modifier, but instead apply a +2 to-hit modifier for targeting an airborne aerospace Squadron (plus an additional –2 modifier if the Squadron has a DropShip—effectively a +0).

Grounded Aerospace Squadrons: Treat any attack against a grounded aerospace Squadron as an attack against another ground Formation, but disregard the target movement modifier and instead apply a –4 immobile target to-hit modifier.

Determine and Apply Damage

The application of damage from ground Formations attacking airborne aerospace Squadrons is the same as the application of damage in air-to-air combat (see p. 249).

Roll for Critical Hits

The application of critical hits for ground Formations attacking airborne aerospace Squadrons is the same as the application of damage in air-to-air combat (see p. 249).

END PHASE

The *Strategic Aerospace* End Phase adds a number of actions unique to aerospace movement and combat. Aside from *Ending Air-to-Air Engagements* (see below), these actions—like others in the End Phase—may be completed simultaneously.

After resolving all End Phase actions for the ground and aerospace portions of the battle, the turn ends and the players return to the Initiative Phase.

ENDING AIR-TO-AIR ENGAGEMENTS

Aerospace Squadrons use the rules for ending an engagement as presented in *Strategic BattleForce* (see *Ending Engagements*, p. 242), with the following changes.

Multiple Engagements: Because aerospace zones can include multiple Squadrons, breaking an engagement is not simply a matter of breaking off combat with the opposing Squadron as it is in *Strategic BattleForce*. Each engagement must be separately resolved.

If both players choose to continue the engagement, the engaged aerospace Squadrons must remain in the same zone on the Atmospheric Radar Map during the next turn's Movement Phase.

If both players choose to end the engagement, the Squadrons disengage and may move freely (assuming they are not still engaged in combat with other opposing Squadrons).

If one player chooses to continue the engagement and the other wishes to end it, both players must repeat the Engagement Control Roll (see p. 237) to determine if the engagement continues. Apply a +2 modifier for operating in an atmosphere, a +2 if being "tailed" and –2 if currently "tailing" the opponent. In the event of a tie, the Squadron with the lower Tactics value decides if the engagement continues (if that too is tied, the Engagement Control Roll must be repeated until there is a winner). If both sides *fail* their Engagement Control Rolls, the engagement automatically breaks off as if the players agreed to disengage.

Only if a Squadron has no remaining engagements can it move to another zone on the Atmospheric Radar Map during the next Movement Phase (see *Capital-Scale Aerospace Movement*, p. 254).

In an air-to-air battle, after all weapons fire is resolved, none of the Squadrons are destroyed, nor have they suffered any damage to change their Thrust values. At this point, the Squadrons are in the following positions:

A1: *Tailing B1 at Short range and at Medium range from B2.*
A2: *Engaged with B1 at Long range and B3 at Short range.*
A3: *Tailed by B1 at Short range.*
B1: *Tailed at Short range by A1, at Long range from A2 and tailing A3 at Short range.*
B2: *Engaged with A1 at Medium range.*
B3: *Engaged with A2 at Short range.*

During the End Phase, each Squadron can attempt to break engagements.

Side A decides A1 wants to break its engagements and starts with B1. B1 chooses to break; that engagement is automatically broken.

Next, A1 tries to break from B2. Both have the same target number of 6 (both added 2 for being in an atmosphere). A1 rolls an 8 and B2 rolls a 12. A1 is still engaged by B2 and so must remain in the region next turn.

A2, seeing A1 fail to break, decides to stay engaged with B1. B1 chooses to break. Both have the same target number of 6 (both added 2 for being in an atmosphere). A2 rolls a 4 and B1 rolls a 7. B1 breaks its engagement with A2.

With B1 now escaping, A2 chooses to try and keep its engagement with B3. A2 succeeds and B3 fails, so both remain engaged for next turn.

A3 is engaged with B1. It chooses to try and keep engaged with B1. B1 wants to continue its engagement with A3. Because A3 is being tailed by B1, A3's target number is its Tactics of 4, a +2 modifier for operating in an atmosphere, and a +2 modifier for being tailed for a modified target number of 8. He rolls a 6 and fails. B1 has a target number of 4, a +2 modifier for atmospheric operations, and a –2 modifier for tailing for a modified target number of 4. B1 rolls a 3 and fails. Because both Squadrons failed, the engagement automatically breaks.

A1 is still engaged by B2, and must stay in the region next turn.

A2 is still engaged by B3, and they must both stay in the region next turn.

A3 and B1 are no longer engaged with anyone. Both must move during the next Movement Phase.

AEROSPACE DAMAGE

Unless overridden by a special ability, all damage inflicted during the Combat Phase takes effect during the End Phase, including all Critical Hits. All Squadrons that are destroyed must be removed from play at this time.

Thrust Loss

Under these abstract rules, any airborne aerospace Squadron reduced to a Thrust of 0 as a result of critical hits is considered to have crashed during the End Phase of the turn during which its Thrust was reduced to 0, and is removed from game play.

If the *Advanced Strategic Aerospace* rules are in play, an aerospace Squadron experiencing Thrust Loss or shutdown effects may attempt a forced landing instead (see p. 252).

ADVANCED STRATEGIC AEROSPACE

The following rules expand on the basic *Strategic Aerospace* game. While Strategic Aerospace is focused on the immediate area above the main *Strategic BattleForce* battlefield, in *Advanced Strategic Aerospace*, the abstract aerospace combat system is extended even farther away from the ground battle, into deep space where larger vessels such as JumpShips, space stations, and WarShips do battle. It also allows for a greater interaction between aerospace and ground forces.

EXPANDED GAME TERMS

The following are some additional terms used throughout this chapter.

Capital Radar Map

This is the primary map for tracking combat at the space-exclusive level of play. It is always centered either on a ground battle or on a stationary point in space. If centered over a ground battle, the central zone of this map is considered to be situated above a planetary atmosphere.

Atmospheric Radar Map

The Atmospheric Radar Map is presented in standard *Strategic Aerospace*, and used in accordance with the rules for air combat over a ground battle area. Though it uses many of the same mechanics for gameplay, the Atmospheric Radar Map always represents the battle region directly over a ground map. This map essentially represents the Central Zone for any Capital Radar Map used in a scenario in which a ground-based objective is also present.

Engagement Map

Engagement Maps use the normal Atmospheric Radar Maps from to resolve aerospace engagements in space as they happen. An Engagement Map represents a single "sector" on the Capital Radar Map, but may not always be in play, as these maps are only required when opposing Squadrons in the same sector opt to engage in battle.

Sector

A single, undivided segment of the Capital Radar Map is known as a sector. On the Capital Radar Map, sectors are used to further sub-divide capital aerospace zones.

Zone

On the Capital Radar Map, each zone is represented by concentric circular regions, radiating outward from the map's center, and divided into sectors. Capital Radar Map zones are an abstraction of a vaguely spherical area of space surrounding the battle area, roughly analogous to a "ring" of zones on the Atmospheric Radar Map.

On Atmospheric Radar Maps—including both atmospheric Radar Maps and Engagement Maps—zones are the smallest undivided segments of the playing area, analogous to the sectors on the Capital Radar Map. To avoid confusion, players will be reminded throughout these rules which map is being referenced whenever the term "zone" is used.

Control Rolls

The Control Roll—effectively a skill check for piloting—is based on the aerospace Squadron's Skill Rating. Thus, an aerospace Squadron with a Skill of 4 has a base to-hit number of 4 for weapon attacks and a base target number of 4 for its Control Rolls.

To make a Control Roll, the controlling player rolls 2D6, if the roll meets or exceeds the base target number plus any modifiers imposed by the situation, the roll succeeds. If the roll is less than the modified base to-hit number, it fails.

EXPANDED AEROSPACE SETUP

Advanced Strategic Aerospace uses the Capital Radar Map from the *Alpha Strike Companion*. This map represents a much larger space battle area that can be centered either over a ground battle or on a stationary space-based objective such as a hyperspace jump point or space station.

If a ground battle lies at the heart of this map, the Atmospheric Radar Map as defined in the *Strategic Aerospace* system must also be present, as it reflects the atmospheric battle area that extends "above" the ground battle, but "below" the space battle happening on the Capital Radar Map.

In addition to these maps, players should also keep several extra copies of the *Alpha Strike* Radar Map handy; these will be used for additional space-based Engagement Maps as necessary.

THE CAPITAL RADAR MAP

The Capital Radar Map sheet, located at the back of this book, represents the space around a playing area. This map is divided into a series of concentric rings, each of which reflects areas of increasing distance from the ground battle or the stationary point in space. Each ring is further divided into one or more sectors to regulate movement.

The Capital Radar Map usually represents a volume of space outside of any planetary atmosphere. If the battle in question is centered on a ground-level action, only the central sector of the Capital Radar Map (the Central Zone) will intersect with a planetary atmosphere; this sector in turn will correspond to the standard Atmospheric Radar Map covered in basic *Strategic Aerospace*. Because of this, only space-capable aerospace Squadrons—aerospace fighters, small craft, DropShips, JumpShips, WarShips, space stations, and satellite Support Vehicles—are considered legal for play on the Capital Radar Map.

A copy of the Capital Radar Map should be kept on or near the table where the central battle is being played, so that players can easily move between the various maps. If a ground battle is the focus of the game, both the Capital Radar and an Atmospheric Radar Map (to cover all air actions over the ground map) will be required.

The Central Zone

The Central Zone of the Capital Radar Map corresponds to any fixed point around which the space battle is taking place. This can be an area on the surface of a planet, a solar system's jump point, or even interplanetary space surrounding a free-floating station.

Players should designate the direction on all maps that represents "north" for the purposes of the scenario. This helps to establish common points of reference for all players, and should correspond to where the "north" direction lies on any lower-level Radar Maps and *Strategic BattleForce* maps that may intersect with the Capital Radar Map.

For purposes of capital-scale movement, the Central Zone consists of a single sector.

The Inner Zone

The Inner Zone of the Capital Radar Map reflects a roughly spherical region of space closest to the Central Zone, but just beyond the immediate reach of the points around which the greater space battle is taking place. Squadrons in this area can quickly react to events in the Central Zone.

The Inner Zone is divided into six sectors (numbered I1 through I6), which are used to determine a moving Squadron's position relative to the Central Zone. Here, sector I1 represents the area "due north" of the Central Zone, while sector I4 represents the area "due south" of the Central Zone. Unlike the Atmospheric Radar Map, these sectors are *not* treated as part of a single game zone; each serves as its own sector for the purposes of capital-scale movement.

The Middle Zone

The Middle Zone represents an intermediate distance from the Central Zone. Aerospace Squadrons in this area are a considerable distance from the center of the battlefield, but sufficiently speedy elements can still react to events in the heart of the fight.

This zone is divided into 12 sectors, numbered M1 through M12. As with the Inner Zone, each represents a sector position relative to the Center Zone, with sector M1 positioned "due north" of the Center Zone (and also "due north" of sector I1), and sector M7 positioned "due south" of the Center Zone (also "due south" of sector I4).

To reflect the larger volume of space at this scale, Squadrons within the Middle Zone sectors will require proportionately more Thrust to maneuver during combat. This is explained further under *Capital-Scale Aerospace Movement* (see p. 254). Furthermore, Squadrons possessing limited fuel reserves—such as fighters—will discover their combat endurance even more limited by the cost to maneuver in these areas (see *Fuel Endurance*, p. 255).

The Outer Zone

The Outer Zone represents the next farthest distance from the Center Zone, a region only easily reachable from the Center Zone by Squadrons that possess both high Thrust rates *and* high fuel endurance. Each of the 24 sectors into which this zone is divided (numbered O1 through O24) represents an even larger area of space than a corresponding Middle Zone sector. This means that proportionately higher Thrust and fuel costs will be required for combat maneuvers here, as defined under *Capital-Scale Aerospace Movement* and *Fuel Endurance* rules (see pp. 254 and 255, respectively).

The Peripheral Zone

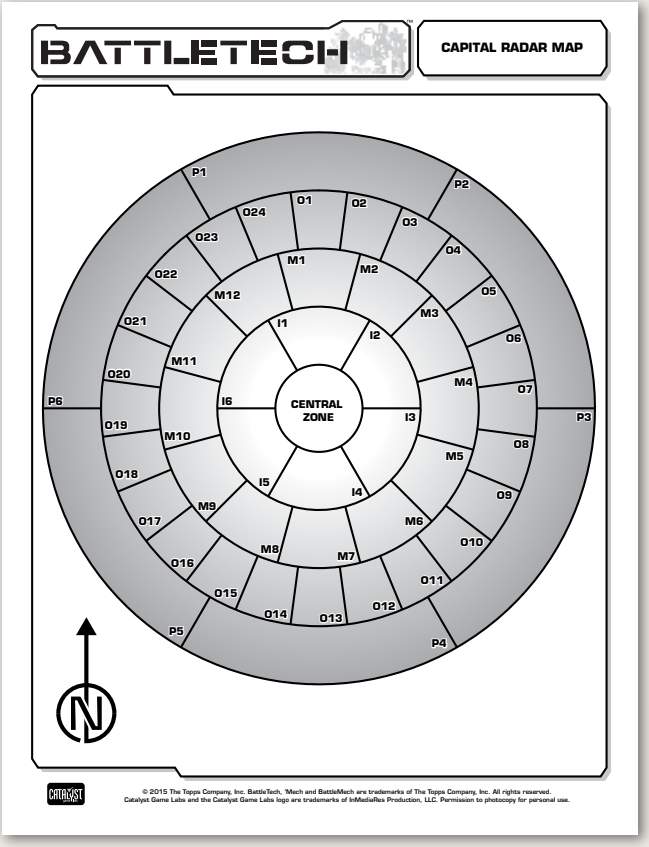
The Peripheral Zone represents the farthest distance from the Central Zone at which capital-scale aerospace Squadrons may still be considered part of the battle. If the Central Zone is centered on a ground-based target area, this zone might correspond to anywhere from the opposite side of the planet to the local lunar orbit. If the Central Zone is located in deeper space, this area reflects a sphere approximating the maximum effective radar and communication ranges of any participating Squadrons in the Central Zone.

The Peripheral Zone is divided into six oversized sectors, numbered P1 to P6. These sectors align with those of the Inner Zone, with the P1 sector located "due north" of the Central Zone, and P4 sector located "due south" of it. These sectors represent an expanse that is truly vast, even when compared to those of the Outer Zone. Because of this, combat and maneuvering here cannot be adequately represented by standard-scale Radar Maps.

Squadrons subject to *Fuel Endurance* rules (see pp. 255) will almost certainly run out of fuel reserves in the Peripheral Zone sectors, and may run out of fuel attempting to maneuver from a Peripheral Zone sector to an Outer Zone sector. Meanwhile, large aerospace Squadrons in these sectors may only resolve actions against each other using the *High-Speed Attack* rules (see p. 262).

PLACING AEROSPACE FORCES ON THE CAPITAL RADAR MAP

Unless a scenario's rules dictate otherwise (by calling for aerospace Squadrons to be placed in specific zones), aerospace forces should begin play in the Outer or Peripheral Zones, directly opposite each other on the Capital Radar Map. Alternately, if one player is the attacker of a fixed objective or planetary landing zone represented by the Central Zone, the defending player may set up his forces in the Central and Inner Zone sectors, while the attacker begins play in the Peripheral Zone.



• CAPITAL RADAR MAP DIAGRAM •

If a ground battle is at the heart of the battle, and both sides already have Forces deployed on the ground map, the starting positions of each force on the Capital Radar Map should be placed in Middle and Outer Zone sectors best corresponding to its side's ground Force deployment on the ground playing area. This will make it easier to visualize the battle from the start as the Forces clash on land and in the space above.

As with ground setup, if the aerospace Force sizes are unequal, refer to the *Unequal Number of Formations* rule (see p. 234).

AEROSPACE SQUADRONS ON THE GROUND MAP

The following rules cover additional options for using aerospace Squadrons on the ground map, including options for landing and liftoff operations. Unless otherwise specified, these rules apply to all Squadrons that expend Thrust instead of MP, which not only covers aerospace Squadrons, but also airship and fixed-wing support vehicles.

Unless specified by scenario rules, aerospace Squadrons may begin any scenario landed or in flight.

AERODYNE SQUADRONS

While on the ground, aerodyne-type aerospace Squadrons (including conventional and aerospace fighters, aerodyne small craft, and fixed-wing support vehicles) may "taxi", moving as a wheeled vehicle Squadron at a rate of 1 Thrust Point. Aerodyne Squadrons are treated as wheeled (w) units for the purposes of movement restrictions.

Aerodyne Liftoff

To lift off from the ground, an aerodyne aerospace Squadron must be in a clear, paved or urban hex (with a designated active runway), and at have at least 2 points of Thrust available.

The Squadron declares it is taking off during the movement phase. This action requires no roll, and any Squadrons—friendly or otherwise—that occupy the runway are ignored.

After lift-off the Squadron may use its remaining Thrust to maneuver normally.

Aerodyne Landing

Aerodyne Squadrons may only land in clear, paved or urban hex (with a designated active runway). In an emergency, these Squadrons may attempt to land in any terrain, but doing so will result in damage as described in *Landing Damage*, below.

To attempt a landing, an aerodyne aerospace Squadron must begin its turn in the Central Zone on the Atmospheric Radar Map. The Squadron is then removed from the Atmospheric Radar Map and ends its movement on the ground map in the target hex.

To complete the landing, the controlling player must make a Control Roll to assess the landing's success, and resolve any landing damage as described below (see *Landing Rolls*, p. 252). Once more, any ground Squadrons within the landing area are ignored for simplicity.

SPHEROID SQUADRONS AND AIRSHIPS

Spheroid aerospace Squadrons and airships cannot "taxi", and may not move while grounded. Unlike aerodyne Squadrons, airships and spheroid aerospace Squadrons may only lift off and land vertically.

Spheroid and Airship Liftoff

As long as it has any Thrust available, a grounded airship can lift off at the start of any Movement Phase. Under these rules, no roll is required for a spheroid Squadron or airship to lift off.

Once the spheroid Squadron has lifted off, it may spend its remaining Thrust points to move as normal.

Airship and Spheroid Landing

To attempt a landing, airships and spheroid aerospace Squadrons must begin their turn in the Central Zone of the Atmospheric Radar Map. The controlling player then nominates one hex on the ground map that will serve as the Squadron's landing zone. As with aerodyne Squadron landings, any intervening Squadrons are presumed to automatically evade the aerospace Squadron's landing action, though any terrain or structures present may be damaged as described below.

Airships require a landing area that is comprised of either clear, paved terrain or a hex predesignated as having an active runway. All other spheroid aerospace Squadrons may land upon virtually any terrain of uniform elevation—including clear, paved, woods, jungle, or even urban hexes. However, the act of landing in upon any terrain other than paved will cause terrain damage, and may result in damage to the landing Squadron as well.

Landing and Liftoff Restrictions:

Unless a Squadron is comprised of Flights using the same movement type (aerodyne (a) or spheroid (s), it may not attempt to land or Liftoff during game play.

LANDING ROLLS

An aerospace Squadron attempting a landing must make a successful Control Roll when doing so. The target number for an aerospace Squadron's Control Roll is equal to the Squadron's Skill, plus any of the appropriate modifiers as indicated in the Landing Roll Modifiers Table. If the roll succeeds, but the Squadron's landing area includes obstructing terrain, the Squadron will suffer landing damage. If the Landing Roll fails, the Squadron will crash.

Landing Damage

An aerospace Squadron landing in terrain other than a clear, paved, or urban hex (with a designated active runway) will suffer damage.

The Squadron applies damage equal to its own Size. Roll for critical hits from landing damage normally, as applicable. A Squadron destroyed by landing damage is treated as if it has crashed (see below).

Crashes

Aerospace Squadrons destroyed in the air rain harmless debris on the battlefield, but aerospace Squadrons that shut down while in flight may crash. Under these rules, any aerospace Squadron that crashes is automatically destroyed, as is all of its cargo, including any transported Squadrons.

LANDING ROLL MODIFIERS TABLE

Condition	Modifier
Operating in Atmosphere	+2
No Thrust or Shutdown	+6
Inappropriate Landing Area*	+2
Landing Area is Paved or Runway	–2

*This condition applies if the landing area includes any change in elevation, includes any structures or terrains other than clear or paved, or is too short or small for the Squadron's needs.

AEROSPACE SQUADRON TRANSPORTS

When aerospace Squadrons are transported by other Squadrons, the liftoff and landing operations are respectively referred to as launching and recovery.

Squadrons with the aerospace transport (AT#) or small craft transport (ST#) special abilities are the only Squadrons capable of launching or recovering aerospace Squadrons and transporting them while airborne. Fixed-wing support vehicles are treated as ground vehicle Squadrons for transport purposes, and require the appropriate vehicle transport special abilities instead (VTM#, VTH#, VTS#). These units may not launch or recover from a transport Squadron unless that transport Squadron possesses a flight deck (FD) or helipad (HP) special ability. Airship support vehicles can be transported as vehicles, but can only launch or recover from a flight deck.

Aerospace Squadrons may be launched from grounded transports, but cannot be recovered unless the transport has a flight deck or helipad. Otherwise, they must mount and dismount as cargo (see *Transporting Non-Infantry Forces*, p. 269). Fixed-wing support vehicles and VTOLs must use flight decks and helipads as appropriate for all launch and recovery operations.

The rules for launching or recovering an aerospace Squadron are the same as those for liftoff and landing, respectively, but replace the need for prepared runways with launch catapults and arresting gear. These also eliminate the Landing Roll modifier for an inappropriate

landing area. Additional changes to the landing and liftoff rules for launching and recovery are as follows:

Airborne Aerospace/Small Craft Launch and Recovery: Aerospace Squadrons launching from airborne transports must end their launching movement in the same Radar Map zone as the transporting Squadron that launches them. Aerospace Squadrons cannot be recovered by airborne transports unless they are in the same Radar Map zone and neither aerospace Squadron is engaged in combat. The maximum number of aerospace Squadrons that can be launched by an aerospace transport per turn is equal to the three times the number of doors (D#) associated with the airborne transport.

Flight Deck/Helipad Launch and Recovery: Any Size of aerospace Squadron up to 3 may launch or recover on a flight deck or helipad. Only one aerospace Squadron may launch or recover from a flight deck or helipad at a time, and only one Squadron may launch or recover each turn.

CAPITAL-SCALE STRATEGIC AEROSPACE

Capital-scale Strategic Aerospace derives its basic rules from the standard *Strategic Aerospace* rules. These rules are based on the *Alpha Strike* core rulebook (see *Abstract Aerospace System,* p. 52, *AS)* and the *Alpha Strike Companion* (see *Abstract Aerospace System,* p. 68, *ASC)*. These books are not required for game play, however familiarity with them will help.

Because of the scale and focus of play, the following rules will apply only to aerospace Squadrons capable of operating outside of a planetary atmosphere (those that possess the SPC special ability). Even in games in which the Central Zone of the Capital Radar Map represents a ground-level battle, all Squadrons on the Capital Map will be treated as though they are effectively operating in or above the point where a planet's atmosphere meets the vacuum of space (known as the atmospheric or space/atmosphere interface).

At the capital scale of play, two standard maps will be used to track actions within any sector where Squadrons might clash: Engagement Maps and the Atmospheric Radar Map. Engagement Maps are used when resolving combat in space between Squadrons in the same Capital Map sector, while the Atmospheric Radar Map tracks any air battles taking place directly above ground battles featured in the scenario. Because many of these maps are only required when engagements happen within these conditions, the number of Atmospheric Radar Maps needed to resolve a scenario in which the Capital Map is in play will vary.

TURN SCALE

One Strategic Aerospace Capital-Scale turn is equal to one *Strategic BattleForce* turn of 3 minutes.

SQUADRONS

As with standard *Strategic Aerospace*, all aerospace units are deployed in Squadrons. In standard *Strategic Aerospace*, all Squadrons are made up of the aerospace (AS) unit types, which includes aerospace fighters, conventional fighters, small craft, Fixed-wing, Airships and Satellites. In *Advanced Strategic Aerospace* play a new unit type is introduced, Large Aerospace (LA), which includes DropShips, JumpShips, WarShips and Space Stations. Where these rules do not specifically call out the unit type, it is assumed the rules apply to both AS and LA unit types.

Players should keep in mind the limitations of individual Flights in a Squadron and how they will effect performance. For example, a Squadron with Flights that do not possess the SPC ability may not operate on the Capital-Scale maps, and any Squadron with a Flight that has a the FUEL ability is limited by that Flight's fuel consumption (see *Fuel Endurance*, p. 255), For complete limitations of Flights in a Squadron, refer to the *Strategic BattleForce Conversion Rules* (see p. 326).

DropShip Squadrons

DropShip Flights consist of one DropShip per Flight. A DropShip Squadron may contain up to six Flights. If a DropShip squadron lacks sufficient AT# to carry the aerospace fighters in its Squadron, then the entire Squadron is limited to the FUEL rating of the aerospace fighters (see *Fuel Endurance*, p. 255). DropShip Squadrons with any AT# value, however, may perform refueling operations per fuel endurance rules.

WarShip Squadrons

A WarShip Flight is a single WarShip, and only one WarShip Flight may be in a Squadron. The remainder of the WarShip Squadron may include DropShips and aerospace Elements, provided they have sufficient capacity to carry them and they do not exceed a total of five Flights (see *Aerospace Force Structure*, p. 245). For example, while a *Potemkin*-class WarShip has a DT# value of 25 and an AT# of 10, a Squadron containing a *Potemkin* may only have an additional 5 DropShip Elements, 5 Flights of aerospace fighters (6 Elements each) or a combination thereof. If a WarShip Squadron lacks sufficient AT# to carry the aerospace fighters in its Squadron, then the entire Squadron is limited to the FUEL rating of the aerospace fighters (see *Fuel Endurance*, p. 255). WarShip Squadrons with any AT# value, however, may perform refueling operations per the fuel endurance rules.

If all Flights in a WarShip Squadron may be carried by the WarShip (either directly or through DropShips carrying aerospace Flights which are in turn carried by the WarShip), then it may conduct Hyperspace Jumps (see pp. 263-264). Additionally, if the warship possesses additional DT or AT capacity it may carry other Squadrons, so long as it can carry the entire Squadron via the Flights in the WarShip Squadron.

Station Keeping Squadrons

Station Keeping Squadrons are based around an Element with the Station Keeping movement type (k). Such Squadrons have a Thrust Rating of 0 regardless of the other Elements in the Squadron. However, any Elements with the FUEL ability will still expend fuel in any turn where they engage in combat.

One JumpShip, one Space Station or two Satellites comprise a Flight.

Station Keeping Squadrons are available in two scales, capital and standard scale. A capital-scale Station Keeping Squadron has either JumpShip or Space Station Elements. A capital-scale Station Keeping Squadron may have up to two Space Station Flights or six JumpShip Flights. Otherwise the follow the same Squadron rules as a WarShip Squadron, including limitations of FUEL restricted Elements. A standard-scale Station Keeping Squadron may only have Satellite Elements and may have up to five other Flights in its Squadron, however the Squadron still has a Thrust Point value of 0, regardless of the makeup of the other Flights.

A Station Keeping Squadron comprising one or more JumpShips may conduct a Hyperspace Jump (see pp. 263-264) if it has sufficient DT and AT capacity to carry all the Flights in its Squadron. As with WarShip Squadrons, it may carry additional Squadrons given enough capacity to carry the entire Squadron.

CAPITAL-SCALE AEROSPACE MOVEMENT

As with standard *Strategic Aerospace*, aerospace movement on the Capital Radar Map is greatly abstracted to represent the collective effects of mass, maneuvering, and thrust during a battle in three-dimensional space. Aerospace Squadrons on the Capital Radar Map thus have a limited amount of movement between regions, based on their current Thrust ratings, and which zone of play (Central, Inner, Middle, Outer, and Peripheral) they are presently in.

Only aerospace Squadrons with the spacecraft (SPC) special ability may function on the Capital Radar Map under these rules.

CALCULATING MOVEMENT RATES

To find an aerospace Squadron's capital movement rate, begin with the Squadron's Thrust rating at the start of the turn, applying any modifiers for damage, and subtracting 1 point of Thrust for every bomb the Squadron is carrying, if any. (Even in space, bombs reduce the overall efficiency of a Squadron's engines and maneuverability.) As long as this does not reduce the Squadron's "actual Thrust" to 0 or less, and the Squadron is not identified as using station-keeping Thrust (see the Aerospace Movement Mode Table), this value is then modified as follows:

If the Squadron begins its Movement Phase in the Central or Inner Zone sectors of the Capital Radar Map, its actual Thrust value is not modified further.

If the Squadron begins its Movement Phase in the sectors of the Middle Zone, multiply its actual Thrust value by 0.5, then round down to a minimum of 1 Thrust.

If the Squadron begins its Movement Phase in the sectors of the Outer Zone, multiply its actual Thrust value by 0.25, then round down to a minimum of 1 Thrust.

If the Squadron begins its Movement Phase in the sectors of the Peripheral Zone, multiply its actual Thrust value by 0.1, then round down to a minimum of 1 Thrust.

After these modifiers, a Squadrons with 5 points or less of Thrust at the start of a turn may move only one zone in that turn. Squadrons with 6-10 points of Thrust can move two zones in a turn and Squadrons with 11 or more points can move between three zones a turn.

SPHEROID ELEMENTS OPERATING IN THE ATMOSPHERE

Elements with the Spheroid movement type (s) are treated as having one-half (rounding up) their normal Thrust Points when operating in an Atmosphere. This reflects the limited lateral thrusters of a Spheroid Element. Players planning to use Squadrons with Spheroid movement types within an atmosphere should recalculate their Thrust Points and note this on the Squadron record sheet.

STATION KEEPING AND ZERO THRUST

Squadrons which have a Station-Keeping (k) movement type, or which have been reduced to a Thrust of 0 for any reason (such as damage or fuel loss), may not move on the Capital Radar Map unless they are affected by gravity (see *Gravity*, pp. 255-256).

STACKING LIMITS

All abstract aerospace zones and sectors—on the Engagement, Atmospheric and capital-scale Radar Maps—are large enough to accommodate any number of aerospace Squadrons, even if they are on opposing sides.

FACING

Facing is not tracked in Strategic Aerospace.

ENTERING AND LEAVING THE CENTRAL ZONE

The effect of entering and leaving the Central Zone on the Capital Radar Map depends on whether the scenario is taking place over a ground battle or around a space location.

Space-Centered Capital Maps

If a scenario is taking place solely in space (that is, no *Strategic BattleForce* game is taking place upon which the Capital Radar Map is centered), the Central Zone is treated as a single sector of travel, focused on a single point of interest such as a hyperspace jump point or space station. Because this single-sector zone intersects with all six sectors of the Inner Zone, this makes the Central Zone a handy means of crossing directly from one Inner Zone sector to its opposite side without passing through all intervening Inner Zone sectors.

Ground-Centered Capital Maps

If the Capital Radar Map is centered on a ground battle, any aerospace Squadron that ends its movement in the Central Zone on the Capital Radar Map is also be considered to be present on the corresponding Atmospheric Radar Map. In this case, the Atmospheric Radar Map treats its Outer Ring as the region just above the planet's atmosphere.

Squadrons attempting to land (or to simply enter the planet's atmosphere to engage in battle directly over the ground fight) do so by entering the Atmospheric Radar Map via the Central Zone of the Capital Radar Map, and then descend "inward" from the atmospheric map's Outer Ring. Once such Squadrons enter any Atmospheric Radar Map zone inward of the Outer Ring, they are removed from the Capital Radar Map and presumed to be operating wholly inside the planetary atmosphere. In this way, the Squadron has exited the Capital Map via its Central Zone.

Conversely, any aerospace Squadrons on the Atmospheric Radar Map that move outward from that map's Middle Ring and enter the Outer Ring are considered to have ascended to the Capital Radar Map's Central Zone as well.

Squadrons executing ground attacks, or attempting to land on the ground map (see below), follow the rules for ground map movement in *Strategic Aerospace* (see *Resolving Air-to-Ground* Attacks, see p. 248).

Aerospace Squadrons leaving the ground playing area are placed in the Central Zone of the Atmospheric Radar Map at the start of their movement.

Landing and Liftoff

As described above, Squadrons attempting to land on the planetary surface via the Central Zone of the Capital Radar Map effectively exit the Capital Radar Map the moment they descend inward of the Atmospheric Radar Map's Outer Ring. At this point, the landing Squadrons are governed by the appropriate landing rules as defined on p. 252.

Squadrons that are incapable of landing—JumpShips, space stations, and WarShips—may only enter the Outer Ring of an Atmospheric Radar Map set over a planetary surface, and thus remain present on the Capital Radar Map's Central Zone. If forced to move inward on the Atmospheric Radar Map (see *Gravity*, pp. 255-256), these Squadrons are considered destroyed during planetary entry.

Fighters, small craft, and DropShips operating above a planetary surface may liftoff from the ground using the rules presented in *Aerospace Squadrons on the Ground Map* (see p. 251-253). Once again, as soon as any of these Squadrons enter the Atmospheric Radar Map's Outer Ring, they are also placed in the Central Zone of the Capital Radar Map.

AEROSPACE ENGAGEMENTS

If aerospace Squadrons from opposing Forces end their turn in the same sector on the Capital Radar Map, the possibility exists for these Squadrons to engage each other in combat. If this occurs in any Capital Radar Map sector other than those of the Peripheral Zone, the aerospace Squadrons must set up (or join) a special Engagement Map to resolve any possible combat within that sector (see *Engagement Maps*, p. 256). This Engagement Map serves as a magnified view of the sector.

As with standard abstract aerospace combat, any Squadrons currently engaged in aerospace combat must end their combat engagements before they can maneuver off an Engagement Map and enter a new sector (see *Aerospace Combat*, pp. 247-249). Squadrons not engaged in combat may pass through and exit an Engagement Map as outlined below (see *Engagement Maps*, p. 256).

Engagements in the Peripheral Zone

Because of the sheer volume of space represented by the Peripheral Zone sectors, and the Thrust and fuel needed to make any meaningful maneuvers across such area, fighter and small craft Elements may not engage in direct combat actions in the Peripheral Zone of the Capital Radar Map.

Large Aerospace Squadrons that engage in combat in the Peripheral Zone do not do so using Engagement Maps. Combat between such Squadrons in the Peripheral Zone are performed via the *Advanced Capital Missile Attacks* and *High-Speed Attacks* rules (see pp. 260 and 262, respectively).

Engagements in the Central Zone

If the Central Zone of the Capital Radar Map does not focus on a ground battle, it is treated as a single sector. Any engagements within this sector are thus resolved using an Atmospheric Radar Map rather than an Engagement Map.

EXITING THE CAPITAL RADAR MAP

Aerospace Squadrons moving outward from the Peripheral Zone of the Capital Radar Map are considered to have retreated entirely from battle. Such elements are removed from play and cannot reenter the game.

Squadrons on the Central Zone of the Capital Radar Map may only exit the map if it is centered above a ground battle, in which case the Squadron exits the Capital Radar Map and enters the Atmospheric Radar Map if attempting to land or if falling under the influence of gravity (see *Gravity*, p. 255-256).

If the Capital Radar Map is not centered over a ground battle, the only way to exit the map is by moving outward from the Peripheral Zone.

FUEL ENDURANCE (FIGHTERS ONLY)

All aerospace Squadrons in space require fuel to maintain their propulsion at combat-viable rates. For station-keeping craft, long-distance shuttles, DropShips, and other larger spacecraft, on-board fuel reserves are normally significant enough to maintain days of steady acceleration thanks to very low consumption rates or sophisticated fuel expansion systems. The relatively brief periods in which combat occurs rarely drain such Squadrons' fuel reserves, and so fuel is not tracked for small craft, DropShip, JumpShip, satellites, space station, and WarShip Squadrons.

Aerospace fighters lack these fuel-saving systems, however. For this reason, these Squadrons typically only operate in close proximity to their landing zones or motherships, and thus their fuel is not tracked when using only the standard *Strategic Aerospace* rules. However at the scale of the Capital Radar Map, the ever-larger volumes of space and Thrust needed to remain mobile are much more taxing to a fighter's limited fuel tanks.

To track the fuel of fighter Squadrons operating on the Capital Radar Map, a new special ability, FUEL#, has been introduced. The numerical value of this special represents the Squadron's fuel reserves at full capacity, and may vary from fighter to fighter. At the start of any scenario using the Capital Radar Map, fighters are always considered fully fueled unless the scenario rules indicate otherwise.

Each Squadron that executes any maneuvers on the Capital Radar Map will expend fuel based on the zone in which it ends its movement. This fuel is expended at the end of the turn, regardless of the Squadron's Thrust value or whether its maneuver actually changed its sector position on the Capital Radar Map.

If a fighter's position or action reduces its fuel to 0 or less at the end of the turn, the fighter has run out of fuel. A fighter Squadron that runs out of fuel can no longer expend Thrust and begins to drift. A drifting fighter will not actually move on the Capital Radar Map unless it is under the influence of gravity (see *Gravity*, pp. 255-256). Otherwise, it remains in its current Capital Radar Map sector and is considered crippled for game play purposes and counted as destroyed when calculating victory points. Attacks against a fighter Element crippled by fuel loss receive a –2 to-hit modifier.

Refueling: Aerospace fighter Squadrons that have expended their fuel, or are low on fuel, may be picked up by any Squadron with the Aerospace Transport (AT#) or Small Craft Transport (ST#) special ability. Provided the craft (or crafts) has sufficient capacity to carry the entire aerospace fighter Squadron, the Squadron may be recovered. If performing a recovery operation, the recovering Squadron may not engage in combat and attacking Squadrons receive a -1 to-hit modifier during recovery operations. If a DropShip Squadron is performing the recovery, any Flight in the Squadron without AT# or ST# may return fire against attacks. If a Squadron possesses Flights that are not reliant on fuel, these Flights can operate as their own Squadron, an exception to the *Separating Units* rule (see p. 268), but must stay in the same sector as the Squadron performing the refueling operation. Alternately, a Squadron may abandon a FUEL-based Flight that has run out of fuel. They may only do so if a valid transport Formation is not located within two sectors. If they do abandon the FUEL-based Flight, that Flight is considered destroyed.

A recovered aerospace squadron may be refueled and returned to combat. It takes two full game turns to refuel a Squadron. A refueled Squadron can return to battle on the third turn after being recovered.

FIGHTER FUEL COSTS TABLE

Location	Fuel per Turn
Central Zone	0
Inner Zone	0
Middle Zone	1
Outer Zone	3
Peripheral Zone	5

GRAVITY

Gravity only affects Squadrons that end their turn in the Central Zone on the Capital Radar Map when that zone also corresponds to a ground battle. Scenarios in which the Capital Radar Map is focused on a space-based objective—such as a hyperspace jump point or deep space station—are not affected by gravity conditions.

A Squadron under the influence of gravity must possess at least 2 points of Thrust to avoid "falling" off the Capital Radar Map at the end of any turn in which the Squadron occupies the map's Central Zone. If the Squadron has been reduced to 1 TP or less,

or is otherwise unable to expend Thrust during the turn in which its movement ended in the Central Zone, the Squadron is removed from the Capital Radar Map at the end of the capital-scale game turn. The Squadron is then placed in any zone of the controlling player's choice on the Outer Ring of the atmospheric Radar Map.

If the aerospace Squadron entering the Outer Ring from the Capital Radar Map consists of fighters, small craft, or DropShip Flights, the Squadron follows all of the rules for operating on the Atmospheric Radar Map, including the rules for Thrust loss found on p. 249. These Squadrons may even attempt emergency landings, using the *Aerospace Squadrons on the Ground Map* rules (see pp. 251-253).

If the aerospace Squadron entering the Outer Ring from the Capital Radar Map has JumpShip, space station, or any other Element types that uses Station-Keeping movement, the Flights containing those Elements are considered to have broken off from the Squadron and are automatically destroyed when they "fall" inward from the Outer Ring of the Atmospheric Radar Map. Because these Flights break apart high up in the atmosphere, there are no further effects. If the squadron has any remaining Flights at may operate according to the rules per those Elements.

If the aerospace Squadron falling inward from the Outer Ring of the Atmospheric Radar Map has a WarShip Element, it must make an immediate Control Roll with a +6 target modifier. Success with this roll will allow the vessel to climb back to the Capital Radar Map again if it possesses 4 or more Thrust to do so. Otherwise, the ship will continue to fall into the atmosphere as if it were a spheroid DropShip reduced to a Thrust of 0 (see p. 259). WarShip Elements cannot attempt a landing roll; they will instead plummet to the surface with effects similar to a crashing DropShip.

A WarShip's crash fills its impact hex with ultra rubble terrain (see p. 272). The crashing WarShip will also ignite the crash area on a 2D6 roll of 6 or higher, and the hex will be treated as if it was attacked by an Inferno V artillery round (see *Alternate Munitions*, p. 275).

Never designed for atmospheric entry, a crashing WarShip is much harder to control than a DropShip. When determining where the ship crashes on the map, the controlling player selects an impact hex as normal, but must make a Control Roll to hit it, applying the same +6 target modifier noted above. If this roll succeeds, the ship hits its designated impact hex directly. Otherwise, it scatters in a random direction a number of hexes equal to the margin of failure.

Any Squadrons transported within a Large Aerospace Element destroyed as a result of a crash or high altitude breakup are likewise destroyed unless they launch from the Large Aerospace Element during the Movement Phase of the turn their transport is crashing.

ENGAGEMENT MAPS

When opposing aerospace Squadrons meet in any Capital Radar Map sector other than those of the Peripheral Zone, a standard-scale Radar Map—known as an Engagement Map under these circumstances—must be set up. The Engagement Map serves as a magnified view of the sector, and is used to track all aerospace Squadrons operating within it, should they engage in combat. Note that an Engagement Map is not required if all Squadrons in a given sector are members of the same Force; sectors in which where no opposing Squadrons are present—and thus no combat maneuvering is necessary—do not require an Engagement Map.

Only one Engagement Map may be created per Capital Radar Map sector. If a sector to be represented by an Engagement Map is already occupied by other opposing Squadrons, any new Squadrons entering the sector are added to the existing map.

The starting position for any Squadron entering an Engagement Map—either a map that is already in play or one created by entering an opponent-occupied sector for the first time—must be an Outer Ring zone appropriate to the direction in which the incoming Squadron entered the sector. For example, if a Squadron enters a sector from the "north," its controlling player places the arriving Squadron on the sector's Engagement Map in one of the three northern-most zones of that map's Outer Ring (zones 1, 11, and 12).

The starting position for any Squadrons already in Capital Radar Map sector when the Engagement Map is set up for the first time is always presumed to be the sector map's Central Zone. If the Engagement Map is already in play, all Squadrons on the map when new Squadrons arrive continue as they were.

All Squadrons placed on an Engagement Map must still be represented on the Capital Radar Map as well, to keep track of their position in the greater battle area.

Movement and Fighter Fuel: The movement rates for a Squadron on an Engagement Map are the same as those used for moving about the equivalent sectors on the Capital Radar Map, (see *Capital-Scale Aerospace Movement*, p. 254). This means that Squadrons moving from one zone to another on an Engagement Map will be slower than Squadrons engaged on maps that represent the outer sectors of the Capital Radar Map than it will be for sectors closer to the Central Zone. For example, if engagement occurs in the Outer Zone, FUEL consuming Squadrons expend 3 fuel points to move from one sector to another on the Engagement Map.

Attack Range: Unless they are equipped with capital missiles (see *Advanced Capital Missile Attacks*, p. 260), Squadrons operating on the Engagement Map cannot attack one another until they have entered the same zone. Because of this, even though the Squadrons on an Engagement Map represent vessels and fighters that may be actively maneuvering to combat range, it remains possible to evade combat by simply staying beyond an enemy's attack range while on this map.

Leaving an Engagement Map: Squadrons may only exit an Engagement Map by either eliminating all opponents in the sector (at which point the Engagement Map is simply removed from play), or by maneuvering outward from the map's Outer Ring. Squadrons that exit the Engagement Map by moving outward from its Outer Ring have left the corresponding Capital Radar Map sector entirely.

Any Squadron that exits an Engagement Map by moving out of it automatically moves to an adjacent Capital Radar Map sector corresponding to its direction of travel. If more than one possible sector might apply, the controlling player picks the Squadron's new sector. For example, if a Squadron exits an Engagement Map representing Capital Map sector M3 (Middle Zone 3) by heading due "east" off its Outer Ring, the Squadron would likely choose O6 (Outer Zone 6) as its new Capital Map sector.

Multiple Engagement Maps: In large enough scenarios, where a great many Squadrons are in play, it is possible that the players will need multiple Engagement Maps to resolve combat across several sectors of the Capital Radar Map. When this occurs, all the aerospace Squadrons of a given Force still use the same Initiative roll to determine their turn sequences. However, rather than determining the actions of Squadrons spread out over multiple sectors in a single massed force, all actions must be resolved for each active Engagement Map in turn, to avoid confusion. If the proportion of Squadrons involved in an action on an individual Engagement Map is uneven, each Squadron moves and acts in accordance with the rules for unequal Formation numbers (see p. 234).

After resolving the actions on all Engagement Maps in play, players may then resolve all remaining actions on the greater Capital Radar Map. Squadrons that have acted on any of the Engagement Maps are treated as though they have already acted on the Capital Radar Map as well. If a Squadron on the Capital Map enters an opponent-occupied sector during this part of the turn, it is placed on the appropriate Engagement Map as per normal, and will become part of that map's combat sequence starting in the next turn.

If a ground map and/or its corresponding Atmospheric Radar Map are in play, actions on the ground and air maps may only be resolved after all active Engagement Maps *and* the Capital Radar Map are resolved.

Engagements in the Peripheral Zone: No Engagement Maps are used to resolve combat in the Peripheral Zone sectors of the Capital Radar Map. Instead, any attacks made here must be resolved using the appropriate special actions, such as the *Advanced Capital Missile Attacks* and *High-Speed Attacks* rules (see pp. 260 and 262, respectively).

Also, because of the high fuel costs and far reach needed to do battle in these sectors, only DropShips, JumpShips, WarShips, and space station Squadrons may engage in combat in the Peripheral Zone. Fighters and small craft operating in the Peripheral Zone may not engage any targets, even if they occupy the same sector.

CAPITAL-SCALE AEROSPACE COMBAT

Aerospace Squadrons (AS) receive one attack for each Flight in the Squadron. Large Aerospace Squadrons receive a number of attacks as determined by the Large Aerospace Attack Limits Table (see p. 258). Aerospace Squadrons in the Central Zone of the Capital Radar Map can declare air-to-ground attacks, but only if there is a ground map in play. Aerospace Squadrons occupying the same Capital Radar Map sector can also declare aerospace attacks against opposing aerospace Squadrons. For most Squadrons, this can only be done if the opposing Squadrons also occupy the same zone on the Engagement Map.

Air-to-Ground Actions: Ground attack rules are covered in standard *Strategic Aerospace* (see *Resolving Air-to-Ground Attacks*, see p. 248) and remain unchanged. Orbit-to-surface combat, a new option available to any Squadrons equipped with capital weapons, is a special action covered in the Orbit-to-Surface rules (see p. 260). Thus, the following rules will focus on direct combat between aerospace Squadrons in space.

DropShip Squadrons in Air-to-Ground Actions: Squadrons containing DropShips may engage in Air-to-Ground actions with the following changes: Squadrons with DropShips may only make a Strafing attacks if all DropShips in the Squadron are aerodyne. Otherwise the Squadron is limited to Strike attacks and Altitude Bombing.

Other Special Actions: While the rules below presume the various Squadrons in play are engaging in direct aerospace combat, a number of alternative special actions are available to select Squadron types. These exceptions are covered in these rules.

LARGE AEROSPACE FIRING ARCS AND ATTACKS

Large Aerospace Elements (DropShips, WarShips, Space Stations and JumpShips) possess more than one firing arc. As Strategic Aerospace does not use facing, these arcs are not used to determine what targets can be attacked. Instead firing-arcs determine the number of attacks that can be made on a hostile Formation.

Spheroid DropShips, JumpShips and Space Stations: These Elements may fire two arcs at a single target. These arcs may either be the Nose/Fore or Fore/Aft arcs.

Aerodyne DropShips: May fire from two arcs at a single target. These arcs may either be the Nose/Wing or the Aft/Wing Rear arcs.

WarShips: May fire from two arcs at a single target. These arcs may either be the Nose/Fore, Fore/Broadside, Aft/Broadside or Aft/Aft (Left/Right).

RESOLVING AEROSPACE ATTACKS

Unless the Squadron is equipped to deliver a capital missile attack (see p. 260), the only way two aerospace Squadrons may engage in combat on the Capital Radar Map is if the opposing Squadrons end their Movement Phase in the same zone on the same Engagement Map.

At this point, game play follows the *Resolving Air-to-Air Attack* rules with the following exceptions:

Ending Aerospace Engagement

Aerospace engagements automatically end when one of the engaged Squadrons is destroyed and has no other opposing Squadrons engaging it. For other ways to end an engagement, consult *Ending Aerospace Engagements* (p. 249). A Squadron involved in an aerospace engagement is unable to leave its current zone on the Engagement Map until the engagement ends.

Step 1: Verify Line of Sight

Unchanged from standard *Strategic Aerospace*.

Step 2: Establish Engagement Control

Unlike Strategic Aerospace play, engagement control is only determined if both players have a Squadron in the same zone at the end of the Movement Phase. Establishing Engagement Control is thus part of the Combat Phase.

Engagement Control rolls on the Capital-Scale Aerospace Map follow the same procedure as *Aerospace Air-to-Air Engagements* (see p. 247), except Squadrons do not apply the modifier for operating in the atmosphere. Additionally, when rolling for Engagement Control, a Squadron wishing to avoid an engagement and which has at least 2 Thrust Points, receives a –2 modifier to its Engagement Control roll. However, if it is successfully engaged in combat, it suffers a +2 modifier to-hit on its attack rolls.

Step 3: Determine Range

Range is determined by both Squadrons making a Maneuver Roll. The Maneuver Roll works generally the same as in *Resolving Aerospace Air-to-Air Attacks* (see p. 246). Unlike the standard *Strategic Aerospace* rules, these rules do not presume that the aerospace Squadrons involved in an engagement are fighters or small craft with limited firing options. For this reason, the following rules modify the outcome of the Maneuver Rolls for Capital-Scale Aerospace.

Fighters and Small Craft: Only Squadrons made up exclusively of aerospace unit types (AS) may successfully "tail" one another under these rules. Tailing (also referred to as getting "behind") occurs when one Squadron succeeds at its Maneuver Roll while its opponent fails. When this happens, the successful Squadron achieves a tailing position that grants it a –2 to-hit modifier on its attack roll, while the opponent being tailed reduces the number of their attacks by one-half (rounding up) and takes an additional 1 point of damage for each Flight successfully attacked. Tailing Large Aerospace Squadrons only grants a -1 to hit.

DropShips and WarShips: For DropShips and WarShips, a successful Maneuver Roll by the Squadron, and a failure by its opponent, indicates that the successful Squadron has attained its ideal position against its opponent. In this case, the Squadron that achieved the successful roll gets to choose both the firing arc it will use to deliver its attack, and its opponent's arc for return-fire purposes. If the target Squadron is a fighter or small craft, this instead results in an additional 1 point of damage for each Flight successfully attacked, but no tailing modifier will apply in such cases, as DropShips and WarShips are too large and bulky to maintain an effective tailing position.

Station-Keeping Squadrons: Regardless of the Maneuver Roll's outcome, any aerospace Squadron type with the station-keeping movement code (k) is treated as if it has automatically failed its Engagement Control Roll for positioning purposes (but not for range). Station-keeping Squadrons cannot be tailed, and not only provide no special tailing modifiers for attacks made against their rear arc, but also grant no damage modifier for that facing. Thus, the victorious Squadron for this Control Roll only benefits in controlling what weaponry the station-keeping Squadron can fire back at them.

All Squadrons: If both Squadrons fail their Control Rolls—or both Squadrons succeed—neither one achieves the positioning advantages stated above. In these cases, each Squadron may choose which of its firing arcs faces the other (e.g. while fighters and small craft might prefer to face each other head-on, players controlling DropShip and WarShip Squadrons may instead opt to face their opponents with side- or aft-mounted weapons instead).

Attack Range and Number of Attacks

Attack Range: The outcome of each Maneuver Roll also affects the range used for all weapon attacks between the two Squadrons.

If *both* Squadrons failed their engagement Maneuver Rolls in the previous step, all combat between them in the current round takes place using the standard Long-range bracket, and the players proceed to Step 4.

The unit with the highest Margin of Success (MoS) may then decide the range bracket at which combat takes place. If both MoS are identical, then the aerospace Squadron with the highest Thrust decides the range bracket that will apply between them. Only standard range brackets may be chosen under these rules; the range brackets available are Short, Medium, Long, and Extreme. If both Squadrons' MoS *and* their Thrust values are the same, combat takes place using the standard Medium-range bracket.

Capital Weapon Ranges: When using capital or sub-capital weapons—including capital and sub-capital missiles—to attack, reduce the selected range bracket by 1 (to a minimum of Short), regardless of the Control Roll outcomes.

Multiple Weapon Classes and Firing Arcs: Aerospace and Small Craft Flights generally receive only one set of attack values, representing their standard-class weaponry. Flights with DropShips, WarShips, and other larger aerospace Elements often possess multiple weapon classes spread across more than one firing arc.

Flights with multiple weapon classes and/or firing arcs may execute more than one attack per turn, but must designate a single "primary" attack target when making their Engagement Control Rolls. All attacks to be made against the primary target must be declared when that target is designated, with each class of weapon per arc fired a maximum of one time each, per capital-scale turn. Any additional, unassigned attacks may then be made against other "secondary" targets as determined by the player.

The maximum number of total weapon attacks per turn that can be made by any Large Aerospace Flight is based on the Flight's type, as shown in the Large Aerospace Attack Limits Table. This reflects limitations of crew, heat sink capacity, targeting load, and other combat conditions unique to aerospace combat.

LARGE AEROSPACE ATTACK LIMITS TABLE

Squadron Type	Max Attacks/Turn
DropShips	4
JumpShips	4
Satellites	4
Space Stations	6
WarShips	8

Screen Launchers: The screen launcher (SCR#) special ability enables Flights with that feature it to produce obscurants that impair weapons fire. Using a screen launcher special ability counts against the Flights' maximum number of attacks per turn, and applies a to-hit modifier to both the screen launcher's attacker and the screen launcher Squadron itself, based on the Squadron's number of screen launchers.

Step 4: Determine To-Hit Numbers

To-Hit Modifiers: The Capital-Scale Aerospace To-Hit Modifiers Table (see p. 259) replaces the standard *Strategic Aerospace* To-Hit Modifier Table.

Capital and Standard Weapons: Some larger aerospace Squadrons may possess up to three broad classes of weapons in any given attack arc. These classes include capital weapons (which includes non-missile capital and sub-capital weapons), capital missiles (which includes all capital and sub-capital missiles), and standard weapons. During the Combat Phase, Squadrons with more than one class of weapons in the same arc may decide to execute as many attacks in the same turn as they have weapon classes in the appropriate firing arc.

Each weapon class fired in this case will require its own to-hit roll. Remember that capital weapons and capital missiles will apply additional modifiers for targeting smaller Squadrons and firing upon Squadrons with Point Defense special abilities (PNT#), but benefit from reduced range brackets as noted above.

Step 5: Roll to Hit

Roll 2D6 for each Squadron and compare the total to the modified to-hit number identified in the previous step. If the dice roll equals or exceeds the modified to-hit number, the attack is successful. Otherwise, the attack fails.

Step 6: Determine and Apply Damage

This step follows the same rules as the *Strategic BattleForce* Combat Phase (see p. 240).

Damage From Behind: If the target Flight consists of Elements with the station-keeping aerospace movement mode (k) the additional 1 point of damage for attacks from behind does not apply.

Step 7: Roll for Critical Hits

This step follows the same rules as the *Strategic BattleForce* Combat Phase (see p. 241).

Weapon Damage: If a Flight possess more than one attack type (CAP, MSL, standard) then this critical hit result will only damage one attack type. Roll on the Random Weapon Class Table (at right) to determine which class weapon is damaged.

Kearny-Fuchida Elements: If a Squadron possess a Flight with a KF equipped Element (WarShip or JumpShip) and receives a Movement Damage critical hit, roll 1D6. On a result of a 6, one KF equipped Element (chosen randomly) suffers a critical hit to its KF drive. That Element is no longer able to execute a Hyperspace jump (see pp. 263-264).

RANDOM WEAPON CLASS TABLE

1D6	Weapon Class Hit
1	Standard Weapons
2	Standard Weapons
3	Capital Non-Missile Weapons
4	Capital Non-Missile Weapons
5	Capital Missile Weapons
6	Capital Missile Weapons

Note: The Random Weapon Class Table is used only when the target Squadron has multiple weapon classes in a single firing arc.

AEROSPACE TO-HIT MODIFIERS TABLE

RANGE MODIFIERS	
Range	**Modifier**
Short Range	+0
Medium Range	+1
Long Range	+2
Extreme Range	+3
WEAPON MODIFIERS	
Weapon Class Used	**Modifier**
Capital Non-Missiles (CAP or SDS-C)	+3
Sub-Capital Non-Missile (SCAP or SDS-SC)	+2
Capital or Sub-Capital Missiles (MSL or SDS-CM)	+0
Standard Weapons	+0
MISCELLANEOUS MODIFIERS	
Condition	**Modifier**
Advanced Capital Missile Attack	
Vs. target in same sector	+0
Vs. target in adjacent sector	+2
Orbital Artillery Attacks	
Attack from Central Zone (Atmospheric Map)	+0
Attack from any other zone (Atmospheric Map)	+3
Orbit-to-surface attack	+3
Ground target designated by friendly TAG	–2
Attacker is a Drone	+1
Attacker is in a Naval C^3 Network (in same sector)	–1
Attacker is Behind the Target	–2*
Attacker is Support Vehicle/Satellite with:	
Advanced Fire Control (AFC)	+0
Basic Fire Control (BFC)	+1
No AFC or BFC special	+2
Attacker's Fire Control damaged (per hit)	+2**
High-Speed Attack	+8
Point Defense (PNT#) vs. Capital/Sub-Capital Missiles	
Point Defense damage (1 point)	+1
Point Defense damage (2+ points)	Auto-Fail
Screen Launchers used (SCR#)	†
Secondary Target	+1
Target has Grappled the Attacker	–4
Target is Crippled/Drifting	–2
Teleoperated Missiles (TELE + MSL/SDS-CM)	–1

ATMOSPHERIC COMBAT MODIFIERS	
GENERAL MODIFIERS	
Condition	**Modifier**
Atmospheric Combat	+2
Attacker is Grounded DropShip	–2
TARGET MODIFIERS	
Target Type	**Modifier**
Airborne Aerospace	+2††
Airborne DropShip	–2
Airborne VTOL or WiGE	+1
Small Craft	–1
AIR-TO-GROUND ATTACK MODIFIERS	
Attack Type	**Modifier**
Altitude Bombing	+3
Dive Bombing	+2
Strafing	+4
Striking	+2
GROUND ATTACK MODIFIERS	
Attack Type	**Modifier**
Surface-to-Surface Attack (Non-stationary)	+2
SDS Attack against Central Zone (Atmospheric Map)	+0
SDS Attack at any other zone (Atmospheric Map)	+3
SDS Airborne target designated by friendly TAG	–2

Notes: Weapon Class modifiers only apply when attacking Squadron types other than DropShips, JumpShips, space stations, and WarShips. (Screen Launcher modifiers apply to both the screen launcher Squadron and its attacker.) Atmospheric Combat Modifiers apply only if both the attacking Squadron and its target are operating in/below the space-atmosphere interface.

*Tailing modifiers only apply to fighters and small craft Squadrons.

**Fire Control critical hits may apply multiple times.

† +SCR special (max +4)

††This modifier applies only if the attacker is not an airborne aerospace Squadron. Airborne aerospace also includes fixed-wing support vehicles, conventional fighters, small craft, and DropShips.

CAPITAL-SCALE AEROSPACE END PHASE

The capital-scale aerospace End Phase follows the same rules as *Strategic Aerospace* (see p. 249). After resolving all End Phase actions for capital-scale aerospace turn, players must begin the next appropriate turn for the scenario, as appropriate to the *Turn Scale* rules (see p. 253).

ENDING AEROSPACE ENGAGEMENTS

Follows the same rules as *Strategic Aerospace* (see *Ending Air-to-Air Engagements*, p. 249).

CAPITAL-SCALE AEROSPACE DAMAGE

Follows the same rules as for standard *Strategic Aerospace* (see *Aerospace Damage*, p. 247).

Thrust Loss and Aerospace Shutdown

On the Capital Radar Map, Squadrons that are reduced to a Thrust of 0 or shut down for any reason are considered to be adrift and crippled, but will not move unless they are operating under the influence of gravity (see *Gravity*, pp. 255-256). If not under the influence of gravity, a drifting Squadron on the Capital Radar Map (or any of its Engagement Maps) can not leave its current sector unless and until it expends Thrust.

Attacks against an aerospace Squadron that is crippled or adrift due to Thrust loss or shutdown receive a –2 to-hit modifier.

STRATEGIC AEROSPACE SPECIAL ACTIONS

The following special actions can be taken by Squadrons in *Advanced Strategic Aerospace*. Most are restricted to specific Squadron types, features, and game play conditions.

ADVANCED CAPITAL MISSILE ATTACKS

Thanks to self-guidance packages built into to their design, capital missiles offer alternate launch techniques, such as bearings-only fire and pre-programmed guidance, which enable them to seek space-borne targets outside of normal combat ranges. Though these attack methods are less accurate, due to increased distances and missile flight times, they grant a vessel equipped with capital missiles the ability to strike at targets without directly engaging them.

Squadron Requirements

Only Squadrons that have capital missiles (represented by the MSL special) may execute an advanced capital missile attack.

While a Squadron executing an advanced capital missile may do so from any sector on the Capital Radar Map—including any of its Engagement Maps—such Squadrons *must* be outside of a planetary atmosphere.

Declaring the Attack

Advanced capital missile attacks must be declared during the attacking Squadron's Combat Phase. A Squadron executing an advanced capital missile attack may not be engaged in normal aerospace combat at the time it declares such an attack, nor may it engage another aerospace target in combat on its own initiative. (The Squadron may, however, be engaged by an opposing Squadron in the same turn *after* it has executed its advanced capital missile attack.)

An advanced capital missile attack may only be made using the capital missile weapons of a single firing arc on the attacking Squadron. Its designated target must be located in the same Capital Radar Map sector as the attacker, or in any sector adjacent to it. This target must be a Large Aerospace Squadron and may not be located inside a planetary atmosphere or on a planetary surface.

If the attacker is later engaged in aerospace combat during the same turn it declared an advanced capital missile attack, the advanced capital missile attack counts as one expended weapon attack against the Squadron's normal limits (see the Large Aerospace Attack Limits Table, p. 258). A Squadron that is engaged in the same turn in which it launched an advanced capital missile attack may not return fire using the capital missiles of the same arc it used for that attack.

Peripheral Zone: If the advanced capital missile attack is attempted in the Peripheral Zone, the target must either be in the same Peripheral Zone sector or an Outer Zone sector adjacent to it. Advanced capital missile attacks cannot be attempted by a Peripheral Zone attacker against a target in an adjacent Peripheral Zone sector.

Engagement Control Rolls

Because they are fired outside of an active engagement, no Engagement Control Roll is made by either the attacker or the target of an advanced capital missile attack.

Resolving the Attack

An advanced capital missile attack is resolved in the same turn in which it is declared. Its base to-hit number is the same as a normal capital missile attack, with an automatic Extreme range attack modifier. An additional +2 to-hit modifier is applied if the target is not in the same Capital Radar Map sector as its attacker.

Other to-hit modifiers for the target's point defense, attacker's fire control system damage, and similar combat conditions, will also apply as normal.

Damage

Capital missiles that successfully hit their targets deliver the missile's Extreme range damage value. The damage is recorded during the End Phase of the turn in which they are fired, rather than the normal Combat Phase, to represent the extra time these missiles require between being fired and finding their targets.

ORBIT-TO-SURFACE AND AIR-TO-GROUND CAPITAL COMBAT

Of the Squadrons that can interact with the Capital Radar Map, only fighters, small craft, DropShips, and WarShips may attempt to attack ground targets—although doing so potentially exposes them to return fire as well.

For standard attacks by fighters, small craft, and DropShip Squadrons, the rules for air-to-ground attacks—and vice versa—are defined in the *Strategic Aerospace* rules (see pp. 245-249). These rules cover strafing, striking, and bombing attacks by these aerospace Squadrons against ground targets, all of which require the aerospace Squadrons to be present on the Atmospheric Radar Map over the ground battle. Remember that Squadrons including Spheroid DropShip Flights are limited to Strike and Altitude Bombing attacks.

DropShip Flights with capital or sub-capital weapons (indicated by the CAP, SCAP, and MSL special abilities) may make capital-scale Air-to-Ground attacks from any zone of the Atmospheric Radar Map as well as the Central Zone of the Capital Radar Map.

WarShip Flights, meanwhile, may *only* attack ground targets from "the Central Zone of the Capital Radar Map, and may do so only with their capital weapons (as opposed to standard weapons).

An aerospace Squadron engaged in aerospace combat cannot deliver a surface-to-orbit attack. If later engaged in aerospace combat in the same turn *after* it executed a surface-to-orbit attack, the Squadron cannot return fire using any of the weapon arcs used to deliver its surface-to-orbit attack.

Resolving Orbit-to-Surface or Air-to Ground Capital Fire

When used against the ground map, capital and sub-capital weapon attacks (henceforth referred to as orbital artillery or ortillery) are resolved as a special artillery attack (see Artillery p. 273) against a selected ground Formation, or Fortification. Like artillery attacks, the attack targets a specific Formation, but counts that attack as having targeted a ground hex and ignores the target's TMM. Orbital Artillery may also be directed at the terrain in a hex, using the *Terrain Conversion* rules (see p. 290).

Declaring Attacks: WarShips and DropShips may only execute orbit-to-surface attacks using the capital (CAP) weapons, sub-capital (SCAP) weapons, and capital missiles (MSL) fired from a single firing arc. If, for example, the Squadron is a WarShip that has both capital weapons and capital missiles in the same arc, it may execute two attacks in that turn—one for its capital weapons, and another for its capital missiles. Each of these attacks may be directed against a different target point on the ground map.

Flight Time: Orbital Artillery attacks from non-missile capital and sub-capital weapons will resolve in the same turn that they are fired. Capital and sub-capital missile attacks will arrive in the following turn.

Attack Rolls: Each attack is made up of two attack rolls. The first roll determines the result of the primary attack and the second roll determines the results of the secondary attack, as discussed below.

Because ortillery attacks target a Formation, all attacks suffer a +1 to-hit modifier due to the normally spread-out nature of a Formation on the ground. If delivered from directly above the ground target (the Central Zone on the Atmospheric Radar Map), such attacks are treated as a direct-fire artillery strike, but reduce the to-hit modifier by –4 (to a final attack modifier of +0). If delivered from any other zone on the Atmospheric Radar Map, treat ortillery attacks from capital and sub-capital weapons as an indirect-fire artillery attack with the same –4 modifier applied (for a final attack modifier of +3).

Adjusting Fire: If a friendly Formation with the TAG ability is in the target hex or an adjacent hex to the target hex, apply an additional –2 to-hit modifier.

Resolving Primary Attack: On a successful primary attack, the attacker randomly determines one Unit in the target Formation. This Unit receives full damage from the ortillery attack.



The 100-ton Kirghiz *OmniFighter can outgun assault DropShips and makes a relentless bomber when it has little to fear from return fire.*

Resolving Secondary Attack: If the secondary attack roll is successful, the attacker randomly selects a new Unit from the targeted Formations and rolls 1D6. On a result of 1-3, the target Unit takes one-quarter (rounding down) of the damage from the ortillery attack. On a result of 4-6, the target Unit takes one-half (rounding down) of the damage from the attack.

Scatter: If the primary Orbit-to-Surface attack misses, and a friendly Formation is present in the same hex as the target Formation, roll 1D6. On a result of 5 or 6, apply full damage to a randomly determined Unit in the friendly Formation. If a missed primary attack damages a friendly Formation, the player rolls for the secondary attack. If the secondary attack is successful, damage is done to the same friendly Formation as if it were a successful secondary attack on a hostile Formation.

If there is no friendly Formation in the target hex, but there is a friendly Formation is in an adjacent hex, roll 1D6. On a result of 6, a Unit in the friendly Formation takes one-half (rounding down) damage. If more than one friendly Formation is present in the adjacent hexes, randomly determine which Formation is subjected to the scatter attack.

Capital Surface-to-Orbit or Surface-to-Air Return Fire

Capital Surface-to-Orbit or Surface-to-Air attacks (henceforth referred to as SDS attacks) resolve in the same turn that they are fired.

If delivered from directly below the airborne target (the Central Zone on the Atmospheric Radar Map), SDS attacks are treated as a direct-fire artillery strike, but reduce the to-hit modifier by –4 (to a final attack modifier of +0). If fired at a target in any other zone on the Atmospheric Radar Map (or the Central Zone of the Capital-Scale Aerospace Map), treat SDS attacks as an indirect-fire artillery attack with the same –4 modifier applied (for a final attack modifier of +3).

Adjusting Fire: If a friendly unit with TAG is on the map and successfully designates the targeted Squadron, apply an additional –2 to-hit modifier.

Missed SDS attacks do no damage.

Capital Surface-to-Surface Attacks

Of all capital and sub-capital weapons, only capital and sub-capital missiles may attempt surface-to-surface attacks under these rules. When fired from a ground position to another ground position, capital and sub-capital attacks are resolved using the artillery attack rules (see p. 273). If the attack is made by a unit capable of movement, an additional +2 to-hit modifier applies (even if the unit has not moved).

When making a surface-to-surface attack, all capital and sub-capital missiles use the range and flight times of a Cruise Missile/120 (see *Artillery*, p. 273).

SPACE BOMBERS

The following alternative bomb munitions expand on the advanced *Alternative Munitions* rules (see p. 275). Because they are specifically designed for aerospace operations, all three of these munitions may be useful in games played on the Capital Radar Map. For this reason, Squadrons equipped with these weapons may be referred to as "space bombers".

If using Air-to-Air Arrow IV (AAA) missiles in atmospheric level play, use the Alternative Munitions rules.

All three of these special bombs are oversized compared to the standard munitions available to bomb-capable Squadrons. To reflect this, each individual alternate bomb type will be treated as an indicated number of standard bombs for the sake of movement rate calculations. Each bomb remains a single-use device, however, so while a fighter carrying two anti-ship missiles may move as though it is carrying 12 standard bombs, it can only execute 2 bomb attacks using those munitions.

Unless otherwise noted by the rules for their bomb type (see below), these bombs will function in accordance with the rules for capital missiles in combat, whether they are used in direct aerospace combat, or to deliver surface-to-orbit attacks. If the Squadron deploying these weapons is not a DropShip, JumpShip, space station, or WarShip Squadron, however, it cannot use space bombs to deliver an advanced capital missile attack.

Air-to-Air Arrow Missile

Each Air-to-Air Arrow (AAA) missile counts as five normal bombs for the purposes of movement rate calculations. The weapon suffers a +3 to-hit modifier for any attacks made when it is fired from the Inner Ring or Central Zone on the atmospheric Radar Map. In all other respects, these munitions engage targets using the modifiers and range brackets of a sub-capital missile, including a 1-level reduction in all range brackets for aerospace combat (to a minimum of Short range).

A single AAA missile delivers 2 points of damage to any target.

Anti-Ship Missile

Each Anti-Ship (ASM) missile counts as six normal bombs for the purposes of movement rate calculations. The weapon cannot be fired from the Inner Ring or Central Zone on the Atmospheric Radar Map. In all other respects, these munitions engage targets using the modifiers and range brackets of a capital missile, including a 1-level reduction in all range brackets for aerospace combat (to a minimum of Short range).

A single Anti-Ship missile delivers 3 points of damage to any target.

Anti-Ship Electronic Warfare Missile

Anti-Ship Electronic Warfare (ASEW) missiles are devices that deliver heavy electronic interference to the targeted Squadron. Each counts as six normal bombs for the purposes of movement rate calculations. Like ASM missiles, these warheads cannot be fired from the Inner Ring or Central Zone on the atmospheric Radar Map. They also suffer a +4 to-hit modifier if used to attack non-Large Aerospace Squadrons. ASEW munitions otherwise engage targets using the modifiers and range brackets of a capital missile, including a 1-level reduction in all range brackets for aerospace combat (to a minimum of Short range).

An ASEW missile delivers no physical damage to its target. Instead, it imposes a +4 to-hit modifier against all of that Squadron's attacks until the second End Phase of the capital-scale turn following the attack. If the target possesses a naval C^3 system (NC^3 special), that system is also disabled for the duration of this effect.

AEROSPACE BOARDING ACTIONS

Just as exceptionally large ground Elements can be boarded (see *Boarding Actions* pp. 277-278), Large Aerospace (LA) Squadrons in space can be targeted by boarding actions in an effort to capture such Elements instead of destroying them outright. Accomplishing a boarding action in space, however, is a far more dangerous proposition.

The process of performing a boarding action in abstract space combat follows the same rules as presented for other large vessels, with the following modifications:

Infantry Transport Squadrons

Only small craft and DropShips are equipped to act as suitable infantry transport Squadrons to perform a boarding action in space.

Grappling

A grappling attempt cannot be made unless the target Squadron and the infantry transports are in the same zone on the same Engagement Map.

A grapple in space is resolved in a modified form of the normal aerospace combat process (see *Step 2: Determine Range*, p. 247). In this case, the Squadron attempting a grapple must apply an additional +4 modifier to its Maneuver Roll. If the grappling Squadron's Maneuver Roll succeeds and its opponent's Maneuver Roll fails, the infantry transport Squadron successfully attains the position and range needed to secure its target. Otherwise, the grapple check fails, and the positions and range of the two Squadrons is determined per normal aerospace engagement rules.

An infantry transport Squadron attempting to grapple its target cannot fire any weapons at the target Squadron in the same turn it is attempting a grapple, regardless of the grapple's success or failure. The target of a grapple attack is under no such constraints, however. In fact, if the grapple check succeeds, the Squadron targeted by the grapple attack receives a –4 to-hit modifier for any weapon attack rolls made against its grappling opponent.

Maintaining and Ending a Grapple: Once a grappling action succeeds, the grappling Squadron can end its grapple at will during the End Phase of any turn. If it does not choose to do so, the grappling Squadron must reroll its grapple check every turn to maintain the connection if the target can execute any maneuver other than station-keeping. This effort to maintain a grapple, once established, applies a +2 modifier in place of the original attack's +4.

Resolving Boarding Combat

After a successful grapple action, the process of resolving a boarding action in space proceeds in the same manner as a boarding attempt against any other Exceptionally Large Element (see *Boarding Actions*, pp. 277-278).

HIGH-SPEED ATTACKS

Given the sheer volume of space in the Peripheral Zone sectors of the Capital Radar Map, Squadrons on both sides of an aerospace battle tend to be widely dispersed and operating at high accelerations to either move inward toward the battle area, or outward from it. As a result, combat in these regions tends to be a fleeting affair, little more than an exchange of quick fire between vessels barely passing close enough to one another for a decent targeting lock.

A high-speed attack is resolved using the same rules described for an advanced capital missile attack (see p. 260), but with the following modifications:

- A high-speed attack can be made using capital weapons *or* capital missiles, but only if the Squadron has an Extreme range damage value for those weapon classes.
- A high-speed attack can only be attempted by a Squadron in a Peripheral Zone sector, and may only target a Large Aerospace Flight in the same Peripheral Zone sector.
- A high-speed attack cannot be attempted by any Squadron that has a Thrust of 0 or uses station-keeping movement. It may defend if attacked by a high-speed attack.
- The to-hit modifier for a high-speed attack is +8, and cannot be combined with modifiers for special abilities such as Naval C^3 or Teleoperated Missiles.
- Point Defense and Screen Launcher special abilities have no effect on a high-speed attack.
- Upon a successful high-speed attack, add an additional 1 point of damage to the target for every point by which the attacker's current Thrust is higher than the target's; if the target's Thrust is higher, reduce the damage by 2 points for every point of difference. The minimum amount of damage delivered by a successful high-speed attack is always 1 point.

DOCKING/UNDOCKING

DropShip Squadrons in the same Capital Radar Map sector as a friendly target Squadron equipped with docking ports (DT# special) may attempt to dock with these friendly Squadrons as long as the Squadron has unoccupied docking ports available. Docking enables DropShips to travel through hyperspace with a parent JumpShip, or to exchange cargo and passengers in space.

Docking

A DropShip Squadron may only dock with a transporting Squadron if the transporting Squadron has sufficient DT to carry all Elements in the Squadron wishing to be transported.

To perform a docking maneuver, the friendly Squadrons must spend one full turn in the same Capital Radar Map sector. During this time, neither Squadron may move out of the sector or initiate a combat engagement. If either Squadron is engaged in combat, both docking Squadrons are treated as if they are station-keeping Squadrons until they either complete the docking maneuver or abort it. (An aborted docking attempt must be restarted from the beginning.)

At the start of the Movement phase in the following turn, the DropShip Squadron's controlling player must make a docking Control Roll, applying the modifiers shown in the Docking Control Roll Table. Modifiers listed under DropShip Conditions apply to the DropShip Squadron performing the docking action, while those listed under Transporting Squadron Conditions refer to the vessel or station with which the DropShip is attempting to dock. If the roll succeeds, the Squadrons are safely docked. If the roll fails, each vessel suffers 1D6 damage and remains undocked.

Effects of Docking: A docked DropShip can no longer maneuver effectively or engage in combat. If the DropShip successfully docked while engaged in combat, the DropShip's transporting Squadron must resolve all Engagement Control Rolls on the DropShip's behalf, using its own Skill rating, Thrust value, and other appropriate modifiers.

Attacks on Docked Squadrons: A docked DropShip Squadron's attacker automatically transfers its combat engagement to the DropShip Squadron's transporting Squadron, but rolls 1D6 every time it executes a successful attack against this vessel. If this 1D6 roll is 5 or 6, a randomly chosen Flight in the docked DropShip Squadron suffers damage instead of its parent vessel.

Maneuvering while Docked: If a transporting Squadron with a DropShip Squadron docked to it attempts to move on the Capital Radar Map, the transporting Squadron must make a Control Roll, with its current Thrust value added to the target number along with all other appropriate modifiers. If this roll fails, for every point by which the roll failed one of the docked DropShip Flights will tear free of the parent vessel. Each DropShip Flight torn free in this manner suffers 1D6 damage points. The parent vessel also suffers 1D6 damage and reduces its docking capacity by 1. A DropShip damaged in this manner may not attempt to dock again during the game.

Attacks by Docked Squadrons: A parent vessel engaged in combat while docked with DropShips may deliver attacks using the docked DropShip Flight's front-arc as a free bonus attack in any turn. If using a DropShip to augment its firepower in this way, the parent vessel's controlling player must use the DropShip Flight's Skill rating to resolve the weapon attack itself, even though the parent vessel's Skill and Thrust are still used to make the engagement Control Rolls.

DOCKING CONTROL ROLL TABLE

Condition	Modifier
DropShip Conditions	
Adrift/Crippled	+4
Docking Collar Hit	Docking Impossible
Engaged in combat	+2
Taking Extra Time	–1 per capital turn
Thruster Hit	+1 per Hit
Squadron Size 1	–1
Squadron Size 3	+2
Transporting Squadron Conditions	
No Docking Ports	Docking Impossible
Adrift/Crippled	+4
Engaged in Combat	+2

Undocking

Undocking from a transporting Squadron requires no roll for a DropShip Squadron, unless the Squadron currently has no Thrust. The DropShip's controlling player declares its intent to undock during the parent Squadron's Movement Phase, and the process is safely completed by the End Phase of the same turn.

If an undocking DropShip has no Thrust, a Control Roll is needed to undock. This roll uses the transporting Squadron's Skill, with a +4 target modifier added due to the DropShip Squadron's crippled nature. If this roll fails, the Squadrons are still separated, but both will suffer 1D6 damage points and the parent vessel will reduce its docking port capacity by 1 as the DropShip tears away. A DropShip damaged in this manner may not attempt to dock again during the game.

HYPERSPACE JUMPS

Hyperspace jumps are possible only by Squadrons that are equipped with functional Kearny-Fuchida hyperspace drives (represented by the KF special ability). A KF-equipped Squadron that has suffered a destroyed KF Drive (as a result of a Movement Damage critical hit) cannot execute a hyperspace jump. If more than one Flight in the Squadron has a KF-equipped Element, the damaged Element may be separated from the Squadron and the remaining KF-equipped Elements may execute a jump.

Hyperspace jumps are typically performed to bring a jump-capable vessel from one star system to another (See *Abstract Combat System* or *Inner Sphere at War*, p. 304 and 344 respectively), but Squadrons may use them for in-system jumps. KF jumps are sensitive to gravitational forces, making them progressively more dangerous the closer one gets to a major gravitational body, such as a planet, moon, or star. This is why most JumpShip traffic arrives at a safe distance far above or below the local star and off the planetary orbital plane. These safe points are known as the zenith and nadir standard jump points for a solar system. However, gravitationally neutral points—known as non-standard or "pirate" points—are often found within systems due to the interactions of the various solar and planetary bodies within.

During a jump process, powerful energies are released that are highly destructive to nearby Squadrons, especially if they are also equipped with a KF drive. This fact can make attacking a KF-equipped Squadron a dangerous prospect for all concerned. This also means that a KF drive requires a week or more of recharge time before it can be used again, though lithium-fusion (LF) batteries can provide vessels equipped with them the ability to execute two jumps before requiring a recharge.

Jumping In

If a KF-capable Squadron jumps in during a scenario, it cannot jump out again for the rest of the scenario unless it also has a lithium-fusion battery (represented by the LF special ability). To represent a jump in, the jumping Squadron's controlling player

must declare the target sector for his vessel's arrival on the Capital Radar Map during the End Phase of the turn prior to its intended arrival.

In the following turn's End Phase, a special Control Roll, known as the Jump Roll, is made. If successful, the jump-capable vessel immediately and safely materializes in its targeted Capital Radar Map sector. If the sector is occupied by opposing Squadrons at this time, the vessel arrives in the Central Zone of that sector's Engagement Map and may cause damage to Squadrons in that zone (see *Jump Damage to Nearby Squadrons*, p. 264).

Jumping Out

If a Squadron jumps out during a scenario, it is considered to have retreated and is removed from play, unless it is executing an in-system jump (see below). All Squadrons docked with or transported by a Squadron that has jumped out are also removed from play.

In-System Jumps

In-system KF jumps are special, short-range jumps often only performed by WarShips or JumpShips that have not previously jumped during the scenario or which possess a Lithium Fusion Battery. To represent an in-system jump, the player must first designate the target sector on the Capital Radar Map in the same fashion as when jumping in. For the purposes of these rules, the target jump point must be on the same Capital Radar Map on which the scenario is taking place.

Once the target point is selected, the Squadron must make a successful Jump Roll to jump out of its current sector, applying all of the relevant modifiers described under *The Jump Roll* (see below). If the jump-out succeeds, the player moves the jumping vessel into its target sector on the Capital Radar Map, but must make a second Jump Roll to arrive safely at this destination. All of this occurs during the same End Phase.

If both rolls succeed, the jumping Squadron safely moves from its origin sector to its destination without incident, though damage to nearby Squadrons may still occur (see p. 264). If the jump-out roll fails, however, the Squadron never leaves its sector of origin and suffers all the normal effects of a jump failure. If the jump-in roll fails, the Squadron arrives at its destination, but with all damage effects appropriate to a failed jump.

The Jump Roll

The Jump Roll is a special Control Roll made when a KF-capable Squadron executes a hyperspace jump. This roll applies all applicable modifiers found in the Jump Roll Modifiers Table, with all locations determined regardless of whether the Squadron is jumping in or out.

JUMP ROLL MODIFIERS TABLE

Condition	Modifier
Attempting in-system jump	+4
Flight has taken 50% or more damage	+1
Flight has taken 75% or more damage	+1
Jumping Squadron moved this turn	+1
Capital Map centered over Strategic BattleForce map	
Peripheral Zone sectors	+2
Non-Peripheral Zone sectors	+4
Capital Map not centered over Strategic BattleForce map	
Central or Inner Zone sectors	+0
Middle to Peripheral Zone sectors	+2

A Squadron that fails its Control Roll fails to jump and suffers 1D6 damage points. It may not attempt another hyperspace jump for the rest of the scenario unless it has a functioning lithium-fusion battery and its KF drive remains operational. In addition to this, the failed jump will cause a number of critical hits to the jumping Squadron equal to the roll's margin of failure.

Jump Damage to Nearby Squadrons

Squadrons in the same zone on an Engagement Map as a KF-capable Squadron when the KF-capable Squadron executes a hyperspace jump will suffer damage unless they make a Control Roll when the jump takes place. An additional +2 modifier applies to this Control Roll if the Squadron is engaged in active combat during the turn in which this occurs, to reflect the pilot or crew's attention on the battle at hand. Squadrons that only possess station-keeping drives (movement code k) must apply a +4 modifier in addition to all other modifiers.

Squadrons that are docked with or are being transported by an aerospace Squadron making this Control Roll use the roll result of their transport to determine their own success.

If this Control Roll succeeds, the nearby Squadron suffers no damage from the jump. Otherwise, the aerospace Squadron (and all of the Squadrons docked with or transported by it at this time) suffer 1D6 points of damage.

If the damaged Squadron has a KF drive of its own, apply another 1D6 points of damage to that Squadron due to the devastating interactions between the jumping Squadron's drive and that of the nearby vessel. In addition, both the damaged Squadron and the jumping Squadron roll 1D6; on a result of 5 or 6 their KF Drive is destroyed.

ADVANCED STRATEGIC BATTLEFORCE

Strategic BattleForce is about more than just larger numbers and bigger battlefields. At this scale of play, the battle begins to move away from purely tactical engagements and into larger matters of feints, fog of war, and operational objectives. The following rules are meant to bring these aspects of combat to the tabletop.

Strategic BattleForce uses *Alpha Strike* and *Alpha Strike Companion* as the basis for all advanced rules; only *Command Phase* and *Commands* from *Strategic Operations* are used. Unless listed below, no other advanced rules from *Alpha Strike* or *BattleForce* apply to *Strategic BattleForce*.

ADVANCED INITIATIVE

Some Elements mount extensive communications or sensor packages. When used properly, this equipment can provide a commander with valuable battlefield insight. Conversely, some battlefield events can negatively affect a Force's ability to fight. The Initiative Modifiers Table (see p. 265) summarizes these effects. Modifiers for each category are cumulative. However, the modifiers within a category are not—only the best (or worst) modifier is applied from each category. For example, if a Force already occupies one objective in a given turn and captures another during the same turn, only a +2 modifier is awarded, not a +3 (+2 for occupation and +1 for capture). For a more detailed version of this system, see *Battlefield Intelligence*, 276.

DETECTION AND RECONNAISSANCE PHASE

On the modern, strategic-scale battlefield, units able to travel fifty to a hundred kilometers an hour or more and fighting over a space of many kilometers can quickly render even the most accurate intelligence reports useless. In *Strategic BattleForce*, information is ammunition, and neither side knows where the other is until sensors or the Mk I eyeball pick them up. Even then, details of an enemy Formation is unknown until an accurate reconnaissance (Recon Scan) is made. Attacking an enemy, or even approaching one, before conducting recon is a good way to accidentally stumble into an assault company you were hoping to avoid.

Gamemaster: *Strategic BattleForce* is best played with a gamemaster or neutral third-party. This allows for true blind deployment and movement when outside sensor detection ranges. If a gamemaster is not available, players should place all Formations on the game map as Blip counters and skip to *Step 2: Reconnaissance* (see p. 266).

INITIATIVE MODIFIERS TABLE

Special Ability	Modifier
MHQ3	+1
MHQ3 + 4 or More Elements with Recon	+2
MHQ7	+2
MHQ7 + 4 or More Elements with Recon	+4

Battlefield Modifier	Modifier
Objective Occupied	+1*
Objective Captured	+2*
Opponent's Tier Four Command Unit Destroyed	+2*
Opponent's Tier Three Command Unit Destroyed	+1*

Leadership Modifiers	Modifier
Field Commander	+Tier†
Command Unit has Battle Computer Quirk	+2**

Force Status Modifiers	Penalty
≥ 50% of Forces Broken	–1
≥ 50% of Forces Routed	–2
≥ 50% of Forces Destroyed	–3
Force Has No Elements With Recon	–1
Headquarters Occupied	–2‡
Headquarters Captured	–4‡

*Applies to the following turn only.

†Unit must have at least one functional Element. Points are awarded for the highest tier of command only.

‡Applies to the Headquarters Counter only, not Mobile Headquarters (MHQ).

**One Element in the Force's Command Unit must have this Design Quirk (see p. 193-199, SO). This modifier is only applicable if the Command Unit has normal or better morale (see Morale, p. 242).

PLAYING THE GAME

If using the Detection and Reconnaissance Rules, a new phase is introduced into play immediately after the Initiative phase and before the Movement phase. In this phase, newly-detected Blips Counters (see p. 232) are placed on the map and each side conducts recon to reveal information about hostile Blip Counters on the battlefield. The player who won Initiative goes first when conducting recon.

Blip Counters

Prior to the beginning of play, each Blip counter must be assigned a unique number or letter corresponding to a ground Formation in the controlling player's Force. (Airborne Aerospace Squadrons are not represented by Blip counters.)

Deployment

Unlike in the standard rules, players do not place Formations on the map at the start of game play. Instead their starting locations are written down and provided to the gamemaster.

Until a Formation is detected (see *Detection* below), it makes all its moves in secret, with the controlling player providing a written summary of movement to the gamemaster each turn. This summary must document each hex the Formation moved through.

VISUAL RANGES

With a game play area spanning several kilometers, the ability to see an opposing force is often obscured by more than just terrain. Even on a completely flat battlefield, atmospheric haze and even the horizon (for a BattleMech, this is roughly 11 kilometers on a Terra-sized world) can block line of sight. The Visual Spotting Range Table (see p. 267) provides the distance in *SBF* hexes at which two opposing Formations can see each other with the naked eye. These conditions fall into four Visual classes. Beyond visual ranges, Formations must rely on sensors or aerial reconnaissance to detect enemy movement (see *Step 2: Reconnaissance* (see p. 266).

For more effects of light and weather, consult the optional *Environmental Condition* rules (see p. 280).

STEP 1: DETECTION

While visual range is limited by atmospheric conditions and the horizon, sensors are capable of detecting enemy forces at much greater distances. While not able to provide the exact data needed for targeting or identification that they would at shorter ranges, sensors allow for basic detection to let a Force know "something is out there and it's moving this way."

Sensor Ranges

Sensor detection range is based on the sensors a Formation is equipped with, as shown in the Sensor Detection Table (see p. 267). Sensor detection only lets a Formation know something is out there, not the precise distance or direction in which the enemy lies.

Detecting Hostile Forces

If a hostile Formation comes within the range of a Formation's sensors, the controlling player makes a Detection roll of 2D6 and consult the Sensor Detection Results Table (see p. 267), applying all appropriate modifiers to determine the results. An explanation of the results follows:

- **Clean Screen:** Sensors pick up nothing.
- **Sensor Ghost:** A faint sensor reading is detected, with only the general direction being determined. The detecting player is

only able to determine enemy Formation is "in front of" or "behind" their Formation. This is described as the arc covered by the front 3 hexsides, or the arc covered by the back 3 hexsides of the Formation, as determined by the gamemaster).

- **Sensor Ping:** A solid enough reading to determine the precise heading of the contact. The gamemaster would indicate the exact hex row in which the hostile Formation is located.
- **Solid Lock:** A solid sensor return indicates the exact hex the hostile Formation occupies. Place a Blip counter in the appropriate hex. To determine the nature of a Blip counter, a Force must conduct a successful Recon attempt (see *Step 3: Recon Scan* below).
- **Partial Scan:** The Formation's Type, Size, and MP are known (The Blip Counter should be flipped over to reveal the formation side).
- **Full Scan:** The sensors are operating above specs, or the operator is on their game, and full information on the hostile Formation is revealed. Treat this result as a having made a successful Recon Scan with a result of Full Scan (see *Step 3: Recon Scan* below).

Detecting at Visual Range: If a hostile Formation enters visual range, a Blip counter is always placed on the map, regardless of any Detection rolls. However, to determine the nature of a Blip counter, a Force must conduct a successful Recon Scan (see *Step 3: Recon Scan* below).

Simple Detection Rules

To speed up game play, players can make Detection rolls a simple 2D6 roll, applying any appropriate modifiers from the Sensor Detection Modifiers portion of the Sensor Detection Results Table (see p. 267). A roll of 7 or higher is considered a success and a Blip counter is placed on the map.

STEP 2: RECONNAISSANCE

Once a hostile Formation is detected, it appears only as a Blip counter, and little is known about it until more information is acquired.

There are two ways to gain additional information on a Blip counter: Visual Identification and Recon Scan (see *Step 3: Recon Scan* below)

Visual Identification

Once a Blip counter enters visual range, a Formation may identify the makeup of the enemy Formation through visual analysis. Any turn a Blip counter is in visual range of a Formation, roll 2D6 and consult the Reconnaissance Results Table (see p. 267) using the Visual ID column for results.

A Blip counter that enters the same hex as another Formation is automatically identified with an Eyes on Target result.

Each Formation may make one Visual Identification roll per Blip counter in visual range.

- **Where?:** The Formation is using natural cover, or the detecting Formation needs glasses. The hostile Formation remains a Blip counter.
- **Something's Out There:** Only the hostile Formation's Type is known.
- **I got something!:** The hostile Formation's Type and Size are known.
- **Eyes on Target:** The hostile Formation's Type, Size, and MP are known. The individual Elements are known, but not specific variants.

STEP 3: RECON SCAN

A Formation may attempt a Recon Scan on any Blip counter in sensor range. A Formation must spend 1 MP to attempt a Recon Scan; a Formation may make as many scans in a turn as it has MP to spend. To attempt a Recon Scan, the controlling player rolls 2D6 and consults the Reconnaissance Results Table (see p. 267) using the Recon Scan column for results.

- **Scan Interference:** Something is interfering with the scans. The hostile Formation remains a Blip counter.
- **Mixed signals:** The scan is inconclusive. Only the hostile Formation's Type and Size are known (The Blip Counter should be flipped over to reveal the formation side type).
- **Partial Scan:** The hostile Formation's Type, Size, and MP are known. The individual Elements are known, but not specific variants.
- **Full Scan:** Full details on the hostile Formation are known. The Formation's record sheet is placed on the playing surface and can be viewed by the opposing player.

Simple Reconnaissance Rules

To speed up game play, players can replace the above rules with the following procedures. Roll 2D6 and apply any appropriate modifiers from the Reconnaissance Modifiers Table. On a result of 7 or higher, the Formation is fully scanned. The Formation's record sheet is placed on the playing surface and can be viewed by the opposing player.

Aerial Recon

Aerospace Squadrons can provide a strategic advantage to one or both sides of a conflict, while a friendly satellite in orbit can be nearly as valuable as the encryption codes to the opposing commander's headquarters.

Aerospace Detection: Under Visual 1 or 2 conditions, any Aerospace Squadron in the Inner or Central Zone of the Atmospheric Radar Map (see *Strategic Aerospace*, p. 245) may provide detection or reconnaissance information.

An aerospace Squadron that spends one turn in the Inner or Central Zone without engaging or being engaged in air-to-air or air-to-ground attacks will provide the location of all hostile Formations on the battlefield. This only provides sufficient information to place Blip counters on the playing area and will not detect Formations submerged in water or in urban, ultra-heavy woods or jungle terrain. Under Visual 3 conditions, the aerospace Squadron must be in the Central Zone to provide detection. Under Visual 4 conditions, detection is limited to four hexes on either side of the Squadron's flight path across the playing area.

Aerospace Squadrons with the PRB or RCN special abilities are treated as operating under Visual 1 conditions.

Aerospace Recon: An aerospace Squadron that enters the Central Zone may conduct a Recon Scan on Blip counters. A Squadron wishing to conduct a Recon Scan may not engage or be engaged in air-to-air combat, and may not conduct air-to-ground attacks. Squadrons may make one Recon Scan attempt every eight hexes along their flight path on the game map. The Blip counter targeted by its Recon Scan must be within in Sensor Detection range (see p.) of the Squadron's flight path. Squadrons with the PRB or RCN special ability may conduct as many Recon Scans as they wish, though may only attempt a single scan per Blip counter, per turn.

Space-based Detection: Any Squadron containing a Satellite with the RCN special ability, a DropShip, WarShip or a Space Station may be used to detect hostile ground Formations.

The aerospace squadron must be in the Inner Zone of the Capital-Scale Radar Map (see *Strategic Aerospace*, p. 245) and may not be engaged in combat in order to conduct Detection rolls. In any turn when these requirements are satisfied, the detecting Squadron rolls 2D6 with a Target Number equal to their Skill Rating +3. On a Margin of Success of 0-2, Blip counters are placed on the map for all hostile Formations (see Aerospace Detection, above, for limitations). On a Margin of Success of 3 or more, the direction of movement for each Blip counter is also known.

VISUAL SPOTTING RANGE TABLE

Light/Weather Condition	Maximum Visual Range (In Hexes) BattleMech/Vehicle*	Infantry	Aerospace (all types)†
Visual 1: Daylight (no conditions)	4	2	Inner Ring
Visual 2: Light to Heavy Fog/Rain/Snowfall/Downpour/	2	1	Inner Ring
Visual 3: Sleet/Blowing Sand/Dusk/Dawn	1	1	Central Zone
Visual 4: Blizzard/Moonless Night/Pitch Black	0	0	4 hexes

*Includes grounded aerospace (but not Large Aerospace).
†Must be on the Radar Map (see p. 245). Detection is listed based on the ring or zone the aerospace Formation can occupy and still visually spot Formations on the Ground Map.
Searchlights: Formations with the SRCH special ability may add 1 hex distance in Dusk, Dawn, Moonless Night and Pitch Black visual conditions.

SENSOR DETECTION RANGE TABLE

Sensor Type*	Detection Range in Hexes
Beagle Active Probe (PRB)	8
Bloodhound Active Probe (BH)	10
Clan Active Probe/ EW Equipment	9
Clan Watchdog/ Light Active Probe	6
BattleMech Sensors†	6**
Vehicle and Battle Armor Sensors≠	5**

*Use the best sensors available to the Formation.
**Formations with the RCN special ability add 2 to their basic sensor detection ranges. RCN does not extend the range of any probe special abilities.
†Includes IR, Radar, Magscan and Siesmic.
≠Includes Support Vehicles and all vehicle sensor systems

SENSOR DETECTION RESULTS TABLE

Die Roll	Result
2	Clean Screen
3-4	Sensor Ghost
5-6	Sensor Ping
7-9	Solid Lock
10-11	Partial Scan
12	Full Scan

SENSOR DETECTION MODIFIERS

Detection Modifiers	Modifier*
Target Formation has ECM, WAT, LCEM	–1**
Target Formation has AECM	–2**
Target Formation has STL, MAS or LMAS	–2†
Every 1 hex under maximum sensor range	+1††

*Modifiers are not cumulative
**If detecting Formation has BH special ability, reduce modifier by 1 (so a -2 becomes -1)
†If the target Formation also has AECM the modifier is -3
††Up to a maximum modifier of –4.

RECONNAISSANCE RESULTS TABLE

Die Roll	Recon Scan	Visual Identification
2-3	Scan Interference*	Where?
4-5	Mixed Signals	Something's out there
6-8	Partial Scan	I got something!
9-12	Full Scan	Eyes on the target.

*On an unmodified roll of 2 the attempt fails, and the Formation making the recon attempt is identified as if a Full Scan was successful on it.

RECONNAISSANCE MODIFIERS

Condition	Modifier
Recon Scan	
Formation has RCN	+1
Formation has PRB or BH	+1
Target has ECM or AECM	–1*
Visual Identification	
Visual 2 Conditions†	–1
Visual 3 Conditions †	–2
Visual 4 Conditions †	–3
Both	
Every 1 hex under maximum sensor/visual range	+1
Target is in the same hex	+2
Target is in Light Woods/Jungle	–1
Target is in Heavy Woods/Jungle	–2
Target is in Light Urban‡	–2
Target is in Medium Urban‡	–3
Target is in Heavy Urban‡	–4
Target is in Hardened Urban‡	Undetectable**
Detecting Formation is Shaken	–1
Detecting Formation is Broken	–3
Detecting Formation is Routed	–6

*Nullifies PRB bonus for ECM and BH bonus for AECM
**Undetectable targets may only be revealed if they engage in Engagement Control or Combat
†See Visual Ranges (see p. 265)
‡See Terrain rules (see p. 234)

LOSING CONTACT

As Formations move about the battlefield, they move in and out of visual and sensor ranges. The following rules cover losing contact:

Out of Range: At the end of the Movement Phase, all Formations should check to see whether there are any hostile Formations within sensor range (based on hostile Formation's sensors). If a Formation is not in sensor range of any hostile Formation, then the Formation is either removed from the game board (if using a gamemaster) or turned into a Blip counter. If this Formation moves back into sensor or visual range, it must be detected and identified again (see *Detection and Reconnaissance Phase*, p. 265).

Urban Hex: A Formation that enters an Urban hex may also fall out of sensor contact. Whenever a Formation enters an Urban hex, reroll Visual ID and Recon Scan with all appropriate modifiers. A result of 6 or less results in the Formation reverting to a Blip counter. A Blip counter entering an Urban hex rerolls its sensor scan. A result of 6 or less results in the Blip counter being removed from the playing area.

ADVANCED MOVEMENT OPTIONS

ADJUSTING FORMATIONS

Units operate as members of a Formation in order to speed game play at the expense of flexibility. Players may elect to detach Units from a given Formation, or split a Formation into individual Units. However, both approaches may significantly affect the speed of game play as they put more Units onto the field. Additionally, the presence of additional Units may make it more difficult to determine where the component Units of a Formation are for located purposes of executing commands.

Adjusting Formations is done during the End Phase of a turn. A player may begin play with any number of their Formations already split or detached unless otherwise dictated by the scenario.

Detaching Units

Up to 50 percent (rounding down) of a Formation may be detached for independent operations. These Units may operate together or separately, but this decision must be made at the time the Units are detached. For example, a standard company may detach up to one Unit, which may operate independently of its parent Formation or alongside it.

An appropriate miniature (or other counter) is added to the board to represent the detached Unit, and the detachment is noted on the Formation's record sheet. Detached Units move at the same time as their parent Formation, but may move and attack independently. Normal stacking limits apply for detached Units, with a Unit being treated as a Formation for the purposes of stacking.

> *Alice's company Formation consists of Assault, Battle and Fire Support Units. Upon reaching one of her objectives, she decides to detach the Battle Lance to hold the objective while she presses on with the Assault and Fire Support lances. In the End Phase, Alice declares that she will detach the Battle Lance and notes this on her Formation record sheet. She adds a new miniature to the field to represent the Battle Lance.*

Splitting Units

A Formation may be split into individual Units. This can occur for a variety of tactical or strategic reasons.

As with Detaching Units, an appropriate miniature (or other counter) is added to the board to represent each Unit, and the information is noted on the Formation's record sheet. Each Unit moves and attacks as a single-Unit Formation. Normal stacking limits apply for split Units, which are treated as Formations for the purposes of stacking.

> *In an effort to quickly acquire his objectives, Aaron splits two of his Trinaries. He now has six independent Units; Aaron puts additional miniatures on the battlefield and notes on his record sheets that these Formations have been split.*

Re-Forming Formations

Formations must re-form in their original configurations; detached Units may only re-join their parent Formations, and split Units may only reunite with other Units from their original Formation. Use Ad-Hoc Formations if the Units come from different original Formations.

To re-form a Formation, all surviving Units must be in the same hex during the End Phase of the current turn (this is an exception to the Stacking limit rules and may only be done if the Units are re-forming). The re-formed Formation suffers -1 MP in the following turn.

The change is noted on the record sheet, and the extra miniatures are removed from the field. It may be necessary to replace the Formation's miniature if the re-Formation results in a change in weight class.

Ad Hoc Formations

Players may create ad hoc Formations on the fly from any available Units. For example, two Units from one formation may join with sole surviving Units of two other Formations to form a new, four-Unit Formation. Because a new record sheet must be prepared for the Formation, this option slows down game play and should be used with caution.

Additionally, the controlling player must determine the new Formation's position in the Chain of Command. An ad hoc Formation reports to the superior Formation to which most of its Elements report. If a majority does not exist, then any superior Formation to which a Unit reported may serve as the ad hoc Formation's superior Formation.

To create an ad hoc Formation, the Units involved must be in the same hex (or adjacent hexes) during the End Phase of the current turn. A record sheet must be prepared for the new Formation, and excess miniatures representing the previous individual Units are removed from the field. The new Formation may take no actions for one complete game turn. It may be necessary to replace the Formation's miniature if the ad hoc assembly results in a change in its weight class.

Separation Limits

For aesthetic or game play reasons, players may wish to impose a limit on the number of Units that may detach or split. This limit is usually the same for both Forces.

EVADING

All Formations may choose to use Evasive movement (not to be confused with the Engagement Control Roll option of Evade) during the Movement Phase. Evasive movement does not change the Formation's normal Move or Thrust rates or terrain restrictions, but an evading unit cannot execute attacks of any kind. In exchange, all attacks against the evading Formation will apply an additional to-hit modifier based on the unit's Skill rating, as shown in the Evading Target Movement Modifiers Table.

EVADING TARGET MOVEMENT MODIFIERS TABLE

Evading Formation's Skill	To-Hit Modifier
Skill 6-8	+1
Skill 5	+2
Skill 3-4	+3
Skill 1-2	+4

HULL DOWN

Non-infantry Formations may benefit from existing Infantry field fortifications (see p. 290). A Formation may spend one-half of its movement (rounding up) to enter the Infantry field fortification. A Formation that has taken cover in a Fortified Position and has not expended any movement in a turn loses its TMM.

Formations that are hull down receive a +1 to-hit modifier and divide all damage received by two (rounding down).

SPRINTING

A Formation may move at Sprint speed; by doing so, the Formation may multiply its current Move by 1.5 (rounding up). Thus, a unit with a Move of 6 would have a Move of 9 when sprinting (6 x 1.5 = 9).

A sprinting unit may not make attacks. Attacks against Sprinting units receive an additional –1 to-hit modifier.

MOVEMENT DICE

The Movement Dice rules from *Alpha Strike Companion* (see p. 12, *ASC*) are an option for standard rules for *SBF* game play.

TRANSPORTING NON-INFANTRY FORCES

Non-infantry ground Formations may mount or dismount another friendly Formation able to carry them. Each DOOR special ability allows a transporting Formation to load one Unit per turn. The entire Formation must Mount or Dismount at a cost of 4 MP. A Formation with an MP value of less than 4 must expend its entire MP to Mount or Dismount, and may not otherwise move in the turn it does so.

The following rules apply to transport units, DropShips and Small Craft. They do not apply to the transport of infantry units by units with the Infantry Transport (IT#) special ability (see *Transporting Infantry*, p. 236). As with Transporting Infantry, the transporting Formation must be able to carry the entire carried non-infantry Formation. The carried Formation may be split among the Units of the transporting Formation, so long as all Elements of the carried Formation can be transported.

Ground Unit Transport: All non-aerospace Formations are considered ground Formations for the purposes of mounting or dismounting a transport Formation. Formations may not dismount into prohibited terrain. Mounting and dismounting must be performed during the Ground Movement Phase.

Mounting: Formations may only mount a transport Formation from an adjacent hex. It costs the mounting unit 4 MP to enter the transport Formation.

Dismounting: It costs the dismounting Formation 4 MP to exit the transport unit. The dismounting Formation is placed in an adjacent hex to the transport Formation. If it has MP remaining after dismounting, it may move as normal. Any attacks made in the turn it dismounted suffer a +1 to-hit modifier.

Units as Cargo: Many larger civilian DropShips have thousands of tons of cargo space available. While designed for consumer goods, this space may be converted to carry Formations as cargo. Each Formation transported in this fashion occupies 110 percent of its weight in cargo space. The extra weight represents extra material used to protect the Formation during transport. To be transported, a unit's weight must not exceed the capacity of the cargo bay (CT# or CK#).

Units transported in this fashion are not combat ready and may not mount or dismount, or launch or recover; instead, they must be unloaded as regular cargo. As cargo bay doors are not designed with military machines in mind, only one unit (regardless of size) may be loaded or unloaded per turn. Units unloaded in this fashion are combat ready after 3 turns.

ADVANCED TERRAIN

For simplicity, standard *Strategic BattleForce* limits the terrain types available. The following Advanced Terrain rules allow greater flexibility in game play.

Some terrains familiar to *BattleTech* players (such as magma) do not appear in these rules. These have been intentionally omitted because their impact within a larger 500-meter hex is either minor (combat is rarely fought on an active volcanic plain) or is already sufficiently covered by another terrain type.

Prohibited Terrains: Certain unit types—or those lacking specific equipment—may be prohibited from entering certain terrain types. These prohibited terrain types and movement restrictions are defined in the Advanced Terrain Movement Costs Table. Unless stated otherwise, these prohibitions apply only if the Formation in question attempts to move through the terrain. Formations that can elevate themselves such terrain (such as aerospace units and VTOLs in flight) will ignore these prohibitions as long as they remain above the terrain's level.

BRIDGES

Bridges, like buildings, possess a Construction Factor (CF) that reflects their overall strength and stability. This CF can be any value from 1 to 50. If a bridge suffers damage from attacks or other conditions, the damage points are subtracted from its CF value. A bridge reduced to a CF of 0 is destroyed.

Weight Limits: As the bridge's current CF value also represents its weight capacity, the CF value of the bridge corresponds to the maximum Size of Formations that may safely cross that bridge. A bridge with a CF of 21 or more may support Formations of Size 4. Bridges with a CF of 20 or less may only support Formations up to Size 3. A bridge that has a CF of 10 points or less may only support Formations up to Size 2. Bridges of 5 CF or fewer may only support Size 1 Formations.

If a Formation that exceeds a bridge's Size limit attempts to use it, the bridge immediately collapses once the Formation moves onto it. The player rolls a 1D6. On a result of 1-2, the Formation LEAD Unit falls. On a result of 3-6, randomly determine which of the remaining Units falls. The falling Unit will take 1 point of damage for every level distance between the starting level and destination level. If the unit falls into prohibited terrain as a result of a bridge collapse, it is destroyed.

BUILDINGS (URBAN HEXES)

See Urban Hexes, (pp. 285-288).

ADVANCED TERRAIN MOVEMENT COST TABLE

Terrain Type	Move Cost per Hex	Prohibited Movement Mode/Unit Type
Base Move	1	—
Clear	+0[1]	Naval, Rail
Paved/Road/Bridge	+0[2]	Naval, Rail
Woods		
Light[17]	+1[3,4]	Air, Naval, Rail
Heavy[17]	+2[3]	Vehicles
Ultra-Heavy	+3	All except Infantry
Water		
Surface Only	+0	All except Hover, Naval, WiGE[5]
Depth 0	+0	Ground, Infantry[6],
Depth 1	+1[7]	Ground, Infantry[6], IndustrialMechs[8]
Depth 2	+6[7]	Ground, Infantry[6], IndustrialMechs[8]
Depth 3+	+8[7, 9]	Ground, Infantry[6], IndustrialMechs[8]
Rapids	+1	As Water of appropriate Depth
Level Changes (up or down)[10]		
1 level	+1 ('Mechs, VTOLs, submarines, ProtoMechs) +2 (infantry, ground vehicles)	
2 levels	+2 ('Mechs, VTOLs, submarines)	
3+ levels	+1/level (VTOLs, submarines)	
Urban Hexes (Buildings)[17]		
Light	+1[11]	Air, Naval, Rail
Medium	+2[11]	Air, Naval, Rail
Heavy	+3[11]	Air, Naval, Rail
Hardened	+4[11]	Air, Naval, Rail
Heavy Industrial	+0/+1[13]	Naval, Rail
Ice	+1[12]	Naval
Jungle		
Light[17]	+2[4]	
Heavy[17]	+3	Vehicles
Ultra-Heavy	+4	All except Infantry
Mud	+1[12]	Naval, Rail
Rail	+0/+1[14]	Naval
Rough[17]	+1[4]	Naval, Rail
Ultra Rough[17]	+2[4]	Naval, Rail
Rubble[17]	+1[4]	Naval, Rail
Ultra Rubble[17]	+2[4]	Naval, Rail
Sand	+0/+1[12, 15]	Naval, Rail
Swamp	+1/+2[12, 16]	Naval, Rail
Tundra	+0[12]	Naval, Rail

DEEP SNOW

Any ground Formation moving into or through deep snow may become stuck in such terrain per the rules for *Bogging Down* (see p. 272).

HEAVY INDUSTRIAL

A Heavy Industrial hex represents an extreme Urban hex, such as a factory facility or massive power complex. Heavy Industrial is therefore treated like a Hardened Urban hex (p. 285) for purposes of movement and line of sight.

In the event of missed attacks against a Formation in a Heavy Industrial hex, roll 2D6. On a result of 7 or higher an unintended explosion occurs. If an explosion occurs, roll 1D6. On a result of 1, no damage is suffered by either Force. On a result of 2-5 the targeted Formation takes 1 point of damage per Unit; if the attacker was at Short range, the attacker takes equal damage. On a result of 6, all Units in the targeted Formation are damaged; divide the damage equally among the Units in the Formation. If the attacker was at short range, the attacker takes equal damage.

ADVANCED TERRAIN MOVEMENT COST TABLE (CONTINUED)

Note: Airborne units (including Air vehicles and Aerospace units) ignore all terrain conditions until they attempt to occupy the same space and level of them (including attempts to land or liftoff). If airborne units attempt to enter terrain prohibited to them, treat the result as a crash.

[1]+1 MP cost for wheeled support vehicles without Off-Road (ORO) special ability.

[2]All Tracked or Wheeled units gain an extra 2 of MP on any turn where the unit spends its entire Move on this terrain.

[3]Infantry units reduce MP cost to enter this terrain by 1 (to minimum of +0).

[4]Wheeled and Hover may enter but must pay 3 movement points per hex reflecting their carefully moving through the clear terrain of the hex.

[5]Wheeled or Tracked vehicles with the Amphibious (AMP) special ability can move on water surfaces at a MP cost of +1.

[6]Infantry units can move through water of any Depth only if they have the UMU special ability.

[7]This is the cost to move along the bottom of a water area. No additional cost applies if using submarine movement.

[8]IndustrialMechs can only enter water of depth 2 or greater if they have the environmental sealing (SEAL) special ability.

[9]Non-submarine units at this depth (including units with UMU special) may suffer damage.

[10]Infantry, ground vehicles, ProtoMechs, and WiGEs may not perform level changes greater than 1 level per 1 hex traveled. 'Mechs may not make level changes over 2 levels per 1 hex traveled unless using Advanced Movement Modes.

[11]Infantry units do not pay any additional Move cost for Buildings; ProtoMechs pay only +1 MP for all Buildings

[12]Units in this terrain type may bog down and/or suffer damage. See Bog Down rules, p. 272.

[13]Only 'Mech units apply the +1 MP cost in this terrain; all other units in this terrain apply +0 MP cost.

[14]Rail units in this terrain must move along the rail and pay +0 MP cost. All other units apply the +1 MP cost.

[15]Only infantry units and wheeled units without the Dune Buggy (DUN) special apply the +1 MP cost in this terrain.

[16]Only 'Mech and ProtoMech units apply the +1 MP cost in this terrain; all other units in this terrain apply +2 MP cost.

[17]BattleMechs with the LG special reduce the MP cost by 1 per hex in this terrain type.

Unit Types Key	
'Mechs	Includes BattleMechs and IndustrialMechs
ProtoMechs	ProtoMech units only
Infantry	Includes conventional infantry and battle armor
Vehicles	Includes all motive types covered by Air, Ground, and Naval
Air	Combat or support vehicles with VTOL or WiGE movement types
Ground	Combat or support vehicles with wheeled, tracked, hover, WiGE, or rail movement types
Naval	Combat or support vehicles with naval or submarine movement types
Hover	Combat or support vehicles with hover movement type only
Rail	Combat or support vehicles with rail movement type only
Sub	Combat or support vehicles with submarine movement type only
Tracked	Combat or support vehicles with tracked movement type only
VTOL	Combat or support vehicles with VTOL movement type only
Wheeled	Combat or support vehicles with wheeled movement type only
WiGE	Combat or support vehicles with WiGE movement type only
Aerospace	Includes conventional fighters, aerospace fighters, small craft, and DropShips

ICE

In *Strategic BattleForce*, ice hexes are considered Frozen Solid, and only provide a modifier to movement due to Formations moving cautiously.

Mobile structures automatically break any ice hex they traverse, suffering 1 point of damage from the fall.

Due to their thrusters and great mass, any spheroid-type small craft and all DropShip Units automatically break any ice hexes in which they attempt to suffering 1 point of damage. Aerodyne DropShip may not move for the remainder of the scenario.

Naval units cannot move on ice, and submersible naval units may not operate in the water below as the ice is considered Frozen Solid.

JUNGLE

Jungle hexes are treated as woods hexes, including modifiers for Line of Sight and Ultra-Heavy varieties.

MUD

Terrain classified as mud reflects areas in which the soil is soft and wet enough to bog down vehicular and 'Mech units. All ground units moving through mud terrain (unless the Formation employs all hover, VTOL, or WiGE movement types) may become stuck. See *Bogging Down* (p. 272).

A spheroid-type aerospace unit (small craft or DropShip) that attempts to land in mud terrain automatically converts the mud in its landing area into rough terrain.

RAILS

Traveling on rails allows a Formation to treat all hexes the rail passes through as clear terrain.

ROUGH, ULTRA

Ultra-rough terrain represents a variety of truly shattered landscapes, including ultra woods/jungles that have been reduced to rough ground.

RUBBLE, ULTRA

Ultra rubble terrain represents destroyed buildings made of the hardest, military-spec materials, making such an area exceptionally difficult to navigate. Destroyed Castles Brian and crashed WarShips are examples of ultra rubble.

SWAMP

All Formations that use ground movement (not including hover, VTOL or WiGE movement types) moving into or through swamp terrain may get stuck (see *Bogging Down*, p. 272).

Units that use VTOL, WiGE, or aerospace movement (other than DropShips) automatically become stuck in swamp terrain if they attempt to land in it. DropShips that land in swamp terrain check for bogging down in the same way as a ground vehicle.

TUNDRA

Tundra terrain represents a mix of shallow soils, low-growing vegetation, and permafrost that can present a treacherous environment for heavy units, especially once the battle starts. To reflect this, all ground units except for those using hover, VTOL and WiGE movement types may become stuck in tundra terrain (see *Bogging Down*, p. 272).

WATER (EXTREME DEPTH)

Any water terrain of 15 depths or more is considered to be of extreme depth. In extreme depths, any Formation that is not specifically a submarine—including BattleMechs and other non-submarine units, even those with the UMU special ability—must make a critical hit check at the end of any Movement Phase in which it enters or remains at such depths. Apply all critical hit effects immediately, before the Combat Phase. If a unit entering or operating at extreme depths does not have a critical hit check appropriate for its type—such as infantry units with the UMU special—apply 1 point of damage to the unit instead.

WOODS (EXPANDED)

Standard *Strategic BattleForce* includes only one "type" of woods terrain. At the advanced level of play, woods come in three levels of density: light, heavy, and ultra-heavy.

Light Woods: Light woods are treated as standard *Strategic BattleForce* woods (see p. 236).

Heavy Woods: Heavy woods are harder to see through than light woods and cost more Move per hex. Combat in heavy woods has a maximum range of Medium. If a Formation is in an adjacent hex to heavy woods, it is only in LOS if it chooses to declare an attack first.

Ultra-Heavy Woods: Ultra-heavy woods are the most difficult of the woods terrain types to see and pass through. Combat in an ultra-heavy wood has a maximum range of Short. A Formation in an ultra-heavy wood hex may not make any direct attacks into adjacent hexes.

BOGGING DOWN

When a Formation enters certain terrain types as noted above, it must attempt to escape becoming bogged down. Any time a Formation starts its movement in a terrain hex or enters a terrain hex that may cause it to become bogged down, and for each full hex of the same terrain type through which the Formation passes, its controlling player must make a 2D6 roll with a target number equal to the Formation's Skill Rating plus 1. Formations within which all Units possess the JUMP special may add the JUMP rating for the Unit with the lowest JUMP as a positive modifier to their roll (for example, a Formation comprised of Units with JUMP 2, 3, and 4, would add +2 to their roll based on the lowest JUMP rating being 2).

If this roll fails, the Formation ends its Movement Phase immediately, and is stuck at the point in the terrain it had just traversed when the roll failed. A roll of 2 is always considered a failure, even if the target number is 2 or less.

Escaping once bogged down requires a new bogged down check at the start of the Formation's next movement phase. If this roll fails, the unit remains bogged down during that turn, and attacks against it will ignore its usual target movement modifier. Otherwise, the unit escapes and may move normally. Any unit that uses hover or WiGE movement, and any VTOL or aerospace unit that does not land in terrain that can bog down ground units, may ignore these rules.

Tundra, deep snow and mud terrain apply a +1 modifier to the target number to avoid bogging down.

ADVANCED TERRAIN TO-HIT MODIFIERS TABLE

Advanced Terrain Modifiers	
Terrain	**Modifier**
Underwater	+1*
Woods	
Light	+1
Heavy	+2
Ultra-Heavy	+3
Buildings	**
Heavy Industrial	+1
Jungle	
Light	+1
Heavy	+2
Ultra-Heavy	+3
Planted Fields	+1†

Target Movement Modifiers	
Target	**Modifier**
Is Bogged Down	‡

*Only if attacker is also underwater (or is on the water surface and using TOR special); all underwater ranges are halved.

**Buildings block Light of Sight, providing either partial or full cover as a hill of equivalent size.

†Apply an additional +1 to-hit modifier if target is an Infantry unit.

‡Treat bogged down target as if it has a Target Movement Modifier of +0.

ADVANCED COMBAT OPTIONS

ARTILLERY

A Formation with the Artillery special ability (ART) may make one artillery attack per type of ART the Formation possesses.

Note: Artillery Cannons are not included in *Strategic BattleForce* rules. They are calculated into the base attack ratings of a Unit during conversion to *Strategic BattleForce* (see Conversion Rules, pp. 326-339).

RESOLVING ARTILLERY ATTACKS

The sequence for resolving artillery attacks is as follows:

Step 1: Choose a target
Step 2: Determine range and flight time
Step 3: Determine to-hit number
Step 4: Roll to hit
Step 5: Determine and apply damage
Step 6: Roll for critical hits (if applicable)

Step 1: Choose a Target

Unless the artillery weapon is attempting a direct-fire attack or using homing rounds, declaring an artillery attack requires only that the controlling player choose a hex in the artillery weapon's attack range (see the *Strategic BattleForce* Artillery Range and Damage Table, p. 274). If the attack is specifically intended to attack an occupant of the hex (a Formation or Fortification), this needs to be declared at this time; otherwise, a successful attack will only damage the terrain.

Direct-fire artillery attacks can only be made by Formations in the same hex as the target or in an adjacent hex, provided the attacker has LOS to the target.

Step 2: Determine Range and Flight Time

If the artillery-firing Formation and its target are both on the map sheet, measure the range between them as normal.

Time in Flight: Due to the scale of *Strategic BattleForce* hexes and the three minute game turn, flight times are considerably different from artillery in *Tactical Operations* (see p. 179, *TO*) or *Alpha Strike* (see p. 73, *AS*). Consult the *Strategic BattleForce* Artillery Range and Damage Table for *Strategic BattleForce* flight times.

Step 3: Determine To-Hit Number

As with a standard weapon attack, the base to-hit number for an artillery attack is the attacking unit's Skill rating. While a Formation must declare if it is targeting an enemy Formation during Step 1: Choosing a Target, unless the attack is using a Homing Round the attack is not aimed at the terrain of the target hex. The attacker applies the to-hit modifiers shown in the Artillery To-Hit Modifiers Table (at right).

A Formation may act as a spotter for only one artillery attack at a time. Artillery attacks may not benefit from more than one artillery spotter. As with weapon attacks, to-hit modifiers are cumulative, which means they are added to the unit's base to-hit number to find the final to-hit number.

Direct Fire: If the Formation making an artillery attack is within one hex of the target and has a valid Line of Sight to its target hex, the attacker may attempt to deliver a direct-fire attack against the target hex, Formation or Fortification. Direct-fire attacks may not employ spotters, and apply the Direct-Fire Artillery modifier as shown in the Artillery To-Hit Modifiers Table. In addition, a direct-fire on-board artillery attack must also apply the standard weapon attack modifiers for intervening terrain and—if the target is a unit—the target's type and movement modifiers. (Immobile target modifiers are never applied to a direct-fire attack; use a +0 target movement modifier for immobile targets of direct fire artillery attacks.)

Indirect Fire, Artillery: Indirect fire is considered to be the standard means of firing an artillery weapon. All artillery attacks outside a 2-hex range, and any attacks under 2 hexes not using direct fire, must apply the indirect-fire artillery attack to-hit modifier. Indirect-fire artillery attacks can benefit from spotters, but does not require them to make the attack (unlike standard Indirect Fire (IR)). Indirect artillery attacks do not apply range band or terrain modifiers.

Artillery Spotters: If a friendly unit has line of sight to the target hex, it can provide the spotter modifiers as shown on the Artillery To-Hit Modifiers Table. Unless an artillery weapon attack is being made against the same point of impact repeatedly (see below), artillery spotter modifiers may apply only when the spotting occurs in the same turn that the attacking artillery weapon is fired, not when it hits. Artillery spotting automatically occurs as long as the friendly spotting unit has a valid line of sight to the artillery attack's chosen hex, and requires no roll.

Artillery spotting modifiers may only be applied for artillery attacks made against a hex, not when using Homing Rounds.

Subsequent Attacks on the Same Point of Impact: Once an artillery attack successfully hits its chosen hex, the coordinates become "locked in", and the artillery weapon may continue to attack that same hex without requiring a to-hit roll until it changes targets. Artillery attacks do not "lock on" when the target is a Formation; only a given hex or a Fortification may become "locked in."

Pre-plotted Points of Impact: If the scenario permits, players with artillery units may start the game with a number of pre-plotted points of impact that their artillery units can already hit automatically (as if they successfully "locked on"). The number of pre-plotted hexes is subject to scenario rules, an agreement between the players, or even the use of the Battlefield Intelligence

ARTILLERY TO-HIT MODIFIERS TABLE

Situation	To-Hit Modifier
Direct-Fire Artillery	+4
Indirect-Fire Artillery	+7
Each successive shot at the same target hex*	–1
Friendly unit acting as spotter when attack fired	–1
Spotter has LPRB, PRB or BH	–2
Spotter has RCN**	–1
Spotter made an attack during spotting turn	+1
Pre-Plotted attack on a Formation	+5

* Applies only if the spotter is in the target hex or an adjacent hex and has LOS to the target hex.

**Do not apply this modifier if the spotter has LPRB, PRB or BH.

STRATEGIC BATTLEFORCE ARTILLERY RANGE AND DAMAGE TABLE

Artillery Type	Special	Hex Range*	Damage
Arrow IV (Inner Sphere)	ART-AIS	8 hexes (0)	3 (2)
Arrow IV (Clan)	ART-AC	9 hexes (0)	3 (2)
Arrow IV (Prototype)	ART-AIS	8 hexes (0)	3 (2)
Thumper	ART-T	21 hexes (1)	2
Sniper	ART-S	18 hexes (1)	3
Long Tom	ART-LT	31 hexes (2)	6
Long Tom (Primitive Prototype)	ART-LT	31 hexes (2)	6
Cruise Missile/50	ART-CM5	51 hexes (3)	8
Cruise Missile/70	ART-CM7	92 hexes (5)	13
Cruise Missile/90	ART-CM9	122 hexes (7)	22
Cruise Missile/120	ART-CM12	153 hexes (9)	36
Battle Armor Tube Artillery	ART-BA	2 hexes (0)	2

*Number in parentheses represent SBF Mapsheets

ARTILLERY FLIGHT TIME TABLE

CRUISE MISSILES		
SBF Maps	SBF Hexes	Resolve the Attack
1-2	0-34	Immediately
3-4	35-68	1 turn later
5-6	69-102	2 turns later
Each 2 additional mapsheets		+1 turns

ALL OTHER ARTILLERY		
SBF Maps	SBF Hexes	Resolve the Attack
1	0-18	Immediately
2	19-34	1 turn later
3	35-51	2 turns later
4	52-68	3 turns later
Each additional mapsheet		+1 turns

optional rule described later in this chapter (see p. 276). Pre-plotted hexes must be noted on a piece of paper during setup.

If an artillery Formation attempts to hit a hostile Formation in a pre-plotted hex with an indirect artillery attack, reduce the to-hit modifier to +5, instead of the normal +7.

Homing Rounds

Formations with the TAG special ability that are in visual range (see *Visual and Sensor Range* p. 265) of the target Formation may designate targets up to one hex away for homing missile artillery strikes (as well as laser-guided bombs). They must make a successful Long Range attack in order to successfully paint the target Formation.

Step 4: Roll To-hit

To resolve an artillery attack, the controlling player rolls 2D6 for each round on the turn it arrives (rather than the turn in which the attack is made) and compares the total to the modified to-hit number identified in the previous step. If the dice roll equals or exceeds the modified to-hit number, the attack succeeds. Otherwise, the artillery attack fails, and will scatter as appropriate.

Artillery Scatter: If a non-homing Artillery attack fails, and there are friendly Formations in the target hex, the attacking player rolls 1D6. On a result of 5 or 6, the friendly Formation takes damage to a randomly determined Unit. If more than one friendly Formation is in the hex, randomly determine which friendly Formation is hit by the scattered artillery attack. If there are no friendly Formations in the target hex, but there is a friendly Formation in an adjacent hex, roll 1D6; on a roll of 6, that Formation takes half of the attack's damage. If more than one adjacent hex has a friendly Formation, randomly determine which Formation is hit.

Homing Rounds: As noted above, homing rounds can only be fired against a target that has been successfully "painted" by a friendly unit in the turn the rounds arrive. The base to-hit number for each homing round is set at 4, with no additional modifiers applied. If successful, the target is hit. Unsuccessful homing round attacks detonate harmlessly away from any valid targets and do not scatter.

Step 5: Determine and Apply Damage:

Artillery damage is equal to the Formation's # rating with that artillery type. For example, a Unit with ART-LT8 would deal 8 damage. Artillery does not have any "splash" (area of effect) damage in *Strategic BattleForce*; only the target Unit is affected (see *Artillery Scatter*, above, for an exceptions to this).

Artillery attacks are somewhat imprecise. For each artillery attack that hits a Formation, the attacker rolls a D6. On a 1-3 the defender allocates the attack. On a 4-6 the attacker does.

Step 6: Roll for Critical Hits

Artillery damage follows the same rules as standard combat for determining and applying critical hits. See *Resolving Attacks*, pp. 239-241 for details.

ARTILLERY COUNTER-BATTERY FIRE

If a Formation with artillery can be seen or detected by an opposing Force, players should use the standard *SBF* movement and combat rules (including artillery) to engage. If artillery fire is coming from a Formation off the map sheet or just out of visual and senor range, shooting back at it can become more problematic.

The following artillery counter-battery fire rules apply when attempting to attack any artillery Formation striking from beyond sensor range or from off the map sheet (for purposes of these rules, both situations will be referred to as "off-board"). These rules are based on standard artillery rules (see p. 273). For the purposes of these rules, only Units with an artillery weapon (represented by an ART special) may be used to deliver counter-battery fire; if players wish to engage off-map artillery units more directly, a new map should be set up to determine the actual local terrain in and around such units, and distances between the two maps should be well defined, to help determine how long any units would need to cross any terrain between them.

Units equipped with artillery weapons, and which wish to use them for artillery counter-battery fire, will be identified in these rules as counter-battery units.

Acquiring the Target: Artillery counter-battery fire is reactionary by its very definition. Until the first hostile shells land, there is little opportunity for the forces on their receiving end to know that the enemy even *has* artillery beyond the map—much less where this artillery is shooting from. An off-board artillery unit can only be acquired as a target after its first off-board artillery attack lands in an area within the LOS of one or more units friendly to a counter-battery unit.

Once this occurs, the counter-battery unit has gathered enough data to determine the off-board artillery unit's weapon type, general direction, and estimated distance. At this point, the counter-battery unit may begin to deliver counter-battery fire in the next turn's Combat Phase. Until a target is acquired, however, counter-battery fire may not be attempted, as the counter-battery units are too uncertain about their off-board targets' range and direction.

Resolving a Counter-Battery Attack: Counter-battery fire against an off-board artillery unit always uses the rules for indirect artillery fire (see p. 273), but can only be attempted by artillery weapons that have a maximum range equal to—or greater than—that of the off-board artillery unit at which they are firing back. A list of these artillery ranges can be found in the artillery rules (see p. 274). For example, a counter-battery Unit equipped with a Long Tom artillery weapon (ART-LT special; Max Range: 31 hexes) may return fire on any off-board artillery Unit using a Long Tom, Sniper, Thumper, or Arrow IV artillery weapon, but it cannot return fire against an off-board Cruise Missile/50 launcher, which has a maximum range of 51 hexes.

Because counter-battery fire is almost always based on guesses and estimates gleaned from the enemy artillery's hits, these attacks cannot benefit from friendly spotters or active probes (PRB). Each subsequent shell that lands on the battlefield *from* the off-board artillery attack target, however, improves the counter-battery Unit's ability to triangulate its target's position, providing an additional –1 to-hit modifier per shell (to a maximum modifier of –4). This bonus only applies if a Formation friendly to the counter-battery Unit occupies the hex where the shell impacts. If the counter-battery attack roll succeeds by a margin of 1 or more, the target off-board artillery Unit suffers damage equal to what the counter-battery artillery weapon would deliver at the center of its impact area. If the attack only succeeds by a MoS of 0, the off-board artillery Unit suffers half of the counter-battery Unit's artillery damage (rounded down, to a minimum of 0). If the attack fails, the counter-battery fire has missed entirely.

Shell Flight: Damage from any successful (or partially successful) counter-battery fire cannot be applied until the counter-battery shells have flown to their target (see Artillery Flight Time Table, p. 274). This "shell flight time" is the same number of turns used by the off-board artillery Unit's own attacks against targets on the map. Thus, if an off-board artillery Unit's shells require 3 turns to reach the map, any counter-battery fire will take 3 turns to reach the off-board unit's position after they have been fired. It is recommended that players reserve some extra dice to act as turn counters for artillery shells in flight.

ARTILLERY FLAK

If airborne units are in play during a scenario in which ground-based artillery weapons are also present and equipped with Cluster munitions (see *Alternate Munitions*, p. 275), these artillery weapons may be able to execute a special anti-air attack known as artillery flak. Artillery flak attacks may be executed against any hostile aerospace units that end their Movement Phase in the Central Zone of the Atmospheric Radar Map that corresponds to a ground map where the artillery weapon is located.

ARTILLERY COUNTER-BATTERY FIRE MODIFIERS TABLE

Situation	To-Hit Modifier
Counter-Battery Fire	+7
Each successive shell from Target unit*	–1 (Max –4)

*Shell impact must be witnessed by a Formation in the hex where the shell lands.

An artillery flak attack is resolved in the artillery unit's Combat Phase in the same way as a standard weapon attack. The base to-hit number for this attack is equal to the artillery unit's Skill Rating with a +3 target modifier. If the aerospace unit targeted by artillery flak is operating on the Central Zone of the Atmospheric Radar Map, but is *not* currently flying directly over the ground map (i.e., the airborne unit is not engaging in an air-to-ground strike), an additional +2 to-hit modifier will also apply (for a total modifier of +5).

A successful artillery flak attack will strike the aerospace unit with damage equal to the artillery weapon's normal attack value, minus 1 point (the same damage as a ground unit would suffer from a hit delivered by artillery cluster munitions). This damage is assessed in the same Combat Phase that the attack was made, and any Critical Hit effects required must be applied as well.

Artillery flak attacks that miss their target explode harmlessly in the air.

ALTERNATE MUNITIONS

Loading Alternate Artillery Munitions: Any tube-equipped artillery Unit (Long-Tom, Sniper and so on) may load two alternate munition types. Arrow IV artillery Units may equip one alternate munition type. Arrow IV Units may equip two alternate munitions if they choose not to use either standard or homing rounds.

Players wishing a higher level of detail and flexibility can instead determine the Element with the smallest ammunition weight allocated to an artillery piece (as determined in their *Technical Readout* game stats). For every ton of artillery munitions beyond the first ton for tube artillery, and the first three tons for missile artillery, the Unit including this Element may carry one additional alternate munition type (For Arrow IV they may add one additional munition if they choose not to field either standard or homing rounds). For example, the Teppō Support Vehicle (see p. 20 *TRO3085S)* mounts a Sniper and an Arrow IV. The Sniper has three tons of ammo, and so may carry two alternate ammunition types (3 – 1 = 2), while the Arrow IV has six tons of ammunition, and would be able to carry three alternate munitions (6 – 3 = 3), or four if it chose to not use either standard or homing rounds.

Alternate Artillery Munitions

Air Defense Arrow IV: A Formation must have at least two Elements with the ART-AIS and/or ART-AC ability.

These missiles may be used to deliver direct-fire ground-to-air attacks against any airborne targets in the Central Zone or Inner Ring on the Atmospheric Radar Map. Resolve all damage from a successful Air-Defense Arrow IV attack during the Combat Phase in which it is fired.

In place of artillery attack rules, air-defense Arrows are resolved as standard ground-to-air weapon attacks (see *Ground to Air Combat*, p. 248). For targets in the Central Zone that are engaged in air-to-

ground actions, treat the Air Defense Arrow as if it is attacking at Short range. If the target is in the Central Zone, but is not attempting to land or engaging in air-to-ground combat, the air-defense attack is made at Medium range. If the target is in the Inner Ring, the attack is made using the Long range bracket. An additional –2 to-hit modifier is also applied to represent the improved homing capabilities of the Arrow missiles.

Air-defense Arrow IVs may not target ground units (including grounded aerospace units), nor may they target airborne units beyond the Inner Ring on the Radar Map. Air-defense Arrow IVs will not scatter on a missed attack.

Damage is equal to the number of ART-AIS and/or ART-AC equipped Elements, divided by three (rounding normally).

Copperhead: Copperhead munitions are available only to units with the ART-LT, ART-S, and ART-T specials.

Attacks using Copperhead rounds are resolved using the artillery homing round rules. Copperhead munitions will not scatter on a missed attack.

Damage is determined by adding up the base damage of all ART-LT, ART-S, and ART-T equipped Elements in the Formation and dividing by 3 (rounding up). The base damage for attacks are 3 points for the ART-LT special, 2 points of damage for the ART-S special, and 1 point for the ART-T special. For example, a Formation with four ART-S Elements would do 3 points of damage ((2 x 4) ÷ 3= 2.66, rounded up to 3).

Flechette: Flechette artillery munitions are available to ART-LT, ART-S, and ART-T specials.

Attacks using flechette rounds are resolved using standard artillery rules. Flechette artillery munitions will scatter on a missed attack, per normal artillery rules.

Against conventional infantry units and jungle or woods terrain types, flechette ammunition doubles the artillery weapon's normal damage value. Against all other unit types, flechette artillery munitions inflict no damage.

Illumination: Illumination artillery munitions are available to units with the ART-AIS, ART-AC, ART-LT, ART-S, and ART-T specials.

Attacks using illumination rounds are resolved using standard artillery rules. Illumination artillery munitions will scatter on a missed attack, as per normal artillery rules.

Illumination artillery inflicts no damage, but instead lights up the hex it targeted, eliminating all darkness modifiers to and between units within that area (see the Visual Spotting Range Table, p. 267). The light from these rounds lasts for 3 turns, and burns out in the End Phase of the third turn.

Inferno: Inferno IV artillery missiles are available only to units with the ART-AIS or ART-AC specials.

Attacks using Inferno IV rounds are resolved using standard artillery rules. Inferno IV artillery missiles will scatter on a missed attack, as per normal artillery rules.

A successful Inferno IV attack will reduce the target Formation's MP by 1 for two game turns. For the remainder of the game, apply a +1 MP modifier to any Formation moving through the hex hit by the attack. Additionally, any Unit caught in the initial attack or that moves through the hex in subsequent terms, and which has the Vehicle (V), Infantry (CI) or Battle Armor (BA) Type, takes 1 damage.

Smoke: Smoke artillery munitions are available to units with the ART-AIS, ART-AC, ART-LT, ART-S, and ART-T specials.

Attacks using Smoke rounds are resolved using standard artillery rules. Smoke artillery shots will scatter on a missed attack, per normal artillery rules.

Smoke artillery inflicts no damage, but instead fills the hex with smoke. For the remainder of game play, this hex is treated as heavy woods (see p. 272) for purposes of Line of Sight and to-hit modifiers.

Thunder and Thunder-Active: Thunder artillery munitions are available only to units with the ART-AIS or ART-AC specials.

Attacks using Thunder munitions are resolved using standard artillery rules. Thunder missiles will scatter on a missed attack, per normal artillery rules.

Instead of damage, Thunder artillery missiles deploy a conventional minefield to the target hex. This minefield has a density value of 2, and follows the rules for minefields (see pp. 284-285). Thunder-Active rounds work the same as Thunder mines, save that they deploy an active minefield. Units occupying a hex struck by a Thunder missile do not need to check for mines as they move out of the area later, as they can tell where the mines have landed—but they will need to check for mines if they re-enter the mined area later.

Alternate Bomb Munitions

Arrow IV Missiles (Air-to-Air, Standard and Homing): Arrow IV missiles take one-third of a Bomb Slot. When determining damage, total the damage of all missiles that hit the target and divide by 3 (rounding normally).

Air-to-Air Arrow IV: An airborne unit may use its air-to-air Arrow IV as an extra weapons attack in air-to-air combat. This attack may be attempted against targets in the Medium range bracket or closer, and is resolved as a normal air-to-air attack (see pp. 247). A successful hit by an air-to-air Arrow IV delivers damage as above to the target.

Air-to-air Arrow IV missiles may not be used against ground targets.

Arrow IV (Homing or Standard): The standard Arrow IV bomb is an air-to-ground weapon, and may not be used against airborne units. Unlike standard bombs, standard and homing Arrow IV bombs are resolved using the appropriate artillery attack rules, with non-homing Arrow IVs treated as standard artillery attacks, and homing Arrow IVs treated as homing rounds. (See *Artillery*, pp. 273-274.)

If a Standard Arrow IV attack is made while the airborne unit is over the ground map, this attack is resolved using the direct-fire rules. If the attack is made from the Central Zone or Inner Ring of the Atmospheric Radar Map, without the airborne unit on the ground map, resolve as indirect artillery. The flight times for all attacks are one turn. Beyond the Inner Ring, Arrow IV bombs may not attack ground targets.

Inferno Bomb: These bombs work the same as the Inferno V alternate artillery munition (see p. 276).

Laser-Guided: Laser-guided bombs are identical to standard high explosive bombs in damage and gameplay, but if a friendly unit successfully paints the bomb's target area with a TAG system in the same turn as the bombing attack is made, the bombing attack receives an additional –2 to-hit modifier.

BATTLEFIELD INTELLIGENCE

The effectiveness of a Force's battlefield intelligence depends on the relative capabilities of each Force's reconnaissance and communications assets. These are determined by comparing the opposing Forces' battlefield intelligence (BI) score. To determine a Force's BI score, add up the appropriate point values for the intelligence-capable Units each force has in its roster using the Battlefield Intelligence Scoring Table. Note that a Unit or Element described as "on-planet" may be off the map, but must be part of the Force, must be functional, and must be on the ground or no farther away than the operational range of the Atmospheric Radar Map that corresponds to the current ground battle.

The first computation of each army's BI score must take place before the game begins. The force with the larger BI score at that point gains the benefits of Area Knowledge and Pre-Plotted Artillery, if the requisite rules are available (see below). At the start of every turn thereafter, both Forces must recalculate their BI scores, to determine which Force will unlock an additional BI Initiative Bonus ability that can give them a commanding influence in how the fight plays out.

BATTLEFIELD INTELLIGENCE RATING TABLE

Item in Player's Force	BI Rating Points
Each ground Formation with the Recon (RCN) special ability	2
Each non-DropShip aerospace Formation	1
Each non-DropShip aerospace Formation with the Recon (RCN) special ability	2
Each DropShip aerospace Formation (on-planet on the playing area)	1
Each Element with MHQ special ability on the playing area	1

BATTLEFIELD INTELLIGENCE BENEFITS

Most of the benefits for Battlefield Intelligence hinge on which Force has the higher BI score. Most benefits are established before the scenario begins, but others may be gained or lost on a turn-by-turn basis. Thus, players should recheck their BI again during the End Phase of any turn in which either Force loses (or gains) a Unit that can affect its BI rating. A changed BI comparison may alter the benefits applied in the following turn. Each player must reveal their Force's BI rating to use this rule, but they are not required to provide a detailed calculation until the end of the game.

Area Knowledge

The Area Knowledge benefit applies only to the Force that has a higher BI score at the start of the scenario, and may only be used if the Hidden Formations rules are also in play (see p. 284). With this benefit, the Force that has the higher BI score may begin play with a number of Formations hidden. Note: For purposes of Area Knowledge only, the Defender in a given scenario multiplies their BI by 1.5.

The maximum number of Formations that may be hidden by virtue of a higher BI score equals the total number of units that Force brings to the battlefield, divided by the number of those Formations that possess the Recon (RCN) special ability (see p. 337), rounded normally. This number may not exceed half of the total force committed to the scenario.

If the Force with the Area Knowledge benefit is the Attacker for a scenario, the hidden units may only be placed in positions up to one-third of the distance of the map away from the Force's deployment zone. If this Force is not the Attacker, the hidden units may be placed anywhere on the map area except the opposing Force's deployment zone.

Pre-Plotted Artillery

In *Strategic BattleForce* since a single hex is 500 meters pre-plotted hexes do not ensure an automatic hit. Instead they provide a -1 to-hit modifier which is cumulative with any other modifiers.

The Pre-Plotted Artillery benefit only applies to the Force that has the higher BI score at the start of the scenario, and may only be used if that Force includes artillery Units and artillery rules are also in play (see p. 273). With this benefit, the Force that has the higher BI score may begin play with a number of pre-plotted *SBF* Hexes for their artillery weapons. The number of pre-plotted hexes allowed equals the difference between the force's BI score and that of their opponent. The maximum number of such pre-plotted points may not exceed the number of artillery-equipped Units in the force's roster.

Joshua's force includes a company (Formation) of artillery equipped Units—3 in all—in his roster, and has a total BI score of 8 going into the current battle against his opponent, Joel. Joel's Force, meanwhile, has the same number of artillery Units, but only brings a BI score of 2 to this fight. Joshua's force enjoys the higher BI score, beating out Joel's score by 6 points (8 – 2 = 6), but because he only has 3 artillery units, the maximum number of pre-plotted hexes he can designate before the scenario starts is 3.

BI Initiative Bonus

The BI Initiative Bonus provides a number of Initiative Bonuses to Formations on the field. These bonuses should be noted on the record sheet of the Formation they are assigned to, either by marking INIT on the record sheet or by placing a token on the card to represent the initiative bonus. If the unit is destroyed or is within an enemy ECM field during the Initiative Phase, the initiative bonus cannot be used that turn.

The player gets a +1 Initiative Bonus to place if at least one Unit in their Force features a Mobile Headquarters (MHQ#) special ability with a value of 3 or higher. This bonus must be placed on a Unit with MHQ3 or higher. The player gets another +1 Initiative Bonus if the force has at least 1 Formation including a Unit with the Recon (RCN) special ability per 4 Formations in the Force. This INIT bonus is placed on one of the Formations with a Unit that has the RCN special ability. In addition, the player gets another +1 Initiative Bonus if the Force has at least 1 unit with the Mobile Headquarters (MHQ#) special ability with a value of 1 or higher per Formation in the force, to be placed on one of the Formations with MHQ1 or higher. The maximum BI Initiative Bonus is a total of +3. Multiple bonuses can be stacked on a single unit, but if the Unit in the Formation granting this ability, is destroyed or in a hex with a hostile ECM field, all BI Initiative Bonuses on that Formation are lost.

Joshua's reinforced battalion-sized force of 4 Formations contains a dedicated Mobile HQ vehicle with an MHQ6 special ability, plus a Unit of 'Mechs that feature one C^3 Master Computer (which also counts as a MHQ5 special). Joshua gets a +1 Initiative Bonus to place on either the Unit including his dedicated Mobile HQ vehicle or the Unit including the C^3 Master, and elects to place it on his dedicated Mobile HQ vehicle. Joshua gets a second +1 Initiative Bonus to place for having at least one MHQ per 4 Formations, and places this one on his C^3 Master Computer unit. Joshua's force has no Formations with RCN ability, so Joshua does not get a third Initiative Bonus to place. At the start of the turn, the dedicated Mobile HQ vehicle is still in play and not in an ECM field. However, the opponent has managed to place a Formation of his in the same hex as Joshua's C^3 Master Formation. Joshua gets a +1 Initiative Bonus from the mobile HQ, but no bonus from the ECM-affected C^3 Master Formation.

BOARDING ACTIONS

Exceptionally large Elements, those with the LG, VLG or SLG special ability (including grounded DropShips) may be the target of boarding actions by infantry units (including battle armor). The following rules enable players to resolve this process.

Boarding Exceptionally Large Elements

The process for boarding an exceptionally large Element begins with a grappling attack, either by an infantry transport unit delivering its troops, or by infantry units moving under their own


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power. While attempting a grapple, the attacking unit may not make any weapon attacks against its target.

Infantry Transport Units: Any non-large infantry transport-capable Formation in the same hex as a Formation containing the exceptionally large unit may grapple the target to conduct boarding actions. VTOL and airship vehicles may attempt to grapple exceptionally large units from above.

Infantry Units: Infantry units can attempt to board and seize control of an exceptionally large Element so long as they possess a movement type of foot, jump, motorized, or VTOL. Additionally, if the target is a naval vessel, infantry with UMU movement may attempt to board the Element, as long as they can reach the unit's present depth. Grounded DropShip units can only be boarded at ground level, regardless of the infantry unit's motive type.

The Grapple Check: Any Formation that fulfills the above requirements, and ends its Movement Phase in the same hex as the Formation with the targeted exceptionally large Element, may attempt a grapple in place of an attack during the following Combat Phase. If a Formation has more than one Unit that qualifies as an exceptionally large Element, the attacking Formation must indicate which Element is the target of the grapple attack.

This grappling action is successful on a 2D6 roll of 6 or higher (or 8 or higher if the target unit is completely submerged). A successful roll attaches a grapple to the target unit that allows infantry units to board it. If a grappling roll fails, the attacking units can attempt the action again at the end of the following turn's Movement Phase, provided it is still in the same hex as the target.

Maintaining and Ending a Grapple: A grappling unit can end its grapple at will during the End Phase of any turn. Unless the target is immobile, the grappling unit must reroll its grapple check every turn to maintain contact with the target. However, Infantry-only Formations that succeed on a grapple do not need to maintain it once they have boarded a target unit.

Resolving Boarding Combat

Starting with the same Combat Phase in which a Formation grapples and boards a target Element, boarding combat may begin. Boarding combat does not count as the exceptionally large Element's Combat Phase action, as these units cannot directly target the boarding parties inside of them. Instead, the boarding infantry battles any defending infantry Formations mounted on the exceptionally large Element (see *Transporting Infantry*, p. 236), as well as any crew it deploys in its own defense or friendly reinforcements the Element can obtain via a friendly boarding action (see below).

All infantry defending the exceptionally large Element can engage the boarding party infantry as normal, with range considered Medium and terrain Urban for To-hit purposes..

The boarding Units may engage either the defending infantry in the same way, or attack the exceptionally large Element itself. In both cases, damage will be an attacking Unit's Short range damage value. (Attacks against the exceptionally large Element itself are automatically successful and do not require a roll.) Infantry Units fighting in a boarding action cannot leave the confines of the exceptionally large units except to return to their grappling transports.

If the exceptionally large Element that has been boarded uses Evading movement (see p. 268), lifts off (DropShips only), or crashes, all Units engaged in the boarding action (friend and foe alike) will suffer a +2 to-hit modifier for their attacks in that turn. As with normal ground combat, all infantry Formations involved in boarding combat can deliver only one attack Unit per turn.

If all defending infantry on a boarded Element are destroyed, the Element falls under control of the boarding party and is immediately removed from its parent Formation. The captured Unit may be controlled by the opposing player in the following turn, but will have a Skill rating equal to that of the most experienced boarding infantry Formation with a +2 modifier.

If all attacking infantry Formations in a boarding action are destroyed, the Element resumes normal operation in the following turn.

If the Unit with a boarded exceptionally large Element in it is destroyed before boarding combat is resolved, all Formations on board—friendly, hostile, and cargo alike—are destroyed along with it.

Additional Boarding Action Rules

The following additional rules provide options an Element defending against hostile boarders may use to try and resist a boarding action.

Defending Crew: Exceptionally large units that can be boarded will generally defend themselves using their own onboard infantry or crew. If a Crew-equipped ground Element accepts +4 modifier to all attack rolls or a Crew-equipped aerospace Element accepts a +1 modifier to its to-hit and Control Rolls, it may field infantry Units equal to its CRW value. These foot infantry Units have a Move of 1f, armor of 2 and Damage Value of 1 at Short and Medium range.

If an Element ceases all attacks and movement it may generate an additional number of infantry Unit equal to its full Crew rating. The Element may not attack or move until its defending crewmen return to duty. To return defending crewmen to duty, the Element must remove a number of defending infantry Units equal to its CRW value.

Friendly Reinforcements: Using the same rules as hostile boarding Formations, friendly Formations may grapple and board an exceptionally large Element to reinforce its defense as well. The key difference is that a boarding action conducted by any friendly unit is automatically successful if the Formation meets the necessary requirements for grappling and boarding.

C³ NETWORKS

The following rules cover the use of C³ networks in *Strategic BattleForce* play. In *SBF*, C³'s primary function is to serve as a modifier to engagement range during combat. It also allows a Formation to keep Units out of direct combat with hostile forces, extending their operational life.

Adjusting Engagement Range

Once the Maneuver rolls have been made (see *Determine Range,* p. 239) a Formation with an active C³ network may adjust the range at which its attacks are made. Note: A Formation must have at least two Units with C³ ability. Only the Units with C³ may benefit from the range adjustments.

The winner of the Maneuver roll may use their C³ network to keep two Units at longer range. One Unit is designated the C³ point unit, while the remaining are the C³ ranged Units. This Unit engages in combat normally at the range selected by the player (typically Short range). The remaining Units in the Formation can then attack from a more distant range band, while using the to-hit modifier of the point Formation. On a successful attack, damage is based on the starting range, not the C³-adjusted range. The defending (non-C³) Unit may attack the C³ point Unit, at the engagement's defined range, or may attack the C³ ranged Units in the Formation with the appropriate range modifier. During *Determine and Apply Damage* (see p. 240), the C³ point Unit will take all damage unless a C³ ranged Unit was specifically targeted.

If the loser of the Maneuver roll has an active C³ network, he may reduce range by one value, from Long to Medium, Medium to Short and so on. On a successful attack, damage is based on the starting range, not the C³ adjusted range.

Effects of ECM: ECM will increase all C³-affected range bands by one value. For example, a C³ point Unit at Short range would effectively be at Medium range, and it and the C³ ranged Units in its Formation would make their attacks as if at Medium range. ECM will not affect C³ Boosted, while the WAT special ability will affect C³ and C³ Boosted networks.

C³i Networks

With a limit of six Elements, C³i cannot reduce ranges per the *Adjusting Engagement Range* rules. Instead, C³i equipped Units receive a -1 to-hit Modifier on any attack of Medium or Long range. If the target Formation has ECM, this bonus is negated.

> *A C³-equipped Formation wins the Engagement Control Roll. The player decides on a base range of Short and designates a point Unit to stay at this range. The player elects to put other two Units in the Formation at Long Range. All three Units make their attacks as if they were at Short Range, with the two Units attacking from Long Range using their Long Range damage.*
>
> *In another turn, the C³-equipped Formation loses the Engagement Control Roll, and the player's opponent sets the range at Long. Thanks to the C³ system, the player may reduce the range from Long to Medium. If the opposing Formation possessed ECM, then the range would have moved back to Long range.*

DROPPING TROOPS

All of the following drop methods require that the transporting Squadron is able to carry the Formation type being dropped. For the purposes of these rules, an airborne Squadron is capable of transporting and dropping infantry troops if it possesses the infantry transport (IT#) special. An airborne Squadron that can carry ProtoMechs will have the ProtoMech transport (PT#) special. Airborne Squadrons that can transport vehicles will have the vehicle transport specials (VTM#, VTH#, or VTS#). 'Mech Formations may only be carried and dropped by airborne Squadrons with the 'Mech transport special (MT#). If an airborne Squadron does not possess an appropriate transport special for the type of Formation it is transporting, or is attempting to transport such units via raw cargo capacity (represented by the CT# and CK# specials), it cannot use the dropping troops rules for that Formation type.

Formations delivered to the battlefield under these rules always land at the end of the Movement Phase in the appropriate turn. Because these rules require that the dropping units must roll to successfully hit their selected landing zone, dropped troops may scatter. If a dropped Formation scatters or otherwise lands in terrain that is prohibited to its movement type, the dropped unit is automatically destroyed.

Move and Attack: If conducting a High-Altitude drop, the Formation may either move (with a -3 MP modifier) or attack (with a +2 to-hit modifier) in the turn it drops. If conducting a Low-Altitude drop, the Formation may move (with a –2 MP modifier) and attack (with a +1 to-hit modifier) freely. In either instance attacks against such Formations will suffer a +3 target movement modifier regardless of the Formation's actual Target Movement Modifier.

Landing/Scatter: On a result of a 2, the Formation will scatter into an adjacent hex. Otherwise, on a failed roll, Formations only take damage from their failed landing attempt.

High-Altitude Drops

A high-altitude drop keeps the transporting Formation relatively safe from ground fire. To perform a high-altitude drop, the transporting aerospace Squadron must begin its Movement Phase on the Inner Ring or Central Zone of the Atmospheric Radar Map, at which point its controlling player declares that the transport is dropping ground units to the map, and which Formations it will drop. The dropping Formations are placed in the Central Zone on the Radar Map, while the transporting Squadron is free to continue its movement normally.

During the following Movement Phase, each of the dropping units chooses a hex on the ground map (which may not contain another Formation), and rolls 2D6 against a target number of 5. If the roll is successful, the dropping unit lands in the target hex. If roll is unsuccessful, the Formation suffers 3 points of damage to each Unit in the Formation for every point by which it missed the roll, and will scatter under the above rules.

Attacks Against Dropping Units: Standard air-to-air attacks (but not ground-to-air attacks) may be made against dropping Formations during the turn they are on the Atmospheric Radar Map. These attacks apply the normal air-to-air combat rules, but do not apply the +2 airborne aerospace target modifier.

Attacks by Dropping Units: Dropping Formations may not make attacks during the turn they are on the Atmospheric Radar Map.

Attacks Against Transport Units: Regardless of the drop operation itself, airborne transport Squadrons may be targeted as normal by air-to-air attacks. Airborne transports that choose to drop troops from the Inner Ring, rather than the Central Zone, may not be targeted by normal ground-to-air attacks.

Low-Altitude Drops

The low-altitude drop exposes a transport to the risk of ground fire, but delivers a payload of troops to the field faster. To perform a low-altitude drop, the transporting aerospace Squadron must end its Movement Phase on the Central Zone of the Atmospheric Radar Map and declare a flight path over the ground map. The transport's controlling player must declare the hexes along this path that each dropping Formation will target for landing.

Before the end of the same Movement Phase, each of these dropping Formations must roll 2D6 against a target number of 5. If the roll is successful, the dropping Formation lands in the target hex. If roll is unsuccessful, the Formation suffers 2 points of damage to each Unit in the Formation for every point by which it missed the roll, and will scatter under the above rules.

Attacks Against Dropping Units: Because they are dropped from a lower altitude and land in the current turn, Formations delivered by low-altitude drops may be attacked as normal ground units, but apply a +3 target to-hit modifier in place of the unit's normal target movement modifier.

Attacks Against Transport Squadrons: An airborne transport Squadron operating over the ground map may be targeted by air-to-air attacks, as well as by ground Formations executing ground-to-air attacks as if against a strafing Squadron (see p. 248.)

ENVIRONMENTAL CONDITIONS

This section describes a variety of environmental conditions that may be introduced to *Strategic BattleForce* games to approximate many unusual or extreme planetary conditions and weather effects on the battlefield. Note that these rules reflect abstractions of such conditions, and are hardly all-inclusive; players seeking greater variety to reflect even more exotic conditions are encouraged to assign any modifiers and restrictions they feel best reflect whatever unusual situation they unleash upon their battlefields.

Atmospheric Density

Unless otherwise noted, all unit types may be employed in the following atmospheric conditions, as long as they have been properly equipped for such conditions. These rules will therefore assume such preparations are made. If any unequipped/unprepared Unit is exposed to vacuum for any reason, they are immediately destroyed.

Vacuum: Non-BattleMech units that lack the SOA or SEAL special abilities, or units that possess the EE special (even if they possess the SEAL special ability), cannot operate in vacuum, nor can any vehicles using the VTOL, WiGE, hover, or airship motive types. Non-spheroid aerospace units operating in vacuum may land and take-off as if they were spheroid units.

Any non-aerospace, non-infantry Unit that suffers damage while operating in vacuum must roll 2D6 to check for a hull breach. On a result of 8 or greater, the unit must make an immediate Critical Hit roll appropriate to its type.

Vacuum may not be combined with any wind conditions or weather, including fire and smoke. Water terrain cannot persist in vacuum, units of the naval and submersible motive types cannot function in a vacuum, and such terrain features must be treated as empty, negative-level indentations in the terrain, such as craters, or ice that has frozen solid with no possibility of breaking.

Trace Atmosphere: Trace atmosphere conditions follow the same rules as vacuum, except that a hull breach will only occur on a 2D6 roll of 10 or greater.

Some weather conditions may exist in trace atmospheres, but they will be generally far weaker than normal. If random wind conditions are being used, apply a –2 modifier to the rolls for determining wind strength category, to a minimum roll result of 1 (representing no wind; see *Wind*, p. 281). Rainfall, and snow may not be present at "heavy" levels, and tornadoes will not occur.

Water terrain may exist in trace atmospheres.

Thin Atmospheres: In thin atmospheres, subtract 2 MP from the Move rating for VTOLs, WiGE and hover movement modes (recalculate the Unit's movement and adjust the Unit's MP).

Most weather conditions may exist in thin atmospheres, but they will be slightly weaker than normal. If random wind conditions are being used, apply a –1 modifier to the rolls for determining wind strength category, to a minimum roll result of 1 (representing no wind; see *Wind*, p. 281). Tornadoes may not occur above the F3 level in a thin atmosphere.

Water terrain may exist in thin atmospheres.

Thick Atmospheres: In high-pressure atmospheres, add 1 MP to the Move rating for VTOL, WiGE and hover movement modes.

All weather conditions may exist in thick atmospheres, and can be slightly stronger than normal. If random wind conditions are being used, apply a +1 modifier to the rolls for determining wind strength category, to a maximum roll result of 6 (representing storm winds; see *Wind*, p. 281).

Water terrain may exist in thick atmospheres.

Very Thick Atmospheres: At the highest level of atmospheric pressure, all units move at normal rates.

All weather conditions in very thick atmospheres may be much stronger than normal. If random wind conditions are being used, apply a +2 modifier to the rolls for determining wind strength category, with any modified roll result of 7+ triggering tornado conditions (see *Wind*, p. 281). Water terrain may exist in very thick atmospheres.

Darkness

Fighting under various level of darkness (from dusk and dawn to pitch blackness) imposes to-hit modifiers as shown in the Environmental Conditions To-Hit Modifiers Table (see p. 282). These modifiers are negated if the attacking unit is a BattleMech or has the Searchlight (SRCH) special ability. These units may turn their lights on or off during the End Phase of any turn, illuminating all terrain and Formations their hex (including the light-bearing Formation itself). All attacks against units in an illuminated hex ignore the darkness modifiers.

Aerospace units never apply modifiers for darkness, and may not be illuminated by searchlights.

Earthquakes

Earthquakes affect all units on the battlefield. If a scenario in which earthquakes might occur does not specify a specific turn for the event, players may randomly determine an earthquake event during the End Phase of each turn by rolling 2D6, and declaring the start of an earthquake on a result of 12. Earthquake effects will then begin before the Movement Phase of the following turn.

If or when an earthquake occurs, the player who rolled for the earthquake rolls 2D6 again to determine the strength of the quake. During all earthquakes, a to-hit modifier for all attacks will be applied equal to this quake strength roll, divided by 2 (rounding down). In addition, if the roll result is an 8 or higher, all ground units will suffer 1 point of damage before the start of the Movement Phase, resolving any critical hits as normal. If the quake strength roll result is 12, in addition to this damage and the attack modifiers, fissures will open up as described below.

Fissures: Roll 2D6 for every ground Formation and Fortification on the battlefield. On a result of 2, a fissure opens beneath the Formation or structure.

For Formations, one randomly chosen Unit in the Formation takes 3 points of damage.

For Fortifications in a fissure area, apply 2D6 damage to a random Structure Unit in the Fortification. If the building is not destroyed after sustaining this damage, roll 2D6, adding the building's weight capacity value to the result. If this modified roll is 9 or higher, the building remains standing. If the modified roll is 8 or less, the building will collapse (see *Urban Hexes*, pp. 285-288).

Urban hexes in which fissures have opened take 2D6 times 10 points in damage to the hexes CF value.

Electromagnetic Interference (EMI)

Electromagnetic interference can be either a localized occurrence or something that affects all units on the battlefield. It represents high concentrations of heavy metals, background radiation, intense solar activity, or other conditions that play havoc even on the advanced sensors of combat Elements. As a result of these conditions, all weapon attacks made in or through an area affected by EMI suffer a +2 to-hit modifier, all probe special abilities (including BH, LPRB, and PRB) are deactivated, and all ECM special abilities (including AECM, ECM, and LECM) double their modifiers.

Conventional infantry making weapon attacks in or through an EMI-affected area ignore the to-hit modifier effects.

Gravity

Operating outside of standard gravity may speed up or slow down any battlefield unit, based on the relative difference from the 1.0 G Terran standard. To determine a Formation's Move rating in non-standard gravity, divide the Formation's normal Move by the planet's G rating and round normally. For example, a Formation with a Move of 12 would have a Move of 17 on a world with a G-rating of 0.7 (12 ÷ 0.7 = 17.14, rounded to 17). On a high-gravity world with a G-rating of 1.2, however, the same unit would be reduced to a Move of 10 (12 ÷ 1.2 = 10).

Gravity affects all types of Move, including VTOL, WiGE and hover. The minimum Move to which a unit may be reduced due to high gravity effects is 1 MP.

Most Formations are not prepared for the stress of movement beyond their design specs. To reflect this, if gravity effects provide any non-infantry Formation with Move beyond its normal values, it may use that Move for up to 2 consecutive Movement Phases without any detrimental effects. If used for a third consecutive turn, the Formation will automatically suffer an Movement Damage critical hit (see p. 241) after completing its movement.

Under these rules, only Formations that use Move experience gravity effects. Aerospace Squadrons, which employ Thrust, ignore these rules.

Temperature

Extremes of hot or cold may prevent certain units from operating on the battlefield. Temperatures break down into three ranges: Cold, Normal and Hot. These rules apply only to ground-level Units; aerospace Squadrons ignore extreme temperature rules.

Normal temperatures have no effect on game play; such temperatures run the range of seasonal conditions that a human body can survive, given proper attire and equipment.

Cold: In extreme cold (below –30 degrees Celsius), conventional infantry units will suffer 1 point of damage for every turn of gameplay.

Hot: In extreme heat (above 50 degrees Celsius), conventional infantry units will suffer 1 point of damage for every turn of gameplay.

Non-infantry units reduce their Move by 1 MP when operating in extreme heat environments.

Wind

Under these rules, wind has five force categories, ranging from 0 (still air to breezy winds) to 4 (storm winds and possible tornadoes).

The effects of each wind force category are detailed below. Wind strength (and direction) may be selected at the start of the scenario, or randomly determined by rolling 1D6 and consulting the Prevailing Winds Table below. Wind strength may be steady throughout a scenario and set during the setup phase of the game. For even more dramatic effects, players may opt for variable winds. With variable winds, the players may take turns randomly determining the wind force categories that will affect each game turn during the End Phase of its preceding turn.

Wind Direction

Wind directions may be randomly determined by rolling 1D6, with a result of 1 being "North", and proceeding around the hex in a clockwise fashion.

If any Units have their Move affected by wind conditions, Formation of which the Unit is a part must refactor its available movement.

Atmospheric Density

These rules may be used in conjunction with the *Atmospheric Density* rules (see p. 280), to simulate weather effects in conditions other than Terran-standard. For convenience, the modifiers for atmospheric density are provided in the Prevailing Winds Table.

Wind Force Categories

The following wind force categories are used under these rules, with the associated gameplay effects. Note that units which are submerged or otherwise sheltered from the wind within fortifications may ignore these effects.

Wind Force 0: Negligible to breezy wind which imposes no gameplay effects.

Wind Force 1: Light gale-force winds slow unarmored infantry forces. Conventional infantry Elements with the "f" movement mode lose 1 MP of Move. If this reduces their Move to 0 or less, the unit may either move 1 hex or deliver an attack, but cannot perform both actions in the same turn.

Wind Force 2: Moderate gale force winds hinder unarmored infantry. Conventional infantry Elements with the "f" or "j" movement mode lose 1 MP of Move. If this reduces their Move to zero, these units may either move 1 hex or deliver an attack, but cannot perform both actions in the same turn.

Wind Force 3: Strong gale force winds impose a +1 to-hit modifier for all attacks made by all units. Airships lose 1 Thrust, and will crash if reduced to 0 Thrust as a result. Battle armor Elements lose 1 MP of Move, and conventional infantry units lose 2 MP of Move. If an infantry or battle armor Elements Move is reduced to 0, it may either move 1 hex or deliver an attack, but cannot perform both actions in the same turn.

Wind Force 4: Wind storms impose a +2 to-hit modifier for all attacks made by all units. Airships and conventional infantry may not operate effectively in storm wind conditions, and battle armor Units will lose 1 MP of Move. If already deployed in these conditions, apply 3 points of damage every turn to a battle armor or infantry Unit until its parent Formation moves into an Urban hex, Fortification or other suitable shelter (at the agreement of both players). Conventional infantry Elements may move 1 MP each turn during wind storm conditions, but may execute no attacks. Battle armor units, if reduced to a Move of 0, may either move 1 hex or attack, but cannot perform both actions in the same turn.

At a wind force category of 4, tornado effects may occur (see below).

Tornado

Tornados are extremely focused weather phenomena that can affect multiple units, but only occur in at Wind Force 4 conditions (see above). During the End Phase of any turn in which the winds are at a force category of 4, roll 2D6. If the result is 12, a tornado forms and touches down on the map in the current End Phase.

Initial Placement: Tornados touch down on a randomly-chosen point of the map in the same End Phase they are placed. If Units, buildings, or terrain are caught within the area of a tornado's effect, they will suffer damage appropriate to their type, as outlined below.

PREVAILING WINDS TABLE

1D6 Roll	Wind Type	Force Category
1-2	None	0
3	Light Gale	1
4	Moderate Gale	2
5	Strong Gale	3
6	Storm	4

ATMOSPHERIC DENSITY ROLL MODIFIERS

Atmospheric Pressure	Modifier
Vacuum	No Wind
Trace Atmosphere	–2*
Thin Atmosphere	–1*
Thick Atmosphere	+1*
Very Thick Atmosphere	+2**

*Minimum modified result = 1; Maximum modified result = 6
**Maximum modified result = 8; On 7+ modified result, treat as Tornado

TORNADO FORCE RATING TABLE

2D6 Roll	Tornado Rating
2-3	F1
4-6	F2
7-10	F3
11	F4
12	F5

Tornado Duration and Force Rating: In *Strategic BattleForce*, tornados last one turn. The tornado's strength rating (F rating) is determined by a 2D6 roll as listed on the Tornado Force Rating Table.

Tornado Movement: When a tornado forms, roll 1D6. On a result of a 6, the tornado will travel into a randomly chosen adjacent hex.

Tornado Damage: Tornadoes immediately damage all battlefield Formations, buildings, and terrain that they come into contact with, either from the Formations, buildings and terrain being within the tornado's touch down hex, or be being struck by a tornado moving into a new hex. Against battlefield units, the damage from a tornado is equal to its F rating x 3 and is applied to each Unit in a Formation or Fortification.

Against terrain and buildings, a tornado will deliver 9 times its F rating in damage to the target's Terrain Factor or Construction Factor (as appropriate). Damage done by a tornado takes place during the End Phase. Use the *Terrain Conversion* rules (see p. 290) to find the effects of damage on terrain, and the Urban hex rules (see pp. 285-288) to find the effects of damage on buildings. If the underlying terrain is paved or water, it will remain unchanged by tornado damage. Damage from tornadoes takes effect immediately during the End Phase in which the tornado makes contact with the Formations, buildings, and/or terrain in question. Roll for all critical hits as normal.

ENVIRONMENTAL TO-HIT MODIFIERS TABLE

Environmental Condition	Modifier
Blowing Sand	+2
Earthquake	+1 to +6
Electromagnetic Interference	+2*
Geyser	+2**
Heavy Fog	+1
Darkness	
Dusk or Dawn	+1
Moonless Night	+3
Night	+2
Pitch Black	+4
Rainfall	
Light to Heavy	+1
Torrential Downpour	+2
Smoke	
Light	+1**
Heavy	+2**
Snowfall and Hail	
Light to Heavy	+1
Sleet	+1
Blizzard	+2
Winds	
Wind Force 0 to 2	+0
Wind Force 3	+1
Wind Force 4	+2
Tornado, F1 to F3	+2**
Tornado, F4	+3**
Tornado, F5	+4**

*EMI only affects weapon attacks through an EMI-affected area of any size; does not affect infantry attacks.
**Applies only to attacks that pass through this environmental feature, regardless of attacker type.

EXCEPTIONALLY LARGE ELEMENTS

The following rules roughly describe the additional abilities of exceptionally large Elements, which includes not only DropShips by default, but any Unit that possesses the Large, Very Large, or Super Large special abilities (LG, VLG, SLG).

Exceptionally Large Elements in Units and Formations

Any Element with the LG, VLG or SLG ability, with the exception of Superheavy 'Mechs and Vehicles, is considered a Unit or Flight and may not be placed in a Unit with other Elements. SLG Elements are limited to only one Element per Formation.

Exceptionally Large Element Firing Arcs and Attacks

Large, Very Large and Super Large Elements may possess more than one firing arc. As *Strategic BattleForce* does not use facing, these arcs are not used to determine what targets can be attacked. Instead firing-arcs determine the number of attacks that can be made on a hostile Formation.

LARGE ELEMENT ATTACK LIMITS TABLE

Type	Max Attacks/Turn
Airship	2
DropShips	4
Superheavy Elements	1
LG and VLG Naval Elements	4
SLG Naval Elements	6
Mobile Structures	1*

* Mobile Structures are considered a Formation with Units equal to the number of TW hexes it fills. See Mobile Structures, p. 283 for more details.

The maximum number of total weapon attacks per turn that can be made by any Exceptionally Large Element is based on the Element's type, as shown in the Large Element Attack Limits Table. This reflects limitations of crew, heat sink capacity, targeting load, and other combat conditions unique to combat.

Turret Attacks: If an Element possess the Turret (TUR) special ability then it may add the turret attack value to one of its attacks.

Mobile Structures

Mobile structures, as the name implies, are truly massive Elements that are effectively moving buildings. Extremely rare in combat, these Elements are treated as an independent Formation made up of multiple, conjoined Units (referred to as "sections")—each with its own armor, and firepower—that move as one. A Mobile Structure Formation has a number of sections equal to the number of *Total Warfare* hexes the structure is made up of, with each section possessing an armor rating and its own attack values. Each section must be designated as "edge" or "center". Center sections may not be directly attacked, except by aerial attacks (see *Air-to-Ground Attacks*, p. 248) or artillery (see p. 273).

Mobile Structure Movement: Mobile structures may be designed to travel on land, air, or water, but their sheer size enables them to shrug off terrain conditions that would slow most other units. The Mobile Structure Movement Costs Table defines the base Move costs for ground and naval-based mobile structures. Airborne mobile structures follow the movement rules for airships.

Mobile Structure Attacks Firing Arcs: While Mobile Structure weapons are divided into sections, not all sections may attack at once. Each section needs to be designated as having a fore, aft, right, left or top arc. Mobile Structures then use the same firing arc rules as aerodyne DropShips. Any section in an arc that is firing may make an individual attack. For example, a structure with four sections in the side arc and two in the aft arc would be able to make six attacks on a target in the same hex. Center sections are considered top arc and may only make ground-to-air attacks against aerospace units (see p. 248).

Attacking Mobile Structures: Mobile structures are attacked in the same manner as Fortifications (see *Advanced Buildings and Urban Terrain*, p. 288-290), and apply the –4 Immobile Target modifier in addition to their movement rate modifier (to reflect their gigantic size). Attacks are resolved against individual mobile structure Units, rather than against the Formation as a whole, with damage marked off against the armor for an individual section. The section attacked and damaged is decided by the attacker; no Tactics Roll is required.

MOBILE STRUCTURE MOVEMENT TABLE

Terrain	MP Cost
Clear, Paved, Bridge, Road	1
Rough, Gravel, Sand, Tundra	+0
Light or Heavy Woods/Jungles	+0
Ultra-Heavy Woods/Jungles	+1
Water	
Depth 0	+0
Depth 1-2	+1*
Depth 3-15	+2*
Depth 16+	+0**
Level Change	
Level 1	+0
Level 2	+2
Level 3+	+4†
Building/Walls	
Light, Medium, Heavy	+0
Hardened	+1
Heavy Industrial	+1

*Level change cost not included. To enter water of depth 3 or deeper, a mobile structure must have the SEAL special ability. Water mobile structures run aground and become immobile in water less than in depth 6.

**Only water-based mobile structures can enter this terrain.

†Only submersible water-based mobile structures in water can make level changes this extensive; ground-based mobile structures cannot climb over terrain features 3 levels or higher per hex traveled.

MOBILE STRUCTURE CRITICAL HIT TABLE

2D6 Roll	Mobile Structure
2	No Critical Hit
3	No Critical Hit
4	No Critical Hit
5	No Critical Hit
6	Weapon Hit
7	Gunners Stunned
8	Weapon Hit
9	Gunners Killed
10	Turret Locked
11	Targeting Hit*
12	Weapon Hit

*all attacks are at a +1 to-hit. Affects are cumulative with a third result disabling all weapons in this section.

Mobile Structure Critical Hits: Critical hits to mobile structures are likewise resolved by section, rather than against the whole, and use the Mobile Structure Critical Hits Table. Critical hits that stun or kill a mobile structure's gunners affect only the weapons in the relevant section (stunned gunners are unable to fire for one full turn after the critical hit; killed gunners render all weapons in that section inoperative). A critical hit to a mobile structure's weapons will reduce that section's overall weapon damage values at all ranges by 1 (including those assigned to special abilities, such as IR or FIK).

Destroying a Mobile Structure: Destroying a mobile structure requires the destruction of over half of the unit's sections. For a ground Formation to attack a center section, the edge sections protecting it must first be destroyed This generally means that central sections typically cannot be targeted at all, except by air units.

A destroyed mobile structure converts the hex it last occupied to Ultra Rubble. If an airborne mobile structure is destroyed over a ground map, it will crash on the hex it currently occupies, destroying all Formations, buildings, and woods or jungle terrain types within that hex.

HIDDEN FORMATIONS

Prior to the start of play, the defender and/or attacker, depending on the scenario may hide Formations on the map. Each player must write down the hex in which a Formation is hidden.

Unless the player plans to move a hidden Formation during the Movement Phase, hidden Formations are not counted for purposes of determining whether unequal numbers of Formations exist. If the player plans to move a hidden Formation during a turn, they must reveal it at the start of their Movement Phase. If a player plans to attack using a hidden Formation, he must reveal it at the beginning of the Combat Phase.

Hiding on the Ground

Most Formations may be hidden on the *Strategic BattleForce* map, including grounded airborne units. Large, very large, or super large (LG, VLG, SLG) support vehicles, and grounded DropShips may be hidden in Urban hexes, underwater (if applicable) and in any hex in which the surrounding terrain is higher than the height of the Unit being hidden (two levels for standard ground Units and six levels for DropShips. Mobile structures and airborne Squadrons may not be hidden. Additionally, no unit may hide in a clear or paved (road/bridge) hex, or on the surface of water. All other terrain and unit types are valid.

Detecting Hidden Ground Units: Hidden Formations remain hidden until they attack or move, and will not be detected until an enemy Formation moves into the same hex as the hidden Formation. If the detecting Formation has the PRB ability, the hidden formation is automatically detected. Otherwise, roll 2D6 with a target number equal to the detecting Formation's Skill +3. If a Formation has the RCN ability but does not have PRB, it gains a +1 modifier to this roll. On a successful roll, the hidden Formation is detected.

Ambush Attacks From Hidden Formations

If an enemy Formation moves into the same hex as a hidden Formation, the hidden Formation may immediately make an ambush attack. The base to-hit number is equal to the Skill value of the attacker, modified by any critical hits to the attacker plus any terrain modifiers for the hex. The attack range is the attacker's choice of Short or Medium. Damage is applied immediately. The attacker may move and attack following this ambush attack, but with a –2 MP modifier and a +2 to-hit modifier.

EXPANDED GROUND RANGES

Horizon Range: Allows attacks up to the current visual range or 20 hexes, whichever is less. The to-hit modifier for this range is +5. Damage is equal to Long Range damage divided by 2 (rounding down).

MINEFIELDS

A single minefield occupies a single *SBF* hex. Minefields possess two ratings, size (MFS) and density (MFD). Minefield size represents how much of the hex area is covered in mines. The density is how many mines are in the hex. Size determines how likely a Formation is to hit a minefield, while Density determines how much damage is done to a Formation when it hits a minefield.

Size: A minefield's size rating is determined based on the number of *Total Warfare*-equivalent hexes within a given *Strategic BattleForce* hex are occupied by mines. A single MFS of mines is equal to 17 hexes. Minefield size ratings are 1, 2, 4, 6, 8, 10 and 12. The larger the minefield, the more likely an enemy Formation will be damaged by it.

Density: Minefields have a density rating of 1 to 5.

Minefields at Setup:

If the scenario or campaign rules prescribe the placement of minefields, before start of play the controlling player places the maps and notes the hexes, MFS, and MFD for any minefields placed. Note that *Strategic BattleForce* hexes are 500 meters across; as such, minefields that cover more than a handful of hexes are uncommon and time consuming to deploy.

Deploying Minefields During Game Play:

Deploying minefields during combat requires sufficient minelayers (MDSC#), Mines (MDS#) and time to deploy (game turns).

The time needed to deploy a minefield is equal to (MFS + MFD x17) ÷ (6 x MDSC), rounding normally. For example, a Formation with MDSC4 and MDS20 wants to lay an MFS 2 minefield with an MFD of 2. This would require 3 *SBF* Turns ((MFS2 + MFD2 x 17) = 68.68 ÷ (6 x MFD 4)= 2.83. Rounded normally, this is 3.)

Triggering a minefield:

When a hostile Formation enters a hex with a non-command detonated minefield, two automatic attack rolls are made. The first roll is the primary attack, and the second roll is the secondary attack. Roll 2D6 for each attack and consult the Minefield Attack Table. If the results equal or exceed the target number for the minefield size (MFS), damage is applied (see *Minefield Damage*, p. 286).

Minefield Types

Active Minefields: If any Unit in the Formation uses its JUMP ability while in a hex with an active minefield, roll a minefield attack with a -3 modifier to the attack roll. Reduce this modifier by 1 for every 3 JUMP used in the turn. For example, if a Formation uses a total of 6 JUMP among its Units, the modifier would be -1.

Conventional Mines: If the Formation has the Hover or WiGE movement type, apply a -2 to the minefield attack roll. If a Unit in the Formation has the Hover or WiGE movement type, or the Formation has two or more Units that are Infantry, apply a -1 to the minefield attack roll. Damage is equal to 1 point for each density (MFD) level. Following a successful attack, the MFD is reduced by 1.

MINEFIELD ATTACK TABLE

MFS	Target Number
1	11+
2	10+
4	9+
6	8+
8	7+
10	6+
12	7+

EMP Mines: Once triggered, an EMP field is exhausted, regardless of its density. A detonated EMP minefield creates an ECM field that fills the hex until the end of the turn. Any Formation (friendly or hostile) caught in an EMP blast

suffers a +2 to-hit modifier for the remainder of the turn, and any Units that have the Vehicle (V), Infantry (CI) or Battle Armor (BA) type receive 1 point of damage.

Inferno Mines: A successful Inferno mine attack will reduce the target Formation's MP by 1 for two game turns. For the remainder of the game, apply a +1 MP modifier to any Formation moving through the hex. Additionally, any Unit caught in the attack or which moves through the hex in subsequent terms, and has the Vehicle (V), Infantry (CI) or Battle Armor (BA) Type, takes 1 damage. An inferno minefield is reduced to an MFD of 0 on a successful attack.

Command Detonated Mines: Any of the above minefield types may be designated as command-detonated minefields. If a command-detonated minefield type is not designated at the start of play, it is resolved as a conventional minefield.

A command-detonated minefield is not set off by the passage of enemy Formations, but instead must be triggered by an active unit that is "friendly" to the minefield's controlling Force and which ends its Movement Phase with direct LOS to the minefield. Hostile ECM in the hex will not block a signal to detonate a command-detonated minefield. Each detonation of a command-detonated minefield reduces the field's density by 1 point.

When a command-detonated minefield is triggered, all units in the hexes area of effect will suffer damage or other effects equal to that of a minefield type of equal density; for example, command-detonated inferno mines will reduce the target Formation's MP by 1 for two game turns upon detonation, while command-detonated conventional mines will deliver damage equal to their current density values.

Minefield Damage

When a minefield successfully makes an attack, or a friendly Formation activates command-detonated mines, damage is applied as follows. If a successful primary attack is made, randomly determine one Unit in the target Formation. This Unit takes the full damage value of the equal to the MFD rating. If a successful secondary attack is made, randomly select a new Unit from the remaining Formations and roll 1D6. On a result of 1-3, the target Unit takes one-quarter damage (rounding down) from the minefield. On a result of 4-6, the target Unit takes one-half damage (rounding down) from the minefield.

URBAN HEXES (BUILDINGS)

In *Strategic BattleForce*, a single urban terrain represents a series of buildings filling the hex. These hexes are referred to as urban hexes.

Urban Hex Types

Urban hexes are divided into five broad categories based on *Alpha Strike* and *Total Warfare* building types (see p. 83, *AS* and p. 166, *TW*) which define both their general structural strength and overall size in game play. These categories are Light, Medium, Heavy, Hardened and Fortification. Each of these urban hex types is further described by its construction factor (CF), a value that approximates how much damage the hex can sustain before it is reduced to rubble.

Light Urban: Light Urban runs the gamut from a field of barracks tents, a suburb of family homes, a farm complex and strip malls. The maximum CF for a single Light Urban hex is 150.

Medium Urban: Medium Urban hexes are made up of sturdier, moderate-sized structures, such as a warehouse complex, an office park, a block of apartment buildings, and the like. These buildings comprise the bulk of most residential settlements and commercial complexes in the *BattleTech* setting. The CF for a Medium Urban hex is 360.

Heavy Urban: Heavy Urban hexes are made up of buildings that are large, reinforced structures, including factory complexes, a hospital facility, government centers, and permanent command centers. Heavy Urban hexes have a CF of 750.

Hardened Buildings: Hardened Urban hexes are made up of armored or otherwise battle-reinforced structures, built specifically to withstand siege warfare and perhaps any explosives shy of a nuclear blast. Hardened Urban hexes typically represent permanent military bases, BattleMech factory complexes or heavily protected compounds for governmental leaders or the very rich. Hardened Urban hexes have a CF of 1200.

Fortifications: Fortifications are a specific sub-type of the above building classes. They are made up of one to four structures and are specifically designed as an armored and armed fort for military forces. They are considered an advanced game play element and are covered in the Advanced Building Rules (see p. 288).

Urban Hex Construction Factor: An urban hex's CF is first determined by the type of urban hex. The hex's classification (Light, Medium, so on) determines the average building type in the Urban hex. The CF is then calculated based on the Default CF buildings in *Alpha Strike* (see p. 84, *AS*), multiplied by 30. These are 5 for Light, 12 for Medium, 25 for Heavy and 40 for Hardened. So a Light Urban hex would have a CF of 150 (CF 5 x 30=150). If players agree before start of game play, a different base CF can be selected to better represent the Urban hex type. For example, a hex of barracks tents might choose a base CF of 1 for a hex CF of 30.

STRATEGIC BATTLEFORCE URBAN TABLE

Urban Hex Type	MP Cost per Hex*	CF	Weight Capacity (each Building)	Damage Absorption**		Collapse Damage per 2 levels
				Infantry	Non-Infantry	
Light	+1 / +0	150 /5	1	2	1	1
Medium	+2 / +1	360 /12	2	4	2	2
Heavy	+3 / +2	750 /25	3	6	3	3
Hardened	+4 / +2	1200 /40	4	8	4	4
Wall	As building Class					
Fortification	+1	†	†	†	†	†

* No additional move cost for Formations composed exclusively of infantry Units. Formations made exclusively of ProtoMechs pay +1 MP to move through any class of Urban hex. Formations made up exclusively of wheeled Elements may reduce all movement costs by 1 MP, reflecting the paved surfaces in the hex; for example, the movement penalty for moving through a Medium Urban hex would be +1, not +2.

** See Attacking Formations in an Urban Hex (see p. 286)

† See Fortifications in Advanced Buildings and Urban Terrain Rules (see p. 289)

These values are reflected in the CF column of the *Strategic BattleForce* Urban Table with the number before the slash indicating the CF of an entire hex and the number after the slash indicating the CF of a single structure in the hex.

Urban Hex Building Height: The height listed on the building counter shows the average height of the buildings in urban hex. These levels use the *Total Warfare* level height of 6 meters, instead of the *SBF* level height of 30 meters. Thus, a 4 level building measures 24 meters not 120 meters. Average building height is used to determine the damage inflicted when an urban hex is destroyed.

Movement Effects

On the *Strategic BattleForce* Urban Table, the first value in the MP Cost per hex column defines the additional Move cost for most Formations to maneuver through the roads, alleys and open spaces around buildings in an urban hex.

A Formation may move through buildings an urban hex, usually for the purposes of taking cover. The second value in the MP Cost per hex column represents the MP cost for a Formation to enter buildings in an urban hex. This may be done when first moving into the hex (adding the first and second columns together to get the total MP modifier) or a Formation already in an urban hex may enter a building by paying the cost after the slash.

When a non-infantry Formation enters or exits buildings in an urban hex, it does damage to the hex equal to the number of non-infantry Elements in the Formation. For example, a standard Inner Sphere company would do 12 points of damage to an urban hex.

Infantry Formations: Infantry Formations, including conventional and battle armored units, do not apply additional Move costs when moving through an urban hex. Infantry units also inflict no damage to urban hexes by moving through them.

ProtoMechs: ProtoMech Formations may move through urban hexes at an additional Move cost of +1 regardless of the building's type.

Climbing and Standing on Buildings

A 'Mech, ProtoMech, or infantry unit can move to the roof of buildings in an urban hex rather than staying on the ground in order to gain a better vantage point over the battlefield. In *SBF* play, this is done primarily to reduce to-hit modifiers or increase visual line of sight.

Infantry and ProtoMechs: Infantry and ProtoMechs may move between levels only while inside a building. Each level of building height changed in this fashion costs the unit 1 MP of Move.

'Mechs Outside of Buildings: Along the outside of buildings, 'Mechs can climb up and down the structures' face in the same manner as they can ascend or descend levels at a cost of 2 MP per level. Formations with JUMP-capable Units 'Mechs may alternatively jump onto a building's rooftop, as long as their JUMP value is equal to or greater than the Urban hex base height divided by 2. For example, in an Urban hex with a base height of 6, a Unit would need a JUMP value of 3.

'Mechs Inside Buildings: 'Mech units may not change levels once they are inside a building.

Building Weight Capacity: Each building in an Urban hex has a weight capacity limit listed in the *Strategic BattleForce* Urban Table. This value is an abstraction of the tonnage limits of individual buildings in the hex, and is the maximum size class that can be supported on a building. If the size class of a Unit or Formation is greater than the maximum size class of buildings in the hex, then the buildings in the hex will collapse if these Units or Formations attempt to climb or land on them (see *Building Collapse*, p. 287). All non-battle armor infantry units are treated as if they have a size class of 0.

For example, a Medium Urban hex has an individual building weight capacity of 2. Units or Formations that are Size 1 or 2 can stand on top of the buildings in the hex. If a JUMP Unit of Size class 3 attempted to land on a building in the hex, the building would collapse and damage the Unit in the process.

Aerospace Units, Large Units, and Buildings: If an aerospace unit, or a unit with the Large, Very Large, or Super Large special abilities, attempts to enter or land in an Urban hex, the structure will automatically collapse (see Building Collapse, p. 85). The exception is if the Urban hex is specifically identified as an aerospace landing field. If so, the buildings are considered hangers and the hex is considered to have a valid landing strip. Ending movement at zero altitude in an Urban hex without a landing field is considered a crash.

Top of Building Line of Sight: A Unit or Formation standing on top of a Building will increase its visual line of sight based on the height of the building. For every 4 levels of building height, Visual Range (see p. 265) is increased by 1 hex to a maximum of 2 hexes. Additionally, infantry units use the visual ranges for BattleMechs and Vehicles.

Attacks in Urban Hexes

Urban hexes may be attacked in the same manner as any other Formation. Attacks against urban hexes are resolved as against an immobile target. Damage to an urban hex is applied to the hex's CF value. An urban hex's type will remain unchanged, regardless of its current CF. Thus, a Heavy urban hex with only 100 points of CF remaining will still be treated as heavy Urban for movement, weight capacity, and damage absorption purposes.

Attacking Formations in an Urban Hex

Formations in an urban hex may only be attacked by another Formation in the same hex or by artillery or aerospace attacks.

All attacks in an urban hex suffer an additional to-hit modifier that reflects the additional LOS challenges in an urban environment. Light and Medium hexes have a +1 modifier while Heavy and Hardened hexes have a +2 modifier.

Damage is likewise reduced when in an urban hex. Whether the attack comes from another Formation in the same hex or from an artillery or aerospace attack, damage is reduced by the value listed in the Damage Absorption columns of the *Strategic BattleForce* Urban Table. For example, a Unit in a Light urban hex would take full damage while an Infantry Unit in a Hardened hex would reduce damage by 4.

Attacking Units Inside Buildings

Formations inside buildings can still be attacked by Formations in the same urban hex or by Artillery and Aerospace attacks on the hex. Individual buildings provide substantial cover that affords a level of protection to those Formations being attacked. This is represented by the building's Damage Absorption values, which indicate how many points of damage from each attack against a Formation inside the building is instead delivered to the building itself.

Infantry Units: Infantry units inside buildings may not be attacked directly. Instead, the attacker must fire on the building itself, relying on the collateral damage to injure the infantry within. This attack uses the to-hit modifiers for attacking an immobile object (the building), rather than the infantry inside. The damage delivered to the infantry unit will be equal to the Damage Value of the successful attack, minus the Damage Absorption value for the building type shown in the Infantry column of the Strategic BattleTech Urban Table (to a minimum of 0 points of damage delivered to the infantry unit).

For example, if a Unit capable of delivering 5 points of damage attempts to attack an infantry unit inside a medium building, the Medium urban hex suffers 4 points of that damage to its CF (starting CF of 360), while the infantry unit takes the remaining 1 point.

Non-Infantry Units: Non-infantry units inside buildings may be attacked directly by Formations in the same hex, and the building will absorb damage as shown on the non-infantry Damage Absorption

column. In this case, no additional to-hit modifiers for cover from the building apply while making the attack. However, the building's Damage Absorption effect must be subtracted from the damage delivered, to a minimum of 0 points of damage delivered to the target. Once again, the damage absorbed by the building counts against the Urban hex's current CF.

Aerospace and artillery attacks (including orbital fire) do not target the Formation, but instead target the building (an exception to *SBF* combat rules). If the building is successfully hit, damage is applied to the building only, with the building absorbing double its normal amount of damage.

For example, an aerospace fighter dive-bombs a Medium building with an infantry Unit and a 'Mech Unit inside. The attack does 8 damage, of which 4 points would be normally be absorbed for the infantry Unit and 2 points for the 'Mech unit. However damage absorption is doubled, so the infantry takes 0 damage (Medium Building Infantry absorption is 4, which doubled is 8) and the 'Mech Unit only takes 4 damage (Medium Building Non-Infantry absorption is 2, which doubled is 4).

Attacks From or Against Units on Top of a Building: A Unit on top of a building has a greater vantage point from which to see the city and surrounding terrain. They receive a –1 to-hit for all attacks while on top of a building and may attack Formations in the adjacent hex even if LOS would normally be blocked (for example, if the adjacent hex were heavy woods). Unfortunately, they are also visible from the surrounding streets; any opponents targeting the Formation from the same hex receive a –1 to-hit modifier, and the Formation atop the building may be attacked by Formations in adjacent hexes without any additional modifiers. This is an exception to the rule that only Formations in the same hex can make attacks in an Urban hex.

Building Collapse

All damage delivered to an urban hex is applied to the hex's CF, reducing its integrity. Because a hex is made up of dozens of buildings, the effects of damage are applied differently from standard *Alpha Strike* or *Total Warfare* play.

Urban hexes track damage received over time. However, the damage does not change the Default building CF, nor does it change the hex's weight limits or Damage Absorption.

Overweight Collapse: If a Formation or Unit is on top of a building, the building will collapse if the Size class of the Formation or Unit is greater than the urban hex's Size weight capacity. Additionally, a hostile Formation can choose to target the building instead of a specific Unit in a Formation in an attempt to force a collapse. This action replaces a Formation's normal combat action and must be declared at the start of the Combat Phase. If the hostile Formation can do damage equal to or greater than one-half the urban hex's Default Building CF, and the Size class of the Formation is equal to or greater than the Weight Capacity of the hex minus 1, the building collapses.

Joshua's AFFS Cavalry company (Formation) has entered a Heavy urban hex. Wanting a superior vantage point from which to fire, he declares that his Size 3 Fire Lance will jump on top of a Building. Unbeknownst to Joshua, his opponent Max had hidden a Formation in the hex at the start of game play. Wanting to go for maximum effect, he declares his Taurian tank company will fire on the building the Fire Lance is atop. He succeeds in doing 13 points of damage, just over half the Default CF for a Heavy Building (CF of 25). A Heavy building has a weight capacity of 3, but this is reduced to 2 for the purposes of calculating collapse. Joshua's Fire Lance is Size 3, so the building collapses. In addition to the damage done to the Fire Lance from falling, the hex takes 25 points of damage (equal to the Default CF for a Heavy building).

Forced Collapse: When an enemy is hiding inside the buildings, sometimes the only way to get to them is to bring the building down around them. An attacker must do damage equal to the Default building CF times 0.8 (rounding up). Such an attack will damage one Unit in a Formation (chosen randomly). For example, if an infantry Formation took cover in a Medium urban hex, an attacker would have to do 10 damage in a single turn. If successful, the building collapses, destroying a randomly chosen infantry Unit in the Formation.

Partial Hex Collapse: Urban hexes that have their CF reduced to 40% or less (rounding down) of their base CF suffer a partial collapse. Any Formations that are in or on a building suffer damage equal to one-half (rounding up) the normal damage from a collapse (see *Damage from a Collapse*, below). Any Formation in a hex that suffers a Partial Collapse will take damage from falling debris or other hazards. This damage is equal to the Weight Capacity of a building in the hex and is applied to every Unit in the hex at the time of collapse. For example, a Partial Collapse of a Hardened hex would do 4 points of damage to every Unit in the hex.

Buildings in a hex suffering from Partial Collapse are unstable and no longer safe to stand on. Reduce the Weight Capacity of the hex by 2, to a minimum of 0.

A hex that has suffered Partial Collapse is more difficult to move through, adding an additional +1 MP to any movement in that hex.

Complete Hex Collapse: Urban hexes that have their CF reduced to 10% or less (rounding down) of their base CF will collapse. Damage to Formations in a hex suffering a Complete Collapse is the same as in a hex with a Partial Collapse

A Light, Medium or Heavy urban hex that has suffered a Complete Collapse is considered rubble for future movement. A Hardened Urban hex that collapses is considered ultra rubble.

Damage from a Collapse: Any infantry units within a collapsing building—including battle armor—are automatically destroyed in a collapse. Infantry on top of a collapsing building are automatically killed unless they have the JUMP ability. Infantry Units with the JUMP ability may jump to safety but suffer a –1 to-hit modifier and –1 MP in the following turn.

Non-infantry units inside or on top of a collapsing building will suffer damage based on the height of the building and the building's type. This collapse damage is shown in the *Strategic BattleForce* Urban Table, with the collapse damage value multiplied by every 2 levels of building height (rounding down, to a minimum of 1). Formations that are standing on the building's rooftop when it collapses suffer an additional 1 point of damage. Collapse damage is not reduced by the building's damage absorption factor. A non-infantry Unit with the JUMP ability may jump to safety if they are on top of the building when it collapses. They will suffer a –1 to-hit modifier and –1 MP in the following turn.

If the collapse is caused by damage from a Formation's movement while exiting the building, the exiting unit is treated as if it was outside the building when it collapses (unless part of a Partial or Complete Collapse), and thus suffers no collapse damage.

In the example above, Joshua's Fire Lance was on top of a Heavy building when it collapsed as a result of a Forced Collapse attack by Max.

As a Level 4 Heavy building, its collapse will do 12 points of damage (6 points base for Heavy buildings, multiplied by a Level 4 building, divided by 2. 6 x (4 ÷2)=12). With only 14 points of armor, his Fire Lance is now down to 2 points of armor and is under Forced Withdrawal rules due to the amount of damage it has suffered.)

Walls

Walls of more than 2 levels block movement through a hex by all non-infantry, except where a gate exists and is open for passage. Walls of 1 level height block movement of any Formations that have wheeled, hover, or tracked ground movement. Walls may not be climbed by non-infantry, but may be jumped onto or over by a JUMP equipped Unit with sufficient JUMP MP. Walls of Level 3 or higher block all line of sight, while Walls of Level 2 block LOS for all ground vehicles (except Formations with VTOL or WiGE) and for 'Mechs, unless the 'Mech is in the same hex as the wall. Walls of Level 1 height block LOS for ground vehicles unless they are in the same hex as the Wall.

Walls have the same types and CF ratings as buildings of the same Size class. Walls may be attacked and take damage in the same way as buildings. However, because they cannot be occupied in the same fashion as buildings, walls cannot provide the protection of a building's damage absorption factor.

VTOL SPECIAL ATTACKS

In *Strategic BattleForce*, VTOLs are treated as Ground Elements. However, because they are flying Elements, the following rules enable VTOLs to execute strafing and bombing attacks normally reserved for fighters.

VTOL Strafing

A VTOL's strafing attack follows the same rules as air-to-ground strafing attacks by a fighter (see p. 248), with the following exceptions and modifications.

Movement Phase: The VTOL unit must declare that it is strafing at the end of its Movement Phase, and identify its strafing area accordingly.

Combat Phase: A VTOL's strafing run replaces its normal attack. The attack is resolved during the Combat Phase as normal, with all rolls made by the VTOL based on the range resulting from the Maneuver Roll (see p. 239). The damage delivered by a successful VTOL strafing attack is that of its appropriate range bracket based on Engagement Control.

- **Altitude Bombing:** This attack works in the same way as the *SAS* version, save that one attack is made per *SBF* hex, targeting an enemy Formation in that hex (While a target Formation is chosen, the Formation's TMM modifier is not factored into the to-hit roll.) This allows bombing runs to span several kilometers of distance if the Squadron's BOMB load is sufficient. One attack to-hit roll is made per hex, no matter how many bombs are dropped.
- **Dive Bombing**: This attack is effectively unchanged, save the player must designate a target Formation (see Altitude Bombing). Additionally bombs are dropped in groups of 5, with a to-hit roll made for every 5 bombs dropped instead of every individual bomb.

VTOL Bombing

VTOLs which carry bombs may execute bombing runs in accordance with the same rules defined for aerospace units (see p. 248), with the following exceptions and modifications:

Speed Reduction: Like aerospace fighters, VTOLs carrying external bombs will lose mobility as a result of the added weight and drag. This speed reduction is equal to 1 MP of VTOL movement per bomb carried. A VTOL cannot operate if this reduction would reduce the VTOL's Move to 0 or less.

Bombing Attack Type: A VTOL bombing attack follows the rules for dive bombing only; VTOLs cannot execute an altitude bombing attack, and thus may designate only one Formation per turn. **Note:** VTOLs may not use alternate ammunition types.

Movement Phase: As with strafing, the VTOL unit must declare that it is bombing during its Movement Phase, and identify its bombing target accordingly.

Combat Phase: A VTOL's bombing attack is resolved in the same fashion as an aerospace fighter's dive bombing attack (see p. 248), and replaces any other standard or strafing attacks the VTOL might otherwise attempt. VTOLs may deliver the same High-Explosive, Cluster, and Inferno bombs found in the standard rules, or any of the alternate bomb munitions available to fighters (see *Alternate Munitions*, p. 275).

Other Air-to-Ground Attacks VTOLs may not perform any other form of air-to-ground attack types.

Return Fire against Strafing and Bombing VTOLs Ground units that return fire on a strafing or bombing VTOL must use different rules to resolve their fire, depending on whether they were within the intended attack area when they return fire.

Inside the Attack Area: For units in the hex targeted by the VTOL's strafing or bombing area, the standard rules for ground-to-air combat are used (see p. 248), with the attack range based on the range determined during Engagement Control in the Movement Phase. While this means that weapon range modifiers will apply to the ground-to-air attack, these units will also ignore the VTOL's usual target movement modifiers as an airborne vehicle, replacing it instead with the +2 modifier for a ground-to-air attack against an aerospace unit. Thus, a unit returning fire on VTOL that strafed or bombed it at Long Range would have a to-hit modifier of +4 (+2 for Long Range and an additional +2 for attacking an airborne target).

Outside the Attack Area: Units returning fire on a strafing or bombing VTOL from an adjacent hex use the normal rules for attacking an airborne vehicle and applying the VTOL's target movement modifier.

ADDITIONAL ADVANCED OPTIONS

ADVANCED BUILDINGS AND URBAN TERRAIN

In normal Strategic BattleForce, buildings are little more than an easy-to-damage terrain type that blocks line of sight, and that can serve as command posts, armed fortresses, and enemy encampments. The following advanced buildings can be used when players are looking for something a bit harder and more dangerous to attack, or to serve as a challenging objective to capture. These optional buildings are designed to work in concert with the rules for urban hexes (see pp. 285-288).

Armed Buildings

Armed buildings are any structure featuring weapons designed to oppose enemy Units. They may be manned or automated, at the controlling player's option. If the building-mounted weapons are automated, apply an additional +1 to the weapon's Skill Rating value (for example, an armed building with Regular-rated automated weapons will have a Skill Rating of 5, rather than 4). Automated weaponry can never be given a Skill Rating better than Elite.

Armed Building Types: Armed buildings may be placed in existing urban hexes (Gun Emplacement) or as stand-alone structures in any non-water hex on game board. The stand-alone structures (or group of structures) are referred to as Fortifications.

Urban Armed Buildings: Referred to as Gun Emplacements, armed structures in an urban hex may only attack or be attacked at Short and Medium range. They follow the guidelines for *Arming a Building* (see p. 289). Gun Emplacements are only discovered when they attack a Formation, or when an opposing player conducts a successful Recon Scan (see p. 266) on the urban hex. Armed buildings in an urban environment are rare. Urban hexes are limited to two armed buildings for Light and Medium hexes and four for Heavy and Hardened hexes. Gun Emplacements have the same building class as the hex of which they are part; for example, a Gun Emplacement in a Light Urban hex would be a Light Building.

Fortifications: Fortifications are treated like a Formation for the purposes of Detection and Reconnaissance (see p. 265) and are not placed on the map until identified through Visual ID or Recon Scan. Once placed on the map, they remain on the map even if hostile forces move out of sensor range (buildings that get up and walk away are called mobile structures).

As with Formations, a Fortification Formation is made up of one to four Structure Units. These Structure Units can be of any Size class and do not need to be all the same class. The total CF of the Fortification is based on the total of the CF of each structure Unit, using the *Strategic BattleForce* Urban Table (see p. 285) to determine the Default CF for the structure's Size class. For example, a Fortification made up of two Light structures has a CF of 10. Size class is determined by averaging the Size class of each Structure Unit in the Fortification (rounding normally).

Fortifications use the *Arming a Building* (see p. 289) rules, save that Fortifications divide by 3, not 5. Each structure is considered a Unit, with all structures in the hex counting as a Fortification Formation. Per *Force Structure* rules (see p. 233), a Fortification Formation is limited to four Units or structures.

Fortifications may also protect Formations that take shelter in them. Formations may hold one Size-class worth of Formations for every 10 CF (rounding up) they possess. For example, a Medium Fortification with a CF of 36 (3 Structure Units of 12 CF each) may hold two Size 1 infantry Formations and one Size 2 'Mech Formation (36 ÷ 15 = 2.4, rounded down to 2). Entering and exiting a Fortification costs 1 MP and does no damage to the Fortification. Formations inside a Fortification do not count towards the stacking limit of the hex in which the Fortification is located.

Formations sheltering in a Fortification receive reduced damage while within, determined by the class of structure of the Fortification. Damage is calculated based on the *Attacking Unit Inside a Building* rules (see p. 286), with CF based on the Fortification's Size class.

Formations inside a Fortification are limited in their ability to attack hostile Formations outside the Fortification. In a Light Fortification, up to 2 Sizes worth of Formations may attack; in Medium Fortifications up to 4 Sizes worth may attack; in Heavy Fortifications, up to 6 Sizes worth may attack; and in Hardened, up to 8 Sizes may.

Capturing a Fortification: Instead of attacking a Fortification directly, an attacking player may attempt to capture a Fortification using the *Boarding Action* rules (see pp. 277-278). Consult the Fortification Crew Table to determine what forces a Fortification can use to defend against a capture attempt. Each structure unit in the Fortification has its own CREW value; these are totaled to determine the final CREW rating. In addition to infantry generated via its CREW ability, any infantry Formations currently inside the Fortification may also be used to defend the Fortification.

William is defending Liao from a raid by a House Marik force, controlled by Tèrance. William begins the scenario with a single Fortification, which he places in center of the map. Made up of three Medium structures and one Heavy structure, it has a CF of 61 (Medium 12, Heavy 25. (12 x 3) + 25 = 61). This means it may hold up to 12 Size classes worth of units (61 ÷ 5 = 12.2, rounded down to 12).

The Fortification is a Medium, or Size 2, Formation (three Medium, or Size 2, structures + one Heavy, or Size 3, structure; 2+2+2+3 ÷ 4 = 2.25, rounded down to 2). This means only Size 1 and 2 Units may stand on top of the Fortification. As a Size 2 Fortification, it has a Damage Absorption value equal to a Medium building—2 for non-infantry and 4 for infantry. Finally, a Size 2 Fortification Formation allows up to 4 Sizes worth of Formations to be protected within. In William's case, this is a Size 1 Infantry Formation and a Size 3 Battle Lance.

Resolving Attacks by Building-Mounted Weapons: Attacks by armed buildings are resolved in the same fashion as a standard weapon attack by a ground-based unit, including being limited to only Short and Medium range within an urban hex. Because buildings are stationary by nature, they gain a –1 to-hit modifier for their steady shooting platform. However, Buildings always lose Engagement Control rolls, so the other side determines what range attacks are made, except in the first attack, which is made by the Building. Building-based weapons also may not benefit from Special Command Abilities (see p. 293), such as Banking Initiative or Off-Map Movement.

Resolving Attacks Against Building-Mounted Weapons: Attacks against Gun Emplacements and stand-alone Fortifications are handled separately.

- **Gun Emplacements (Urban Hex):** Attacks against Gun Emplacements are resolved as if they were directed against the urban hex itself. If any attack has a Margin of Success of 3 or more, the Gun Emplacement is hit. Any time a Gun Emplacement takes damage in this fashion, the attacker rolls 2D6. On a result of 7 or higher, the emplacement suffers damage that reduces its attacks by 1 at all ranges (to a minimum of 0). If the emplacement is reduced to a damage value of 0 at all range brackets, the emplacement is destroyed, even if the underlying building still has CF remaining.
- **Fortifications:** Fortifications are treated as Formations and are made up of one to four Structure Units, each with their own CF and weapons. Fortification weapons are assumed to be in turrets and may be targeted separately from the structure. Fortification turrets are smaller targets; as a result, all attacks on them suffer a +3 to-hit modifier. If an attack is successful, the attacker rolls 2D6 and follows the same guidelines as attacking an Urban Gun Emplacement.

If the Structure Unit is destroyed, it no longer may make weapon attacks.

Arming a Building: The maximum damage a Gun Emplacement or Fortification Structure Unit may deliver is based on the Default CF value for its building class. Take the Default building CF and divide the result by 5, rounding the result normally. These damage points must then be distributed among the emplacement's Short, Medium, and Long range damage values. The distribution need not be even, but all damage values for closer range brackets must be equal to or higher than those of more distant ranges. For example, an armed Medium building with a CF of 15 may assign up to 3 points of damage for its weapon emplacements (CF 15 ÷ 5 = 3); the player may choose to distribute these points as 3/0/0, 2/1/0, or 1/1/1, but may not assign them as 0/0/3, 0/1/2, or 1/2/0.

Armed Building weapons are treated as "generic" and cannot use most weapon-specific special abilities such as FLK and IF.

FORTIFICATION CREW TABLE

Structure's Building Type	CREW Rating
Light	1
Medium	2
Heavy	3
Hardened	4

Artillery Emplacements

As an alternative to the weapon emplacements described above, Fortifications—but not Gun Emplacements—may be armed with artillery weapons instead of standard weaponry. In this case, the structure Unit becomes an artillery emplacement.

An artillery emplacement resolves its attacks using the normal artillery weapon rules described on p. 273. Unlike other armed buildings, it gains no benefits for standstill firing. Like other armed buildings, artillery emplacements cannot benefit from Special Command Abilities. Attacks against an artillery emplacement are resolved in the same way as attacks against a standard Fortification Structure Unit (see *Armed Buildings*, p. 288). A Fortification can only mount 1 artillery weapon for every 1 Structure Unit in the Fortification Formation. Artillery Emplacements cannot shelter Formations, and the Fortification's maximum capacity should be adjusted to reflect the presences of Artillery Emplacements. A Fortification made up entirely of artillery emplacements would not be able to shelter any ground Formations.

The artillery type mounted must be documented on the Fortification's record sheet. Artillery types that can be mounted are based on the CF of the Structure Unit. The artillery mounted must have a damage value of one-half or less (rounding down) of the Structure Unit's CF. This damage limit is determined by using the highest damage value the weapon delivers per attack when loaded with standard munitions (see *Artillery Range and Damage Table*, p. 274). For example, a player wishing to arm a CF 30 Structure Unit with an artillery weapon could select a weapon as powerful as a Cruise Missile/70, which can deliver a maximum of 11 points of damage per standard-ammo attack. But the same building may not mount the next size up in artillery weapons—the Cruise Missile/90—because its maximum damage value of 16 points exceeds half of the building's CF.

Armored Fortifications

An armored Fortification possesses Structure Units that carry additional protection above and beyond even the capacity of the Hardened building type (see *Urban Hexes*, p. 285). Fortifications identified as armored possess both an armor value and a construction factor (CF). Gun Emplacements in Urban hexes may not be armored.

During game play, the armor value for each Structure Unit must be tracked separately from their CF and the armor of other Structure Units. As long as a Structure Unit possesses any armor, unfriendly Formations cannot enter or pass through the building, nor can their attacks deliver any damage to the armored building's CF, or to any Formations inside. The armor of such a building will sustain damage in the same way as any other unit type. Any damage that exceeds this armor value will be applied to the CF of the Structure Unit itself. As with any normal building, an armored building that has its CF reduced to 0 will collapse. This reflects the destruction of the underlying structure. Units inside or on top of an armored building when it collapses will suffer 1 point of damage for every level of building height (rounded down to a minimum of 1 point), plus 2 points of damage if they were on the rooftop at the time of the collapse. In other words, the damage caused due a collapsing armored building is twice as much as for a standard building of comparable height.

ADVANCED INFANTRY OPTIONS

Digging In: Any infantry that does not possess the MECH special ability or has a movement type other than foot, jump or motorized may dig in using the Fortified Position rules below. They may not move or attack in the turn that they are digging in.

Hitting the Deck: Any infantry unit may hit the deck, an impromptu grab for cover using the existing terrain. Infantry that hits the deck may move up to half their MP or make an attack (with a +1 to-hit and –1 damage) in the turn that they do so. Infantry that "hit the deck" are at +1 to hit.

FORTIFIED POSITIONS

In *Strategic BattleForce*, two scales of field fortifications may be constructed.

Infantry Field Fortification: Formations with the TRN or ENG special ability may create quick field fortifications usable by infantry, vehicle (excluding those with LG, VLG or SLG Elements) and ProtoMech Formations. Infantry field fortifications may be built in any terrain except water, ice, mud or swamps.

To create a fortified position, the Formation with the engineering Units must remain stationary for a full turn, during which time the Units with the TRN or ENG special ability may not make weapon attacks of any kind. The other Units in the Formation may attack as normal. During the Determine and Apply Damage step, the Unit constructing the Fortifications may not be the target of damage unless another Unit has already been damaged. This reflects the mobile Units interposing themselves between the attackers and the constructing Unit.

In the End Phase of the turn after the above conditions are met, place a marker in the hex occupied by the Formation to indicate there is an Infantry field fortification present and the area has been fortified for added cover. For the remainder of the scenario, the fortified position may be used to provide extra cover for infantry units (see *Advanced Infantry Options*, p. 290) or ProtoMechs and vehicles going hull down (see *Hull Down*, p. 269).

Field Fortifications: Field fortifications in *SBF* represent a more advanced set of defenses usable by any Formation that does not have a LG, VLG or SLG Element in it. Field Fortifications may only be constructed by a Formation with the ENG special ability. A Field Fortification must be built on the site of an existing Infantry field fortification and takes 1 turn to build, during which time the constructing Unit follows the same rules as constructing infantry field fortifications.

A hex containing either type of fortification should be indicated with a marker which makes clear whether the fortification is an infantry fortification or a field fortification.

TERRAIN CONVERSION

At the controlling player's option, a Formation may employ its firepower to raze terrain features within a given hex, rather than attack other Formations or buildings. This action is called "converting terrain," as the successful result of such an action will change the terrain type to something else.

The Terrain Factor and Conversion Table identifies each terrain type's Terrain Factor (TF)—the number of damage points the terrain feature can sustain before it is damaged or destroyed. Each point of damage inflicted by a Formation's attack eliminates 1 point of TF from the terrain. If any other terrain features (woods, urban, pavement and so on; see p. 285 for urban hexes) are present in the area, they must be eliminated before the underlying terrain can be damaged. Once the targeted terrain is reduced to a TF of 0, the area is replaced with a new terrain, as prescribed in the table. Note that any area which converts to a "sub-level" indicates terrain that has effectively been dug open by raw damage.

Formations with SAW or ENG may clear a path through a Woods or Jungle hex. To determine the amount time this will take, divide the hex TF by 10 and divide this by the Formation's damage value for their SAW or ENG ability (rounding normally). For example, a Formation with a SAW3 wishes to clear a path through a Light Woods Hex. A Light Woods hex has a TF factor of 1400, but only 200 must be removed to create a path through the hex. With a SAW of 3, the Formation does 9 points of damage per turn. It will take the Formation 22 turns to clear a patch (200 ÷ 9 = 22.22, rounded down to 22). Unless more SAW Units lend a hand, the path won't be cleared until combat is over.

TERRAIN FACTOR AND CONVERSION TABLE

Terrain	TF	New Terrain
Clear/Rough	1400	Sub-Level (1")
Snow	840	Mud
Dirt Road	420	Rough*
Gravel Road	1050	Rough*
Ice	840	**
Jungle	1750	Rough
Paved	4200	Rough
Paved Road	3150	Rough*
Tundra	1470	Rough
Woods	1400	Rough

*The Road still counts, but units must pay 1" additional Move per inch traveled along them.

**If the underlying terrain is water, the area becomes water; otherwise ice is removed from the area and the underlying terrain remains undamaged.

NEW UNIT TYPES

The following advanced units are playable in *Strategic BattleForce*.

ROBOTIC DRONES

Robotic units are designed to operate independently of human operators. They do not rely on constant communication for combat directions, nor do they require the presence of a control unit as remote drones do. While they are meant for autonomous operation, robotic drones can still be impaired by hostile ECMs as their sensor suites become blinded or disoriented by the interference.

Robotic Initiative and Formations: If more than 25% (rounding down) of a player's Force is made up of robotic Elements, the drone Elements must be placed in their own Units and Formations and the robotic forces must make their own Initiative roll, separate from the larger Force of which they are a part. Robotic forces suffer a –2 modifier to their Initiative roll (if the robotic unit features the SDCS special, change this Initiative modifier to –1).

If a player's force is made up of less than 25% robotic drone Elements, then the drones do not require their own Initiative roll. Drones must still be placed into their own Units, however drone Units can be mixed with human Units in the same Formation.

For example, if a scenario pits an attacking force of entirely human-controlled 'Mechs against a defending force of human-piloted 'Mechs backed up by robotic tanks, three Initiative rolls must be made—one for the attacker, one for the human-piloted defenders, and a third for the robotic defenders. The robotic defenders also apply a –2 modifier to their Initiative roll. The turn order will then proceed as if there are three "sides" on the map, based on their roll results. If the attackers in this scenario also brought along enough robotic units, four Initiative rolls would be required instead.

Robotic Skill Ratings: As with remote drones, robotic drones that lack the SDCS special receive a Skill Rating 1 point higher than an equivalent human-operated unit. Thus, a Regular-rated non-SDCS robotic tank would possess a Skill of 5, rather than 4. Robotic units with the SDCS special receive a Skill Rating equal to a human-operated unit of a given Skill Rating. Because few robotic AIs can match the intuitive abilities of a human, the maximum Skill Rating a robotic unit may possess is Elite. This means that a robotic unit without the SDCS special may not receive a Skill Rating better than 3, while the best Skill Rating a robotic drone *with* the SDCS special may attain is 2.

Robotic Aggression Modes: If playing with independent drones, Aggression Mode is used. If drones number less than 25% of a player's force, these rules are ignored.

The player controlling an independent robotic Formations should give each an Aggression Mode to determine its actions in combat. This Aggression Mode, which establishes the drone's general mission and tactical functions for the scenario, may be Aggressive, Defensive, Passive, or Suicidal.

- **Aggressive Mode:** An aggressive robotic unit will take an active role in combat, targeting and attacking any hostile unit that comes within its weapons' range and line of sight. The aggressive unit may pursue its enemies as the controlling player sees fit, and will continue to pursue for any distance unless the drone suffers crippling damage (at which point it will follow Forced Withdrawal rules and return to its base).
- **Defensive Mode:** A defensive robotic unit will stay close to an objective or designated map area that it is tasked with protecting, never straying farther than 6 hexes from its charge. Defensive drones will only target hostile units that enter their hex; however a drone Unit may pursue an enemy Formation so long as it stays within 6 hexes of the objective. If a defensive drone finds itself farther than 6 hexes from the focus of its defense, it will move back toward it at the earliest opportunity. As with aggressive drones, defensive drones return to base per Forced Withdrawal rules once they have sustained crippling damage.
- **Passive Mode:** A passive robotic unit is even less apt to move and engage enemies than a defensive one. Passive Drones will not move from the hex they are defending. They follow Forced Withdrawal rules if they sustain crippling damage.
- **Suicidal Mode:** Robotic drone Formations set to a suicidal level of aggression will always attempt to close with and engage the nearest hostile Formation to its position during combat. Suicidal drones will ignore Forced Withdrawal rules under all conditions.

Aerospace Drones and Aggression Mode: When using the above Aggression Modes for robotic aerospace Units, disregard the range references described, and replace the movement range limitations of the defensive and passive modes as follows: For defensive robotic Squadrons, all movement must be restricted to the Central Zone and the Inner, and Middle Rings of the Atmospheric Radar Map (or Engagement Map) in which the unit is operating. Passive robotic Squadrons will restrict their movement range to the Central Zone and Inner Ring only. If forced to retreat for any reason, a robotic unit will return to its base vessel or landing area, or—if none has been defined—simply move to stay as close to the Central Zone as possible.

ECM Effects on Robotic Units and Formations: Unlike remote-controlled drones, robotic Units caught within a hostile ECM field will not simply shut down. Instead, whenever a robotic Formation or Formation possessing robotic Units begins its Movement Phase in a hex with hostile ECM, the Robotic Unit or Formation's player must roll 1D6. On a result of 4 or less, the robotic Unit becomes blinded for that turn. Blinded Robotic Units in a mixed Formation will take no action, and the MP of the entire Formation is reduced by 2 to a minimum of 1. Independent robotic Formations that are

blinded will behave as a crippled unit under Forced Withdrawal rules; they will retreat toward their home area and make no attacks of any kind. On a result of 5, the robotic Unit (or independent Formation) becomes dazed for that turn. While dazed, a robotic Unit that is part of a mixed Formation will not engage in combat, and the entire Formation's MP is cut in half (rounding up) to a minimum of 1 MP. An independent robotic Formation that is dazed also has its MP cut in half and it will move in a random direction, turning only to avoid entering illegal terrain, and will attempt no attacks in the Combat Phase. On a result of 6, the robotic Unit goes berserk. In this state, the robotic Unit behaves as if it has been set to a Suicidal Aggression Mode. It will target, close with, and attack the nearest Unit. The player controlling the berserk robotic Unit rolls a 1D6. On a result of 1 to 3 it will make no attacks; on a result of 4 or 5 it will attack the Formation with the hostile ECM; on a result of 6, if there are any friendly Units in the same hex—such as other Units in a mixed Formation—It will attack that friendly Unit or Units (determine randomly).

ECM effects against robotic units end at the start of any turn in which the robotic unit is no longer within a hostile ECM field.

Drones and Special Game Rules Drones of all types may not benefit from Special Command Abilities (see p. 293), but they can benefit (or suffer) from Design Quirks. Drone and robotic units may also benefit from most of the other on-board special unit abilities noted on their unit cards, with the exception of the Mobile Headquarters (MHQ#) special.

Drones are immune to any mental effects, including Morale (see p. 242) or any Special Command abilities that would demoralize, distract, intimidate, or enrage human-crewed units.

FOUR-LEGGED AND THREE-LEGGED ELEMENTS

These Elements are treated in the same way as standard Elements of their Type ('Mech or ProtoMech).

GLIDER PROTOMECHS

These Elements are treated in the same way as standard ProtoMech Elements, save that Formations made entirely of these Elements may cross terrain without movement penalties by use of their WiGE movement mode.

SUPERHEAVY 'MECHS

These Elements are treated in the same way as standard Elements with the following exceptions.

Movement: A Formation including one-half (rounding up) or more Elements that are Superheavy reduces modifiers for moving through Woods, Jungle, Rough, Rubble and entering Buildings (but not urban hexes) by 1 MP. If attempting to escape being bogged down (see *Bogging Down,* p. 272), any Formation with a Superheavy 'Mech does not receive the +1 bonus to their roll.

Combat Phase: A Unit with one half (rounding up) or more Elements that are Superheavy receives a –2 to-hit modifier.

Buildings and Bridges: Any Formation with a Superheavy 'Mech is considered to have a Size value of 5. Units including Superheavy 'Mechs may not climb buildings and inflict 2 points of damage for entering a building instead of the normal 1 point.

Transporting Superheavy 'Mechs: Superheavy 'Mechs may not be transported as standard 'Mechs via the MT# special. They may only be transported by units that have a cargo capacity listed in tonnage, with a cargo capacity of 220 tons per Superheavy 'Mech. The lack of dedicated Superheavy 'Mech transport cubicles also means that Superheavy 'Mechs cannot use the Dropping Troops rules (see p. 279), and must always be transported as cargo (see *Units as Cargo*, p. 269).

Conversion: Any Unit with one or more Superheavy 'Mech Elements is given the LG special ability.

LAND-AIR BATTLEMECHS

A Unit built as a Land-Air BattleMech (LAM) will have either a LAM (#g/#a) special ability, or a BIM (#a) special ability to identify itself as such. A LAM is a rare Element that can change from a BattleMech to an aerospace fighter. This enables a broader range of movement options, from standard BattleMech movement (in BattleMech mode), to aerospace fighter movement (in Fighter mode). LAMs not indicated as bimodal-only (those with the BIM special) also include a hybrid configuration known as AirMech mode, in which the BattleMech moves as a wing-in-ground effect (WiGE) unit. Regardless of their current mode of operation, LAMs are considered BattleMech Units, and thus will function in accordance with the standard *Strategic BattleForce* rules for 'Mech units except as follows:

Conversion and Movement

When a LAM switches between modes, its conversion always takes place at the start of its Movement Phase. If a Formation is made up entirely of LAMs, it may choose from 'Mech, AirMech or Fighter mode. If a Formation is made up of LAMs and Bi-Modal Lams, the Formation may choose from Fighter or 'Mech mode. If the remainder of the Formation is comprised of aerospace or ground Units, then the LAM Unit may only operate in the mode equal to the other Units in the Formation and may not change modes during the game.

- LAMs in BattleMech mode function as jump-capable BattleMechs.
- LAMs in AirMech mode function as BattleMechs with a WiGE movement type (the movement mode ending in g after the LAM special) and may ignore terrain movement modifiers. Note that the amount of movement a WiGE receives may be different from the amount of Move it receives in 'Mech mode.
- LAMs in Fighter mode function as aerospace units for movement purposes. Once the conversion to this mode occurs, the unit's Thrust is identified by the aerodyne movement value (the movement mode ending in a after the LAM or BIM special). LAMs in Fighter mode use *Strategic Aerospace* rules (see p. 245).

Combat Phase

The following rules additional rules apply to Land-Air BattleMechs in combat:

Target Movement Modifiers: TMM modifiers only apply to a LAM when in 'Mech or AirMech mode. When in Fighter mode, a LAM follows the determining to-hit number rules for *Strategic Aerospace*.

AirMech To-Hit Modifiers: A LAM in AirMech mode is considered to be using its maximum JUMP ability when an attacker is calculating to-hit modifiers (see *Determine To-Hit Number,* p. 240), but only receives a –1 to-hit for its own attacks.

Control Rolls: Like aerospace fighters, LAMs do not make control rolls during Strategic Aerospace play.

Unit Transports

LAMs may be carried by transports intended for either BattleMechs or Fighters by simply switching to the appropriate mode. A LAM in BattleMech mode can be transported and deployed by Units that possess 'Mech cubicles (MT# special), while a LAM in Fighter mode can be carried and launched from units that possess fighter cubicles (AT# special).

QUAD-VEES

These Elements are treated like standard BattleMech Elements. If a Formation is made entirely of these Elements, it gains +1 MP when moving on pavement or in Urban hexes (see *Terrain*, p. 234).

SPECIAL COMMAND ABILITIES

Many veteran regiments and other Formations in the *BattleTech* universe demonstrate special command abilities such as those outlined below. These abilities represent enhanced tactical expertise that comes from a combination of intense training, acclimation, and leadership. For this reason, unless otherwise indicated, special command abilities are assumed to apply to a player's entire Force, rather than to its individual Formations.

Condensing and Adapting from Previous Sources: These rules will provided a condensed version of the rules found in *Alpha Strike Companion* (see *Special Command Abilities,* p. 44, *ASC*) and *Tactical Operations* (see *Command-Level (Tactical) Comms,* p. 191, *TO*). While these books are not required, they may prove beneficial to players wishing to have more detail on the use and exceptions of Special Command Abilities in *Strategic BattleForce*.

Further, many forces in the *BattleTech* setting possess special command abilities such as these according to various *Era Report*, *Field Manual* and *Field Report* sourcebook supplements. When using such sourcebooks as a reference for playing out games under the *Strategic BattleForce* system, be sure as use the special command ability of the same name as it is presented here in order to maintain compatibility with *SBF* rules.

Assigning Special Command Abilities: If the players are not selecting a Force that has special command abilities published in a source listed above, such as creating a custom Force, the best recommendation for choosing special command abilities is to assign them based on the force's average Skill. Green, Very Green, or Wet Behind the Ears forces should receive no special command abilities. Regular forces may receive one special command ability. Veteran or Elite forces may receive up to two different special command abilities. Heroic or Legendary forces may receive up to three different special command abilities.

Finding a force's average Skill rating is done by adding together the Skill Ratings for all of the units in that force, dividing this sum by the total number of units, and rounding the result normally to the nearest whole number. Use that number to find the force's final Skill Rating using the Experience Skill Value Table (see p. 328**)**

For example, a regiment of 10 Formations, in which three Formations have a Skill Rating of 4, three have a Skill Rating of 3, two have a Skill Rating of 2, and two more have a Skill Rating of 5, would have a sum of 35 for its Skill Ratings ([4 x 3] + [3 x 3] + [2 x 2] + [2 x 5] = 35). With 10 units in total, this yields an average Skill Rating of 3.5, which rounds normally to 4. At a rating of 4, the Point Value Skill Table defines the entire Force as having a Regular Skill Rating. Given this average rating, the Force should limit its special command abilities to only one selection.

Commanders and Command Abilities: Special Command Abilities are tied to the Force Commander (COM) Unit or a specific sub-commander (LEAD) Unit. If this Unit is destroyed, the ability is lost.

In addition to the Force Commander (COM) Unit, a force may have one Sub-Commander Unit for every additional 3 Formations (for example, at 6, 9, 12 Formations, and so on). Sub-Commanders Unit's must be Formation LEAD Units and further designated by adding the SCOM ability to their record sheet.

In game play, the loss of the Force's senior commanding officer will apply a –2 Initiative modifier to that Force for the remainder of the scenario. In addition, if the commanding officer *and* all of his sub-commanders are lost, the player's force will lose all of its special command abilities as well.

BANKING INITIATIVE

By conceding momentum for a time, a commander is able to seize control of the battle later.

To use this command ability, the player acting as the leader of his Force —before any Initiative rolls are made—announces that he is yielding the Initiative to his opponent. For the purposes of any abilities for which Initiative margins are considered, this allows the opposing Force to automatically win its Initiative at a 1-point Margin of Success. For every two turns (consecutive or otherwise) that the commander yields the Initiative in this fashion, his force "banks" an automatic 1-point Initiative success (to a maximum of 2). At the start of any future Initiative Phase the player may declare they are using a banked initiative point. They automatically win initiative with a MoS of 1.

Both players possessing this ability in their Force can result in "ties" in initiative. If both declare they are conceding initiative, both players roll initiative with the loser getting to count the turn towards banking initiative. If both declare they are using a point to gain an automatic success, these cancel each other out and they must roll normally. If a player has more than one automatic success point saved, they can choose to spend it now to take control.

FORCING THE INITIATIVE

Forcing the Initiative is a command ability using aggressive tactics to provoke fear and hesitation in an enemy. With this ability, the commanding player applies a modifier to his Initiative roll equal to the number of opposing Units his Force has reduced below 50% in the previous turn, minus the number of its own Units likewise reduced. For example, if a Force with this ability reduced 6 enemy Formations below 50% in the previous turn, but saw the same happen to 3 of its own, the Initiative modifier would equal +3 (6 – 3 = 3).

As with Banking the Initiative, using this ability requires the commanding player to declare his intent to do so before the dice are rolled for Initiative. This ability cannot be used in the first turn of any scenario.

OFF-MAP MOVEMENT

The Off-Map Movement special command ability represents a force's superior flanking tactics. This ability cannot be used in a scenario type that would specifically violate its rules, such as by an attacking force in a Breakthrough scenario, or by a defending force in a Hold-the-Line scenario.

In *SBF* play, Off-Map Movement is done by temporarily laying down another mapsheet (or partial mapsheet). Only the player with the Off-Map ability may place a Formation on this temporary map. Otherwise, movement is handled the same as standard SBF movement.

OVERRUN COMBAT

Overrun Combat is an aggressive tactic that takes advantage of the slightest hesitation among an opponent's ranks.

Overrun Combat is available any time a Force with this ability wins an Initiative roll by a margin of 2 points or more. When this occurs, the player divides the number of points by which he has won the Initiative roll by 2, rounding all results down (to a minimum of 0). This becomes the number of Formations with which the player may move and attack before any other Formations can act in the current turn. For the purposes of the rest of the turn's actions, the overrunning Formations fall outside of the normal sequence, leaving the remaining Formations to alternate according to how many units the overrunning Force has left to move after its other units have already acted.



Kell Hound Assault 'Mechs get physical with a Light of Mankind Legacy.

For example, if a Force consisting of 9 Formations has the Overrun Combat ability and wins its Initiative roll by 5, two of its units can move and attack before any of the opposing force have the chance to move (5 ÷ 2 = 2.5, rounding down to 2). After these units have acted, the rest of the turn is resolved as if the overrun-capable force has only 7 Formations left to alternate with its opponent under the normal turn sequence.

COMMUNICATIONS DISRUPTION

Communications Disruption represents a continuous effort by comm-techs to tap into enemy transmissions and scramble or confuse them. At the beginning of each turn, the player controlling a Force with the Communications Disruption command ability rolls 1D6. If the result of this roll is 6, one random Formation of the opposing force is affected by confusing communications that impairs their ability to coordinate properly. During the Movement Phase of that turn, the affected Formation reduces its available Move by 4 MP (to a minimum of 1 MP). If the unit is an aerospace element that uses Thrust Points instead, reduce its base Thrust by 1. The disruptive effects pass by the end of the turn.

Battlefield Intelligence: If the battlefield intelligence rules are in play (see p. 276), a Force may only use the Communications Disruption special command ability if it has a BI ratio of 2:1 (or higher) over its opponent. If the force's BI ratio is less than 2:1, the Communications Disruption special command ability has no effect.

ZONE OF CONTROL

A Force that possesses the Zone of Control special command ability can effectively discourage an enemy's movement in close quarters, forcing their opponents to either fall back or otherwise swing wide around its positions.

A Force with the Zone of Control ability gains a –1 target number modifier to all Engagement Control rolls when Establishing Engagement Control during the Movement Phase (see p. 237).

SHARP SHOOTERS

A Force that possesses the Sharp Shooters special command ability is especially adept at long-ranged attacks, but at a cost in short-range accuracy. No more than one-third (rounding down) of all Formations may have this ability. Sharp Shooters replace the normal range modifiers used for their attacks with the following: Short Range +2; Medium Range +1; Long Range +1; Extreme Range +2.

This ability remains active even if the Force Commander (COM) or sub-commander (SCOM) Units are destroyed.

BRAWLERS

The opposite of the Sharp Shooters' emphasis on long-range fighting is the Brawlers special command ability. A Force that possesses this ability is brutal at short-range, but ill-suited to long-range sniping. No more than one-third (rounding down) of all Formations may have this ability.

Brawlers replace the normal range modifiers used for their attacks with the following: Short Range –1; Medium Range +2; Long Range +3; Extreme Range +5.

ANTI-AIRCRAFT SPECIALISTS

A Force that possesses the Anti-Aircraft Specialists special command ability has honed its skills specifically to counter the threat of airborne opponents. No more one-third (rounding down) of all three Formations may have this ability. Anti-Aircraft Specialists apply a –2 to-hit modifier to all attacks made against an airborne target, including ground vehicle Formations with a VTOL (v) or WiGE (g) movement type, aerospace and conventional fighters, Small Craft, DropShips, and so forth. Against all other ground-based units (including those that use jumping movement), or airborne-capable units that are grounded at the time of the attack, this to-hit modifier becomes +1 instead. Aerospace units may not make use of the Anti-Aircraft Specialists command ability.

ENVIRONMENTAL SPECIALIST BENEFITS LIST

Benefit	Rules
Improved Mobility	Reduce movement costs for passing through any terrain of specialization by 1 inch per hex of movement. However, this reduction may never lower movement costs below 1 hex of Move per inch of terrain.
Improved Combat	Apply a –1 to-hit modifier for all attacks made into and/or through the terrain or environmental condition of specialization (to a minimum modifier to +0). This modifier applies to the total modifiers used for the attack, rather than per any increment of distance.
Improved Initiative	Receive a +1 Initiative modifier if the selected terrain or environment type covers at least half of the map area.

GROUND ATTACK SPECIALISTS

The Ground Attack Specialists special command ability is available only to aerospace units or other units that use airborne movement (including VTOLs and WiGE ground vehicles). No more than one-third (rounding down) of all Formations may have this ability. Ground Attack Specialists receive a –2 to-hit modifier to all attacks made against ground-based targets, including units that use jumping movement, and air-capable units that are landed at the time of the attack. Against airborne aerospace units, including ground units with the VTOL (v) or WiGE (g) movement types, this to-hit modifier becomes +2 instead. Ground units incapable of VTOL, WiGE, or aerospace movement (Thrust), may not make use of the Ground Attack Specialists command ability.

ENVIRONMENTAL SPECIALIZATION

A Force with this special command ability has mastered or prefers combat in specific types of terrain or environments. Before game play begins, the specific nature of this environmental specialization must be identified. The terrain types chosen for this specialization must be selected from the *Advanced Terrain* rules (see p. 269). To keep things simple, a Force's environmental specialization must not include more than one terrain type or environmental condition at a time. Once the specific terrain and/or environment is determined, the player must then choose a number of rules that apply from the Environmental Specialist Benefits List, based on the entire Force's average Skill Rating. Green, Very Green, or Wet Behind the Ears may not receive any benefits for environmental specialization, but will still suffer a –1 Initiative modifier if the focus of its specialization does not apply to the scenario (reflecting the Force's training focus on honing its skills to one particular tactical area). If its Skill Rating is Regular, it receives one of the listed benefits. If the average Skill Rating is Veteran or Elite, two different benefits may be applied. If the average Skill Rating is Heroic or Legendary, a third different benefit may be applied, or one of the two benefits received may be applied twice. In addition to applying any benefits for environmental specialization, a force with this command ability will also suffer a –1 Initiative modifier when forced to play in a scenario where the environmental condition they are specialized for is not present.

TACTICAL SPECIALIZATION

A Force with this special command ability has mastered or prefers combat under specific mission parameters. Before game play begins, the specific nature of this tactical specialization must be identified. This can be either a preference for attacking over defense (and vice versa), or a preference for specific scenario types. As with environmental specialization, the specific nature and extent of these specializations is limited by the Force's average Skill Rating and uses the same values for Skill Ratings. Note that, the Attack and Defense specialization benefits may both be taken at the same time, but their presence will cancel each other when taken together. This effect, however, only occurs when the two are of equal levels. If a force selects Attack Specialization benefits twice, and Defense Specialization benefits once. The result will be the equivalent of taking one "level" of Attack Specialization.

ENEMY SPECIALIZATION

A Force with the Enemy Specialization special command ability has one enemy faction or group that it favors fighting above all others, and makes a point to train heavily in dealing with the common tactics and equipment found among that particular enemy. Before game play begins, the specific focus of this specialization must be identified. This can be either an entire faction (e.g. a specific House, a specific Clan, or a specific Periphery state), or a particular group (e.g. the Davion Heavy Guards or the Wolf's Dragoons). Use the same guidelines in Environmental Specialization to determine the average Skill rating and abilities granted. A Green, Very Green, or Wet Behind the Ears Force receives no benefits from enemy specialization, but will still suffer a –1 Initiative modifier if

TACTICAL SPECIALIST BENEFITS LIST

Benefit	Rules
Attack Specialization	The force receives a +1 Initiative roll modifier when acting as the Attacker in a scenario of any type, but suffers a –1 Initiative roll modifier when acting as the Defender.
Defense Specialization	The force receives a +1 Initiative roll modifier when acting as the Defender in a scenario of any type, but suffers a –1 Initiative roll modifier when acting as the Attacker.
Scenario Specialization	Receive a +1 Initiative roll modifier if the force is taking part in a specified scenario type. For all other scenario types, the force suffers a –1 Initiative roll modifier.

the focus of its specialization does not apply to the scenario. If the force is rated Regular, it will receive a +1 Initiative modifier when facing its selected enemy, but will suffer a –1 Initiative modifier when facing any other opposing Force. If the Force is rated Veteran, it may either double the modifier for facing its selected enemy (while also doubling the negative modifier for opponents of other affiliations), or it may select a second preferred enemy on which to apply the same modifiers. If the latter option is chosen, the negative modifiers will not stack, so the specialized force will receive a +1 Initiative modifier when facing its two chosen enemies, but will only suffer a –1 Initiative roll modifier against all other forces.

If the Force is rated Elite, in addition to the Initiative modifiers described above, it may add the ability to negate one of its preferred enemy force's special command abilities (if any were chosen for the scenario). If the Force is rated Heroic or Legendary, it may negate two of the preferred enemy Force's special command abilities, or add a special command ability to itself that only "activates" when facing its enemy of choice. Under these rules, a Force cannot negate command abilities possessed by enemies it has not specialized itself to fight.

PILOTING SPECIAL ABILITIES AND DESIGN QUIRKS

Piloting Special Abilities and Design Quirk rules are optional *Alpha Strike* rules (see p. 49 and p. 59, *ASC*) that can alter the abilities of individual Elements. These rules in their full details are not intended for *Strategic BattleForce* play, where the default formation is 8 to 16 Elements. However, certain abilities when present in sufficient numbers can impact game play. Unless noted below, *Alpha Strike Companion* is required to use these optional rules.

UNIT ABILITIES

In *Strategic BattleForce,* Special Pilot Abilities (see p. 49, *ASC*) represent specific training given to a small sub-command. Whereas Special Command Abilities (see p. 293) impact all or a large portion of a Force, Unit Abilities are specific training given to a sub-command of Formation or smaller size (company, Trinary or one Level II). Unless noted below, no more than four Units, or one-half the total player force (whichever is less), may have a given pilot ability.

Determining Unit Abilities: Green, Really Green and Wet Behind the Ears Formations may not use Unit Abilities. Regular Forces may include one Unit with a Unit Ability for every three Formations or portion thereof present in the Force. For example, one Unit ability in a Force with three Formations, two abilities with four Formations, three abilities with seven Formations. Veteran and Elite forces may field one Unit with a Unit Ability for every two Formations or part thereof present in the Force. Legendary and Heroic forces may field one Unit with a Unit Ability for every Formation in the Force.

An exception to the Unit limits are certain Unit Abilities that are limited to Formations only. If the Unit Ability works only for a Formation, the entire Formation is treated as one Unit when determining the number of Units with Unit Abilities that may be fielded.

Unit Ability Points: Points to purchase abilities are also based on the experience of the Force. A Regular force gets 2 points for every Unit it fields with a Unit Ability. Veteran and Elite forces get 3 points for every Unit they field with a Unit Ability. Legendary and Heroic forces get 4 points for every Unit with a Unit Ability they field.

Assigning Abilities: A Unit (or Formation) with a Unit Ability adds the ability's abbreviation to the Special Abilities section of their Record Sheet. No Unit (or Formation) may have more than one Unit Ability at any one time.

Unit Destruction: If the Unit with a Unit Ability is destroyed, the ability is lost even if the Formation of which the Unit was a part remains operational.

> *The Third Lyran Guards are a Regular-rated force fielding 10 Formations. It may field up to four Units with Unit Abilities (10 ÷ 3 = 3.33, rounded up to 4). If the Lyran player fields all four Units with Unit Abilities allowed, the played would have a total of 8 Unit Ability points to spend. If they chose to only field one Unit, they would only have 2 points to spend.*
>
> *The Second Sword of Light is a Legendary-rated force fielding 9 Formations. It may field up to 9 Units with Unit Abilities (9 ÷ 1 = 9). If it fields all 9 Units, it would have 36 points to spend on Unit Abilities (9 x 4= 36).*
>
> *The Lyran player wishes to use the Iron Will Unit Ability in order to improve its Command Formations ability to succeed in morale rolls. This Unit Ability is considered a Formation Ability. It will count as one of the Lyran player's four Units, leaving three Unit abilities still to be taken.*

DESIGN QUIRKS

During the Star League Era, the SLDF fielded entire battalions comprised of the same BattleMech or tank. Doing so simplified logistics and tactics—not every SLDF officer was the next Kerensky. By massing Formations of the same Element, the SLDF was also able to capitalize on advantages of certain designs in a way that could turn the tide of an entire combat front. A company of *Riflemen* holding a ridge created an anti-aero bubble that was formidable for any aerospace force to try and pierce.

In *Strategic BattleForce*, grouping together Elements with similar abilities allows a shrewd commander to get more out of their Force. This is not always possible, given the more fractured nature of combat equipment production after the Star League. When it is possible, it can be a strong tactical benefit. Additionally, over the centuries some designs have proven their worth to a Force time and again, with even one of these Elements in an entire regiment meaning the difference between victory and loss.

Determining Quirks in SBF: If the players are using the optional *Alpha Strike* Design Quirks rules (see p. 59, *ASC*) they may use the Design Quirks Table to determine the effect the quirks have on their Force.

The Unit or Element column indicates if this quirk is available only when at least a Unit (4 or more Elements) has the same ability, or if the ability is available so long as one Element in the Force possesses it.

Creating Quirks: If the players are not selecting quirks from among those already published, they may assign quirks at the start of game play. Players may add as many quirks as they wish using the following guidelines.

For every Unit with a positive quirk, another Unit (or the same Unit) must take a negative quirk of the same cost. For example, one Unit in the force has the Battle Computer quirk, which costs 5 points. The player would need to choose an equal value in negative quirks, such as Poor Targeting (Long) and EM Interference (4-point and 1-point quirks, respectively).

Assigning Quirks: If a Unit qualifies for a quirk (either as a Unit or by having an Element with an Element quirk) then the abbreviation of the quirk is added to the Unit (or Formation, if applicable) record sheet.

Unit Destruction: If the Unit with a quirk is destroyed, the abilities or negatives generated by the quirk are lost even if the Formation of which the Unit was part remains operational.

SPECIAL PILOT ABILITIES

Ability	Abr.	Cost	Formation Ability	Unit Types	Effects
Animal Mimicry	UAM	2	—	BM, PM	Reduce movement costs through Heavy, Ultra-Heavy woods & jungles, as well as Urban hexes by 1 MP
Cluster Hitter	UCH	2	—	Any	If Unit does not move, add 1 point of damage to FLK or IR attacks.
Combat Intuition	UCI	6	Yes	Any	If force wins initiative, this Formation may mov e and attack before any other actions in the turn.
Cross-Country	UCC	4	Yes	V	Any Formation with wheeled or tracked Elements may enter wood, rough, rubble and depth 1 water at double the normal MP cost for this terrain type (even if prohibited).
Demoralizer	UDI	3	—	Any	A hostile Formation forced to make a morale check while in the same hex does so with a +1 modifier.
Environmental Specialist	UES	4	Yes	Any	May choose one ability from the Environmental Specialist Benefits Table (see p. 295)
Forward Observer	UFO	1	—	Any	Doubles the spotting bonus for Artillery and Indirect Fire attacks.
Golden Goose	UGG	3	—	*	All air-to-ground attacks receive a –1 to-hit modifier.
Ground-Hugger	UGH	2	—	*	May double the number of Units targeted with a Strafe or Strike attack.
Iron Will	UIW	4	Yes	Any	Receives a –1 modifier to any morale check.
Maneuvering Ace	UMA	4	Yes	Ground	Receives a –1 MP modifier per hex of woods or jungle moved.
Marksman	UMK	2	—	Any	If attack to-hit has an MoS of 3 or more, attack generates an additional critical hit roll.
Oblique Artilleryman	UOA	1	—	Ground	Receives a –1 to-hit modifier for all ART attacks.
Oblique Attacker	UOI	1	—	Any	Receives a –1 to-hit modifier for all IR attacks.
Range Master	ORM	2	—	Any	May swap Medium, Long or Extreme Range to-hit modifier with Short Range.
Shaky Stick	USS	2	—	*	Attackers receive a +1 to-hit modifier attacking this Unit.
Sniper	USN	3	—	Any	Reduce Long and Extreme to-hit modifiers by 1.
Speed Demon	USD	4	Yes	Any	Add 1 MP or Thrust Point to the Formation's base Move.
Stand-Aside	USA	1	—	Ground	Receives a –1 modifier to all Engagement Control rolls.
(Drag Racer)	UTD	3	Yes	V	Reduces MP cost for Urban hexes by 1 MP
(Forrest Ranger)	UTF	3	Yes	Ground	Reduces MP cost for Woods & Jungle hexes by 1 MP
(Frogman)	UTU	3	Yes	BM, PM	Reduces MP cost for Water hexes by 1 MP
(Nightwalker)	UTN	3	Yes	Ground	Ignores all effects for darkness
Weapon Specialist	UWS	3	—	Ground	May make a special attack that receives a –1 to-hit modifier but divides damage by 2 (round down).

Infantry Only Abilities	Abr.	Cost	Formation Ability	Unit Types	Effects
Light Horseman	UIL	2	Yes	CI**	Beast mounted gain +1 MP and reduce movement through woods, rough and jungle by 1 MP per hex.
Heavy Horse	UIH	2	Yes	CI**	Beast mounted add 1 point of damage for attacks at Short Range.
Foot Cavalry	UIF	1	Yes	CI	Foot infantry gain +1 MP and reduce movement through woods, rough, jungle and Urban by 1 MP per hex.
Urban Guerilla	UIU	1	Yes	CI, BA	Formation is +1 to-hit and reduces damage to itself by 1 when in an Urban, rough, or rubble hex.

* Applies to all AS type and V type with VTOL or WiGE movement mode.
** Beast Mountain Infantry only
Key: BM = BattleMech, PM = ProtoMech, V = Vehicle, CI = Conventional Infantry, BA = Battle Armor.

POSITIVE DESIGN QUIRKS

Quirk	Abr.	Cost	Unit or Element	Unit Types**	Effects
Accurate Weapon	PQAW	Variable	Unit	All	If Unit misses its attack roll by 1, it does damage equal to the value of this quirk (maximum of 2).
Anti-Aero Targeting	PQAA	*	Unit	BM, PM, V, MS	Gains a –2 to-hit on all aerospace or Units with VTOL or WiGE movement type. Has a +1 to hit all ground units, including landing aerospace.
Battle Computer	PQBC	+5	Element	BM, V	Force receives a +2 initiative so long as this Element is in the COM Unit and the COM Unit is active. Unit with the Element add MHQ6.
Command BattleMech	PQCM	+2	Element	BM	Unit with this Element adds MHQ3
Compact 'Mech	PQCP	+1	Element	BM	Element only uses 1/2 MT# when transporting non-infantry (see p. 269).
Distracting	PQDG	+1	Unit	Any	Any morale roles while sharing a hex with a hostile Unit with this quirk are done at a +1.
Improved Communications	PQIC	+2	Unit	All	Unit is immune to effects of ECM but remains susceptible to AECM.
Improved Sensors	PQIS	+3	Element	All	Element is treated as having PRB for SBC Conversion purposes (see p. 326). If 50% of Elements in Unit have PQIS, then increase detection range by 2 hexes (see Sensor Detection Range Table, p. 267)
Improved Targeting (Short)	PQTS	+3	Unit	All† and MS	Unit receives a –1 to-hit modifier at this range. May not be combined with Variable Targeting.
Improved Targeting (Medium)	PQTM	+4	Unit	All† and MS	Unit receives a –1 to-hit modifier at this range. May not be combined with Variable Targeting.
Improved Targeting (Long)	PQTL	+5	Unit	All† and MS	Unit receives a –1 to-hit modifier at this range. May not be combined with Variable Targeting.
Internal Bomb Bay	PQBB	+3	Flight	AS, LA	CT# or CK# ability can be used as BOMB# ability in SBF Conversion (see p. 326). Internal bombs do not reduce a Flights Thrust rating.
Narrow/Low Profile	PQLP	+3	Unit	BM, V	Attacks made against this Unit are at a +1 to-hit modifier.
Searchlight	PQSR	+1	Element	BM, V	Element is treated as having SRCH for SBC Conversion purposes (see p. 326).
Trailer Hitch	PQTH	+1	Element	V† †	Element is treated as having HTC for SBC Conversion purposes (see p. 326).
Variable Range Targeting	PQVR	Variable	Unit	BM, PM	Unit receives a –1 to-hit modifier on all attacks. Cost twice the highest damage possible by an Element in the Unit.

* Cost equal to the highest damage possible by an Element in the Unit.
** Unless specifically mentioned, Mobile Structures cannot have a quirk, even if it says All.
† Excluding Infantry and Battle Armor
† † Only Units with the "t" and "w" movement modes.

NEGATIVE DESIGN QUIRKS

Quirk	Abr.	Cost	Unit or Element	Unit Types**	Effects
EM Interference	NQEM	-1	Unit	All†	All rolls in the Detection Phase are done with a =1 modifier.
Fragile Fuel Tank	NQFT	-2	Element	All†	On any critical hit, roll a second 2D6. On a roll of 10 or more, the Unit takes 25% armor damage (round up).
Innaccurate Weapon	NQIW	Variable	Unit	All	Any attack that succeeds by an MoS of 1 or less must reduce damage by the value of this Quirk
Oversized	NQOS	-3	Element	BM, V	Any attack against a Unit with this quirk is at a –1 to-hit modifier.
Poor Performance	NQPP	-3	Unit	All†	If more than 50% (round up) of a Unit has this quirk, reduces its TMM by -1.
Poor Sealing	NQPS	-2	Unit	BM, PM, V, BA	Add +2 to all Critical Hit rolls made when underwater, in Vacuum or Trace atmosphere.
Poor Targeting (Short)	NQTS	-2	Unit	All† and MS	Unit receives a +1 to-hit modifier at this range.
Poor Targeting (Medium)	NQTM	-3	Unit	All† and MS	Unit receives a +1 to-hit modifier at this range.
Poor Targeting (Long)	NQTL	-4	Unit	All† and MS	Unit receives a +1 to-hit modifier at this range.
Poor Workmanship	NQPW	-1	Unit	All†	If more than 50% (round up) of a Unit has this quirk, reroll "No Appreciable Effect" if rolled on a Critical Hit roll. Do not roll again if "No Appreciable Effect" is rolled again.
Prototype	NQPR	-2	Unit	All	If more than 50% (round up) of a Unit has this quirk, roll twice for all Critical Hit rolls, keeping both results.
Sensor Ghosts	NQSG	-2	Unit	All	If more than 50% (round up) of a Unit has this quirk, all rolls in Detection Phase receive a +1 modifier and all attack rolls receive a +1 to-hit modifier.
Unstreamlined	NQUN	-1	Element	AS, LA	If any Element in the Squadron has this quick, it may not enter the atmosphere (Central Zone of the Capital Aerospace map)



Pressure Play

Herbert A. Beas II

LITANG VALLEY
BINYANG
FREE WORLDS LEAGUE
11 MARCH 2793

Skimming the treetops of Litang Valley as the powerful rotors of his Cyrano gunship propelled him through the sky at close to a hundred and thirty kph was normally a joy for Sergeant Kacey Kadar. The valley's sprawling expanse, nested in the middle of a wide ring of ash-gray, snow-peaked mountains, was a truly remarkable sight, especially in the sunrise hours, when a hazy fog lent it a nearly dream-like quality that belied the presence of agro settlements scattered throughout. Patrols over this area were among his favorite—especially during those lazy summers when the faerie-flies migrated past, their swirling patterns of glowing blue and shimmering purple covering the area in a living aurora that occasionally decorated his chopper's canopy in unsightly ways.

But today was different.

Today, the patrols weren't routine.

Today, the war had finally come to Binyang.

And today, Kadar's gunship wasn't the only one thumping its way across the valley. Glancing to his right, he saw Corporal Jolene's Cyrano mirroring his every tilt and turn as they skirted over the canopy. His sensor board displayed the friendly blips of the Rippers piloted by Corporals Payet and Winchester, holding their positions only slightly astern. This was a combat recon mission; somewhere below, according to HQ, was a Steiner attack force. It was up to Kadar's flight to get eyes-on so the ground-pounders back at Silong knew what they were up against, and where to start slinging shells.

Taking another deep breath of metallic air from his flight mask, Kadar dialed up his sensor feed and engaged his gunship's active probe on another sweep. His eyes flicked down to the display just as it finished.

There.

At the probe's extreme range, a hazy blob of red identified something that was definitely emitting EM radiation, but was still too far away for a positive ID. He eased the Cyrano into a lazy arc toward it, even as he keyed his mike on the tactical channel.

"Recon to Hut," he reported. "We have something here."

"Hut here, KayKay," came the reply. "What's it look like?"

His eyes again darted to the sensor as the forest below whipped by. The mountains in the far distance gave way to a distant sea. He judged the distance and landmarks as much from the memories of his countless patrols as he did from the probe's report. "Bearing due west of Grid Victor-Mike-Niner," he rattled off. "Estimating fifteen seconds to visual. Sensors picking up…eight contacts."

"Roger, Recon. Ready Group is Active."

"*Tallyho*!" came the call from Jolene's mark—followed less than a moment later by the shrill tones of a hostile targeting sensor.

In that instant, Kadar's probe resolved the amorphous blobs into the icons of four ground vehicles, with codes flashing as each hull was identified. Two Manticore heavy tanks, and two—

The sonic boom ripped by, but Jolene's Cyrano was already breaking formation, turning wide to the right before swinging its nose back toward the contacts. A second boom sounded in Kadar's ears, but fainter, more distant.

"Four tracks," Jolene tensely announced over the tactical channel, forcing her voice to stay level despite her near-death experience. "Two Fury, two Manticore… Four more tracks half a click farther east."

"Recon Group is taking fire, Hut," Kadar added. "All units, look alive! Recon One is going high."

The four copters immediately broke formation, with Kadar pulling his yoke back and bringing his Cyrano into a short climb as the others scattered to the flanks and Jolene skimmed lower, practically dragging her belly across the forest canopy. The target sensor warning receded in Kadar's ears, but only for half a second. A bolt of azure lightning flashed past his canopy, about thirty meters too far to his left. His eyes once more took in the probe's display, where a second group of icons had finally resolved.

"Second lance of crawlers confirmed, Hut; two more Manticore, two…" *Oh, hell!* "…Rhinos."

"Recon Three, taking fire!" came a nervous call from Winchester's Ripper. Kadar felt, rather than saw, the cloud of missiles that shot wide and to the right, below his Cyrano's hull. "Shi—!"

Winchester's icon flickered, then winked out after an erratic spin to the north.

Kadar bit his tongue hard enough to taste copper.

"Recon, this is Hut. Disengage!"

Kadar's eyes narrowed. What the hell did HQ *think* they were doing?

"All units," he snapped. "Regroup high; get out of their range!"

Kadar flew higher, his Cyrano's engine screaming as he pushed them to top speed. On his radar, he saw Payet's Ripper swinging around to meet him, but Jolene was still drifting off to his right.

"Recon Two—" he began.

"Contact!" she shouted back. "Walkers!"

What?

Once again, Kadar glanced at his display, finding Jolene's chopper, then following it further to the display's edge. He pinged the probe again… just in time to see a new group of four icons flash to life there.

"Scatter, Recon Two!" he barked. "They're powering up. Hut! We have Bravo-Mikes in the field! Requesting fire mission at Grid Victor-Lima-Seven-Five!"

"Recon, Hut! Fire mission acknowledged! Do you have a visual?"

Another sonic boom—once more distant and below Kadar's position—drew his eyes to the radar. Jolene's Cyrano remained alive. He let out the breath he didn't know he'd been holding.

"Hut," Jolene's voice came back. "Recon Two has visual. At least six Bravo-Mikes in the target area."

Six? Kadar swung his helicopter around, leading Payet toward Jolene's position. Looking at the forest floor below, he saw only the undulating treetops below, but as his probe refreshed the radar screen, six icons in neat formation



appeared—poised an easy half-kilometer away from the tanks that continued to crawl along on the ground behind him.

Just freaking great*!*

▲▼▲

"Hut to Anvil Lance," a voice growled from the speakers of Junior Lieutenant Eloy Abdurram's neurohelmet. "Be advised: confirmed hostiles include six Bravo-Mikes, eight heavy tracks. Hammer Lance is already en route; they'll need your fire there. Get moving."

Abdurram scowled even as he saw the nav markings appear in his HUD and he instinctively turned his sixty-five ton *Thunderbolt* to face its new objective. Somewhere behind him, the rumble of the fire base's artillery erupted again, flinging their shells far ahead. A reinforced company, he mused. These Lyran raiders weren't messing around out here.

"Hut, this is Anvil One," a new voice spoke up—that of Senior Lieutenant Cala al-Biden, Abdurram's lance commander. "Are you sure that's wise?"

Abdurram winced. "Damn it, LT!" he muttered to himself, making sure the mike was off. "That's how you get busted in this outfit!"

He knew al-Biden saw herself as a tactical genius, but it amazed him sometimes that the higher-ups tolerated the way she questioned orders. He wouldn't have dreamed of doing that; no matter how bone-headed the command may seem, Abdurram figured that the command staff knew the big picture better than the common 'Mech grunts.

Still, his CO wasn't moving out just yet, so neither could he.

The voice from the firebase sounded only slightly annoyed when it came back. "Affirmative, Anvil One. Get moving, before you miss the party. Hammer's waiting."

A sigh punctuated al-Biden's acknowledgment, and soon her hulking *Emperor* was stomping forward, working its way into the forest and toward the distant battle.

Abdurram shrugged to himself and pushed his throttle forward, falling in line with al-Biden as another whump of artillery sent a volley of high-explosive shells toward the distant Lyran lines.

Their assault lance was a standard twin-pair of 'Mechs, two *T-Bolt*s and two *Emperor*s, and the terrain was uneven. At full speed, Abdurram guessed, it would take them more than twenty minutes to reach the grid position described by the recon flight. Though he tried to force the butterflies in his stomach to settle down, the tension only seemed to build with each step his BattleMech made through the woodlands. The utter lack of comm chatter began to eat away at his nerves.

Perhaps that was why he opened the channel to al-Biden's 'Mech before he even realized what he was doing.

"Sir?" he began uneasily.

Al-Biden's tone was cold. "Yes, Anvil Two?"

"Are you okay?"

Her sigh was almost inaudible this time, over the muffled thumping of their 'Mech's footfalls, but when she finally answered, her voice was far less clipped. "Yes, Eloy. You?"

"Actually, I think I'm getting…antsy here."

Another brief delay. "I know the feeling," she said. "Just focus on the task. We've got this."

"If you say so, sir," Abdurram said lamely.

"I just don't like leaving the firebase open like this," al-Biden said suddenly.

Abdurram nodded, though there was no way she could see him. The firebase at Silong Village still had a company of light armor and infantry for defense, plus a lance of lighter 'Mechs, but the heaviest weapons behind them were the artillery battery that now hammered the Elsies. Anvil Lance was a slow group, festooned with heavy armor and weaponry; common wisdom held that it was best used for defense or siege missions.

But while Abdurram could understand his CO's concerns, second-guessing the strategy of the officers above his pay grade was Al-Biden's strong suit, not his. With a large enemy force clearly incoming, he figured the commanders back at "the Hut" believed that a better defense would be a powerful offense, keeping the enemy tied up farther away from the command centers. After all, conventional wisdom also held that eight BattleMechs backed by arty and possessing an intimate familiarity with the terrain held a clear advantage over six 'Mechs and some tanks, especially in a woodland fight.

They'd been marching for almost fifteen minutes when Abdurram's external pickups detected the first sounds of heavy weapons fire other than the base guns. His radar display painted four blue icons moving laterally along the maximum detection range, each tagged by the code letters for Hammer Lance members. A few red markers were evident as well, but ground clutter kept his sensors from picking out the models.

"Hammer Lance, report!" al-Biden's voice called over the tac channel.

"They just rushed us!" someone called back, a trace of panic in his voice, even as he struggled to keep his words clear. "We count two *Griffin*s, two *Firestarter*s, backed by Manticore tracks."

"That's it?"

"We know there's a couple Furys and Rhinos out there, too, plus a pair of those old *Ymir*s."

That last one furrowed Abdurram's brow. "Ymirs*?*" he blurted out. "Are they throwing *junk* at us?"

"Seal it, Anvil Two," al-Biden snapped, but he could hear her own tension bleeding out. "Pull back toward us, Hammer Group," she said. "The Anvil is coming. Mark our position, Hut! We have contact with enemy raiders."

Yeah, Abdurram thought with a wry grin. *These Elsies* really *underestimated us this time!*

Flexing his fingers on the firing studs of his controls, Abdurram adjusted his posture, feeling his senses come to life all at once. He shouldered his *Thunderbolt* through another clump of trees, easily keeping pace with al-Biden's *Emperor* to his left, and guided his reticule toward a red targeting block painted on his HUD. Any minute now, he knew, the foliage would give way, and he'd have a clean shot at what he hoped would be a *very* surprised Lyran…

"Hut!" a new voice suddenly broke into the tactical channel. "Recon Group has air contact near the engagement zone! Repeat! Air conta—!"

Abdurram blinked. He'd forgotten the recon choppers were even in the valley at this point. Now, no sooner had the realization dawned on him that he heard the roar of aerospace fighter engines. The rumble passed just overhead, like a peal of thunder, close enough to cast a fleeting shadow through the openings in

the forest canopy above. His sensor display painted four angry red arrows, screaming past his position at speeds.

"Recon Group, this is Hut!" the base comm officer called out. "Respond!"

Silence was the only answer.

Until the trees parted in front of Abdurram's 'Mech, and all hell broke loose…

▲▼▲

COMMAND DECK, DROPSHIP VIDAR EISENBOOT
HIGH ORBIT OVER BINYANG
FREE WORLDS LEAGUE

"Third Ninth has engaged," Hauptmann Neva Romante said, her voice calm. The glow of the holotank reflected off her glasses and washed out her dusky complexion, while the dark blue of her field jacket practically absorbed the shadows. To Kommandant-General Aric Hasseldorf, she almost appeared as a spectral, disembodied head.

The projection before her showed an expanse of woods clustered inside the rim of a mountain chain that looked like a backwards "C". A few icons indicated the positions of cities, while a grid measured out distances. The holo also marked off the location and courses of the passing LCAF DropShips which ejected fighters and 'Mechs alike into a part of the miniaturized forest that now seemed alive with red and blue fireflies.

Only now, there were more blue fireflies than red.

"Any IDs yet?" he asked, fixing his eyes on where he imagined her pupils were.

"One sec," Romante said, then fell silent for a moment. "Contact is good. They confirm the command center out of Silong. Heavy artillery… Looks like a company of 'Mech forces… Getting a visual…"

With a touch of the data panel in front of her position, she brought up an image on the flat screen nested just outside of the holotank's glowing field. She then swung the panel's face to show a grainy image, tightly focused on what looked to be the shoulder panel of a battered *Wolverine*. There, below the eagle of House Marik, the white stenciling over the woodland camo pattern showed the code "312": Third Battalion, First Company, Second Lance.

"Same battalion as the vehicle company we found at Hasong," he muttered.

"Looks like," Romante agreed. "Our fighters have already neutralized the Silong batteries."

"Strike runs only?"

"As you ordered, though at least half the squadron took some serious flak in the exchange. Hauptmann Bracher says he's sending a lance back to base for repair."

Hasseldorf nodded and leaned forward, studying the imaginary valley. "As long as we keep the collateral damage down, it's worth it. We don't need to give the Leaguers another reason to play the scorched earth game here."

Romante didn't answer, but Hasseldorf could easily imagine her scowl. Thanks to that strutting fool Johonson, the fall of Bolan involved far more atomics than necessary under any circumstances. The Bolan Defenders had a reputation for fanaticism, but a more surgical approach could have avoided the loss of millions of lives. To say nothing of the billions more who died during the reprisals that followed on Altoona, Myrrdin, and Rochers.

And just imagine, thought Hasseldorf with a shake of his head, *they actually* promoted *Johonson for that debacle!*

He sighed and swiped a finger across the display controls. The view shifted, centering on the valley battle. Another swipe zoomed the projection to the tactical scale. The red and blue fireflies resolved themselves into miniature replicas of the BattleMechs and vehicles that were clashing on the planet below. Devoid of camo patterns and insignia, each unit appeared in neon outlines: red for the remaining League 'Mechs, blue (naturally) for the Lyrans.

"So," he said finally. "We have confirmed the Thirteenth's Third Battalion covering this valley…and their Second is at Kinwall…"

"Half a world away," Romante observed.

Hasseldorf nodded. "So that leaves only one battalion left to cover the primary spaceports at Hanning."

"Looks like," Romante agreed. "Everyone else is tied up by the Ninth."

Hasseldorf finally allowed himself a smile as he absentmindedly smoothed back his hair and straightened himself out. The miniature firefight in the holo-field still held his gaze in an almost hypnotic trance, but his mind was moving toward the endgame.

"*Sehr gut*," he said. "Time to end this. Have the Sixteenth execute a full drop on Hanning; send it all in."

"*Jawohl*," Romante answered.

As she began to relay the order, Kommandant-General Hasseldorf once again focused his attention on the action inside the holotank, where the last of the Marik 'Mechs—a *Thunderbolt* rendered in glowing crimson—collapsed under the combined fire of a *Zeus* and *Griffin* blazing in Steiner blue.





Fighting became even more desperate once the inner walls of Kerensky Bloodchapel were breached.

ABSTRACT COMBAT SYSTEM

The *Abstract Combat System* (*ACS*) allows players to fight large, multi-regiment battles without the need to track every detail of the forces involved. Where Total Warfare sees players fighting for a small scrap of land or single building objectives, *ACS* allows players to play out the conflict for entire worlds.

Players can use these rules as a standalone system, as a supplement to any existing campaign, or as part of the *Inner Sphere at War* (see p. 344). The *Abstract Combat System* is based on *Strategic BattleForce* (see pp. 230-244) and *Strategic Aerospace* (see pp. 245-249). Players should be familiarize themselves with these rules prior to playing an *ACS* scenario.

GAME TERMS

The following terms will occur frequently throughout these rules. Players should also familiarize themselves with the *Strategic BattleForce* terms (see pp. 230-231).

***ACS* Formation (Combat, Recon, Aerospace):** An *ACS* Formation (usually referred to as just Formation in these rules) is collection of Combat Units which operate as a single playing piece on the *Abstract Combat System* game board. Formations operate similarly to how they operate in *Strategic BattleForce*.

Combat Command: Is a term from *Inner Sphere at War* and refers to the in-universe military units that make up the Force of a BattleTech faction. Combat Commands can range from a single battalion (e.g. the Death Commandos) to multiple regiments of mixed forces (e.g. a Federated Suns RCT). In *ACS* game play, Combat Commands are represented by Combat Units or Formations and are not directly used.

Combat Unit: A Combat Unit operates like the *Strategic BattleForce* Unit, serving as the building blocks for the *ACS* Formation. A Combat Unit is made up of 2-4 Combat Teams. Combat Units map to the in-universe Inner Sphere battalion, ComStar Level III or Clan Trinary. (Players should note that one ComStar / Word of Blake Formation in *Strategic BattleForce* is most commonly two Level IIs, so a ComStar Combat Unit, or Level III, would be made up of three Combat Teams, not six.)

Combat Team: Combat Teams are the smallest building block in constructing an *Abstract Combat System* force and are directly equivalent to a *Strategic BattleForce* Formation. They are not a playable unit in *ACS* play, instead serving as a building block for creating Combat Units.

Gamemaster (GM): A neutral third-party is necessary for the *Abstract Combat System*, as it makes use of the *Strategic BattleForce Detection and Reconnaissance* rules (see p. 265), as well as hidden units and combat between Blip Counters (requiring modifiers for Target Numbers to be adjudicated).

Star-System Radar Map (SSRM): The SSRM represents a single solar system with the primary world in the system at the center of the map. The SSRM is a scaled up version of the Capital-Scale Radar Map used in Strategic Aerospace.

Planetary Combat Map (PCM): The PCM is the primary game play map. The circular map is an abstract representation of the surface of a world, where ground combat will take place. At standard *ACS* play scale, terrain is not a factor and is not represented on the PCM.

FORCE STRUCTURE TABLE

Term	Descriptions
Force	Any number of Formations or Combat Units of a single faction on a world
Formation	Up to 15 Combat Units
Combat Unit	3 Combat Teams
Combat Teams	
Inner Sphere*	12 Elements (6 for aerospace Combat Teams)
Clan	5 Elements
Elements	
Inner Sphere*	1 'Mech, 1 Vehicle, 1 Battle Armor Squad, 1 Infantry Platoon, or 1 Fighter
Clan	1 'Mech, 1 ProtoMech Point, 1 Battle Armor Point, 2 Vehicles, or 2 Fighters

*Including Periphery, ComStar, and Word of Blake factions.

COMPONENTS

RECORD SHEETS

Players use record sheets to track various types of information while playing *Strategic BattleForce*. Each Unit has its own list of statistics (stat block). The *Strategic BattleForce* and *Abstract Combat System* Conversion rules (see p. 326) cover how to convert from *Alpha Strike* and *Strategic BattleForce* to *Abstract Combat System* stats listed below.

Because Combat Units may move from one Formation to another, during game play, *ACS* uses detailed Record Sheets for the Combat Units and only a basic tracking sheet for Formations.

Formation Tracking Record Sheet

Most relevant details of a Formation are actually found within the Combat Units that comprise it and only a few key stats are tracked at this level. There are a few Formation-specific items, however. Because Combat Units can change formations during the game, it is recommend to place the Formation Record Sheet in a protective sleeve and use dry erase marker to notate the Formation specific stats.

ID: The Blip Counter ID (see *Formation Setup*, p. 310) that is assigned to this formation.

Type: In *ACS* Formations are either Ground or Aerospace. Type does not change during gameplay. However, Ground Formations can switch roles between Recon or Combat Formations (see Switching Roles, p. 312).

Move: The Formation's available Movement Points. A Formation's MP that of the slowest Combat Unit in the Formation.

Tactics: An ability consulted during combat for several factors.

Morale: The value consulted when the Formation is forced to make a Morale check. (See *Morale*, p. 317**)**.

Skill: A Formation's over all skill is primarily used to create the Formation Tactics and Morale values. All combat rolls occur at the Combat Unit level.

Combat Unit Record Sheet

Combat Units are the primary combat component in *ACS* play. A Combat Unit is contiguous through game play so its stat block is set at the start of the game. Each Combat Unit's stat block consists of the following:

Type: Whether the Combat Unit is classified as Aerospace, BattleMechs, Infantry (including battle armor), Mobile Structures, ProtoMechs, or Vehicles. If there is no predominant Type within a ground Unit, the Unit Type will be Mixed Ground.

Size: The Combat Unit's size class (in *BattleForce* scale). This is an average of the Element Sizes that make up the Formation.

Move: The Combat Unit's available Movement Points.

Transport Move: The Combat Unit's Movement Points if all transportable Elements are being transported.

Armor: How much damage the Unit can take before being destroyed.

Target Movement Modifier: This modifies the chance to-hit of most attacks made against units within the Formation.

S/M/L: Short/Medium/Long. The Unit's damage values when making attacks at those three ranges.

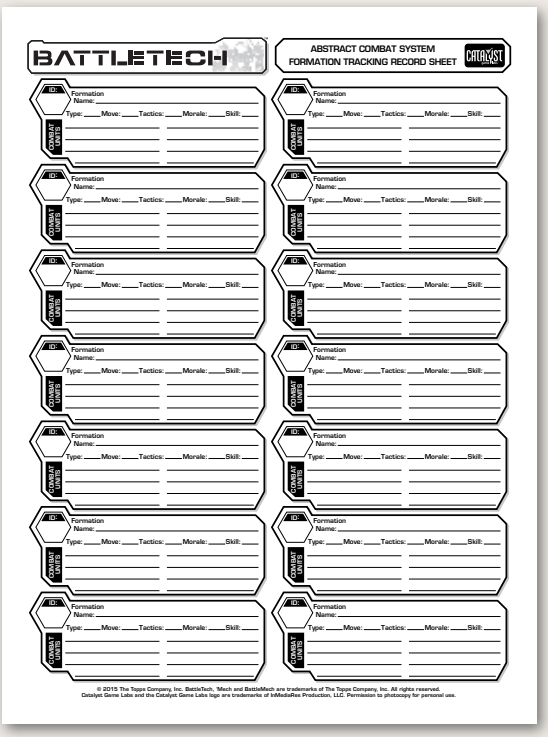
Tactics: An ability representing a combination of the Formations skill and speed. It is primarily used to determine Engagement Control and targets for damage.

Morale: The value consulted when the Formation is forced to make a Morale check. (See *Morale*, p. 317**)**.

Skill: The Formation's average Skill value which is used for determining a Combat Unit's base to-hit as well as serving as the base for Morale and Tactics values.

PV: Point Value. The points needed to select this Formation as part of your Force, and the value of the Formation when determining victory conditions (see p. 318). This is simply the total PV of all Units within the Formation.

Morale Check Triggers: These three numbers indicate when a Combat Unit must make a Morale Check as a result of damage.

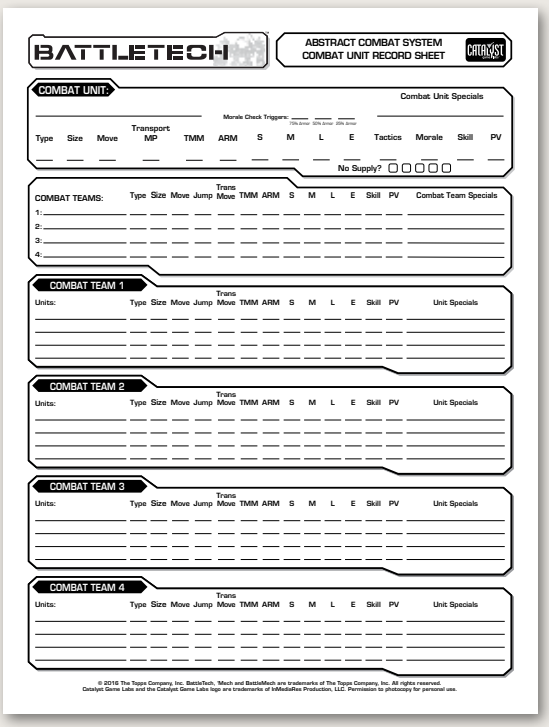

BATTLETECH

ABSTRACT COMBAT SYSTEM
FORMATION TRACKING RECORD SHEET

CATALYST game labs

ID:
Formation Name:
Type: ___ Move: ___ Tactics: ___ Morale: ___ Skill: ___
COMBAT UNITS
ADVERSARY UNITS

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BATTLETECH

ABSTRACT COMBAT SYSTEM
COMBAT UNIT RECORD SHEET

CATALYST game labs

COMBAT UNIT:

Combat Unit Specials

Morale Check Triggers: ___ (75% Armor) ___ (50% Armor) ___ (25% Armor)

Type | Size | Move | Transport MP | TMM | ARM | S | M | L | E | Tactics | Morale | Skill | PV

No Supply? ☐☐☐☐☐

COMBAT TEAMS: | Type | Size | Move | Trans Move | Jump | TMM | ARM | S | M | L | E | Skill | PV | Combat Team Specials

1:
2:
3:
4:

COMBAT TEAM 1
COMBAT TEAM 2
COMBAT TEAM 3
COMBAT TEAM 4

Units: | Type | Size | Move | Trans Move | Jump | TMM | ARM | S | M | L | E | Skill | PV | Unit Specials

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SCALE

Abstract Combat System is intended to replicate large invasions of worlds. To support this, the *Abstract Combat System* primarily uses abstract range and maps for both aerospace and ground play.

MAP SCALE

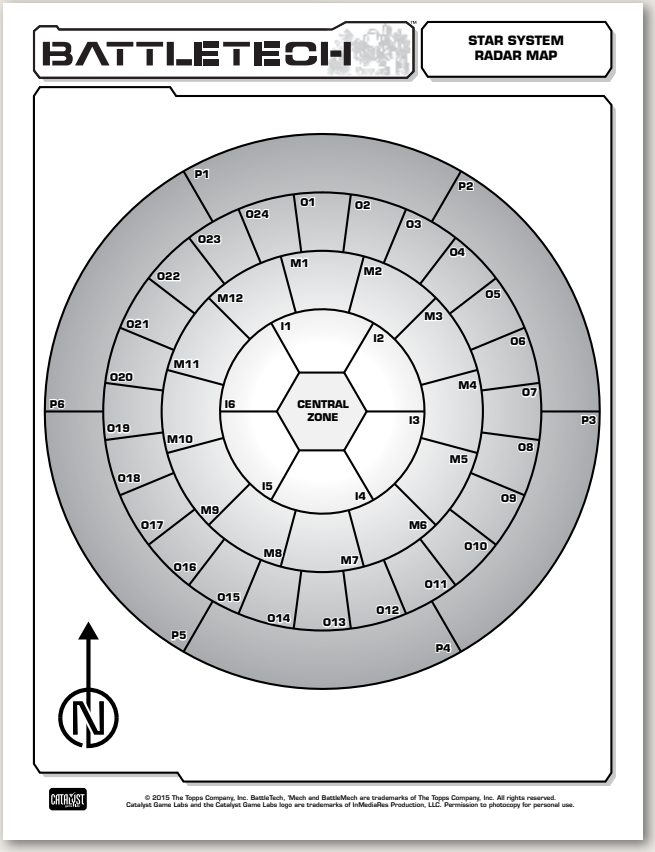
Star-System Radar Map: Scaled up from the Capital-Scale Radar Map in *Strategic BattleForce*, this map represents the entire start system from the Nadir and Zenith jump points to directly over the surface of the world where combat will take place. Sectors of the SSRM very in size depending on which zone they lie in. In the average system a Peripheral Sector is millions of kilometers across, while a Sector of the Inner Zone is roughly 6000 kilometers.

Planetary Combat Map: This mapsheet abstractly represents the planet's surface. With an average world being between 35,000 and 50,000 kilometers a hex would roughly represents 3500 kilometers. However, because terrain (including oceans and other unpassable terrain) is not used, the hexes are actually smaller, representing the usable land mass on the world. A PCM hex is roughly equal to 750 kilometers.

The PCM is represented by placing the blank side of a BattleTech hex map down. To define the map borders player should place some kind of boundary marker along the outside edges of hex row 0801 to 0105, hex row 0801 to 1505, hex row 0815 to 0112 and hex row 0815 to 1512, in order to create a hexagonal map area. With hex 0805 the center top, the bottom left corner is Player A's off-board tracking area and the bottom right corner is Player B's off-board tracking area. See the Planetary Combat Map Diagram for an example.

TURN LENGTH

A single *ACS* turn lasts approximately 3.5 days (84 hours), with eight turns taking 1 month or 1 *Inner Sphere at War* Turn.



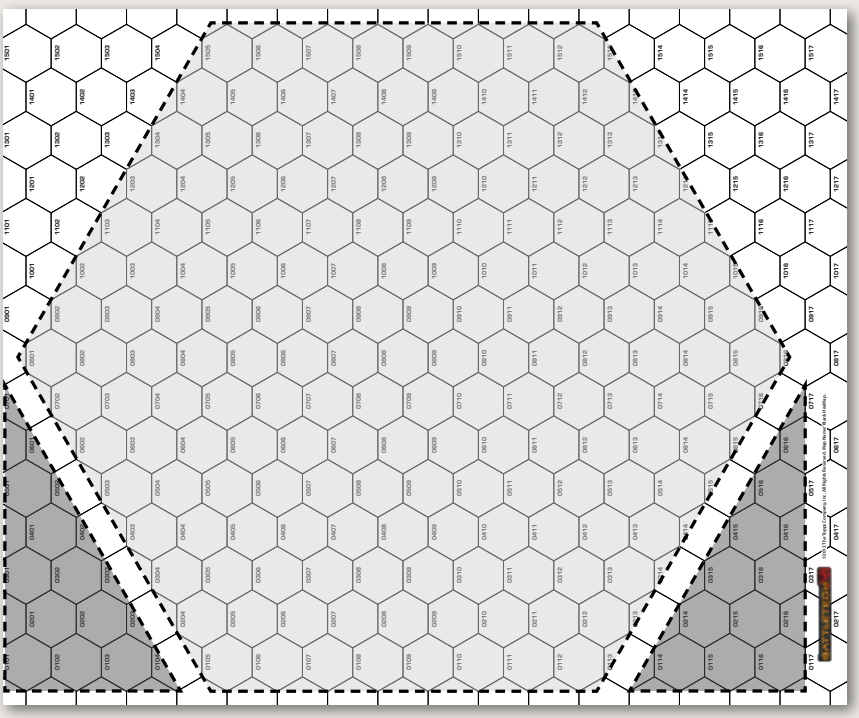
• STAR-SYSTEM RADAR MAP DIAGRAM •

FORCE STRUCTURE

Formations: The *ACS* base playing piece is that of a Formation, which loosely maps to regiments, Level IV or Clusters. Formations are composed of two to eight Combat Units (two to eight battalions) or one Artillery Combat Unit.

Combat Units: A Combat Unit is equal to one Inner Sphere/ Periphery Battalion, ComStar/ WoB Level III or a Clan Trinary (see below). Ground Combat Unit are made up of two to six Combat Teams consisting of a maximum of forty-eight Elements (individual BattleMech, tank, battle armor squad, infantry platoon and so on). Aerospace Formations are from one to four Combat Units consisting of a maximum of 40 aerospace Elements.

Clan forces: Clan *Strategic BattleForce* Formations and *Abstract Combat System* Clan Combat Units are both based off the Trinary. This game scale is set in part for game balance and in part represents that Clan armies are smaller and rarely deploy large forces. Clan Combat Units (ground and aerospace) may be from one to four Units (Stars), consisting of a maximum of 30 individual Elements. This allows vehicle and aerospace Trinaries to be fielded in Abstract Combat play as a single Formation.



• PLANETARY COMBAT MAP DIAGRAM •

SETUP

For a standard pickup game, players may convert forces from *Strategic BattleForce (*see p. 326*)*.

For *Inner Sphere at War* campaigns use the setup rules outlined in the *Starting Military* section of *ISW* (see p. 348).

The *Abstract Combat System* is designed exclusively for campaign play with *Inner Sphere at War*. Players wishing to adapt it to work using another campaign system should agree on all rules before starting play.

FORCE COMMANDER AND COMBAT UNIT LEADERS

Each player must designate a single Combat Unit in their force to be the Force Commander. This Unit is assigned the COM special ability. Any Formation with two or more Combat Units must assign one Combat Unit as the Formation Leader. This Combat Unit receives the LEAD special ability. While Sub-Commanders generally are also Formation Leaders, they are not Formation specific and move with the SCOM Combat Unit.

LEAD and COM has an impact on determining damage, morale and other optional rules. COM works the same as the LEAD ability save that only one may be assigned to a force.

FORCE RECORD SHEETS

At the start of play all players should have record sheets for all Combat Units in their force. They should also have as many Force Tracking Sheets as needed for play (see *Formation Setup*, p. 310).

All Combat Units should begin play assigned to a Formation. For ISW campaigns starting Formations should be based off the Combat Commands involved in the force (within the limits of *Formation Setup*, see p. 310).

LEADERSHIP RATING

Leadership Rating (LR) represents the skill of a player's force. The Force Commander's Leadership ability impacts a force's ability to out think and outmaneuver the opponent. The LR of a Force depends on its Experience Rating, as detailed in the Force Experience Table (see p. 367). The experience of the Force Commander (COM) Combat Unit determines the Leadership Rating for a force. So even if most of the force is green, if the Force Commander is elite, the Leadership Rating will be based on the elite ranking.

PLAYING THE GAME

This section provides an overview of the *Abstract Combat System* gameplay. For simplicity, these rules presume that each game is made up of two sides, controlled either by two players or by two teams of players. Whenever the rules refer to a player, that term can mean a team of players as well as an individual.

Naval-only scenarios: *ACS* Abstract Aerospace rules may be used to play out naval engagements, landing on the target world is not required.

MASTER MODIFIERS TABLE

In the *Abstract Combat System* the majority of modifiers are shared across multiple rules and phases. Instead of publishing several highly similar tables, the *Abstract Combat System* Master Table (see pp. 308-311) provides the most common modifiers used in *ACS* play.

SEQUENCE OF PLAY

The *Abstract Combat System* follows a similar sequence of play to *Strategic BattleForce.* Each turn all pieces on the map will follow the sequence of phases as listed below. Unless otherwise noted, only one action may be taken per phase (movement, combat, and so forth). Each phase includes a Recon, Ground and Aerospace sub-phase, covering specific rules for each.

In each phase all recon actions are performed first. Next all aerospace actions (if any) are performed. Finally ground actions take place. In game play, recon actions are assumed to take place first, while aerospace and ground are treated as happening simultaneously during the turn.

Step 1: Initiative Phase

Each player rolls 2D6 and adds the results together to determine Initiative; re-roll ties. The player with the higher result wins the Initiative for that turn.

Step 2: Deployment Phase

In the first turn of the game and any turn where new Combat Units arrive on the battlefield (SSRM or PCM) players must deploy their forces. The player with the lowest initiative places a Formation following the Deployment Phase rules and then the winner of initiative places a Formation on the map. This repeats until all Formations are deployed.

If there are no new forces arriving in the turn, this step is skipped and play moves immediately to Step 3: Detection and Reconnaissance Phase.

Step 3: Detection and Reconnaissance Phase

In this phase newly detected Blips are placed on the appropriate map and each side conducts recon to reveal information about hostile Blip Counters on the battlefield. The player who won initiative goes first when conducting recon.

Step 4: Movement Phase

The player with the lowest Initiative roll moves one of their Formations first. Presuming an equal number of units on the two sides, the Initiative winner then moves one of their Formations, and the players continue alternating their unit movements until all units have been moved. Recon, Aerospace and Ground movement occurs sequentially with all Recon movement completing before aerospace and all aerospace before ground movement.

If, during a sub-phase, the number of Formations per side is unequal, the player with the higher number of Formations must move more units in proportion to that of their opponent. See *Unequal Number of Units* (see p. 234) for details.

Step 3: Combat Phase

The player with the lowest Initiative roll acts first in the Combat Phase. This player then declares and resolves all of their Formations' combat actions at this time, followed by the Initiative winner. The Combat Phase only has sub-phases for aerospace and ground combat. Recon Formations may be targeted directly in the Combat Phase.

Step 4: End Phase

Both players may complete the End Phase simultaneously. In this phase, each player checks Fatigue, Morale and expends supply.

After resolving all End Phase actions, the turn ends and the players return to Step 1, repeat all these steps until one side meets its victory conditions for the scenario. Once victory has been determined, players may also determine salvage for campaign games.

ABSTRACT COMBAT SYSTEM MASTER MODIFIER TABLE

	INITIATIVE	DETECTION AND RECONNAISSANCE			MOVEMENT	COMBAT				MISC. MODIFIERS	
Effect or Situation	Initiative Bonus	Concealment	Detection	Recon	Engagement Control	Manuever	Attacker To–Hit	Target	Damage Modifier*	Morale	Combat Drop
Equipment											
Probes: Bonus to Recon	—	—	+1	+1	—	—	—	—	—	—	
ECM: Prevents Recon, Reduces damage	—	—	+0	–1	—	—	—	—	–0.1	—	
Drone Carrier: Bonus to Recon, Flank/Rear	—	—	+1	+1	+1	+1	—	—	—	—	
Recon: Bonus to recon, bonus avoid Flank/Rear	—	—	+1	—	+1	+1	—	—	—	—	
Remote Sensor Dispresor: Resist recon, resist flank/Rear	—	—	–1	–1	+1	+0	—	—	—	—	
LAMs: Bonus to Recon, Bonus to Air Defense	—	—	+1	+1	—	—	—	—	+0.2†	—	
Satellite Recon	+1	—	+2	+1	—	—	—	—	—	—	
Combat Unit has a C^3 Network	—	—	—	—	—	—	—	—	+0.2	—	
Force Abilities											
Leadership Rating	+/–LR Mod		—		+/–LR Mod	—	—	—	—	+/–LR Mod	+/–LR Mod
Force has Questionable Loyalty	—		—		–2	—	+1	+1	—	+1	—
Force has Reliable Loyalty	—		—		0	—	—	—	—	–1	—
Force has Fanatical Loyalty	—		—		+2	—	–1	–1	—	–4	—
Faction has Superior Combat Doctrine	+1		—		–1	—	–1	—	+0.1	—	—
Faction has Flawed Combat Doctrine	–1		—		+1	—	+1	—	–0.1	—	—
Formation Modifiers											
Formation is Mercenary	—	—	—	—	–1	—	—	+1	—	—	—
Formation is Infantry only	—	—	—	—	+2	—	—	+1	—	+2	–2
Formation is vehicle only	—	—	—	—	+1	—	—	—	—	+1	+1
Formation has Engineers (ENG12+)	—	—	—	—	–1	—	–1	+1	+0.0/–0.2	—	—
Formation has (TRN12+) Trenchworks/Fieldworks Engineers	—	—	—	—	–1	—	–1	+1	+0.0/–0.2	—	—
Formation is Hidden	—	—	+2	—	—	—	—	—	—	—	—
Formation Conducts an Ambush	—	—	—	—	—	—	–1	—	—	—	—
Formation has arrived on Transport Orders	—	—	—	—	—	—	—	–2	—	—	—
Target has Fortify/Dug In Orders	—	—	—	—	—	—	—	—	+0.0/–0.1	—	—
Attacker/Target has Defend Orders	—	—	—	—	—	—	—	—	+0.0/–0.1	—	—
Attacker has Headhunting or Infrastructure Destruction Attack Orders	‡	—	—	—	—	‡	‡	—	‡	—	—
Aerospace Formation	—	–1	+2	—	—	+2	—	–2	—	—	—
Recon Formation: One Hex	—	—	+3	—	+2	–2	+1	+1	–0.5 / –0.5	—	—
Recon Formation: Two Hexes	—	—	+2	—	+2	–2	+1	+1	–0.5 / –0.5	—	—
Recon Formation: Three Hexes	—	—	+1	—	+2	–2	+1	+1	–0.5 / –0.5	—	—
Recon Strike§	—	—	—	—	—	—	—	+2	–0.75 M / -0.5 L	—	—
Aerial Recon	—	—	+2 to +4	—	—	—	—	—	—	—	—
Engagement Control: Forced Engagement	—	—	—	—	–3	+1	+0	+0	–0.5 / –0.5	—	—
Engagement Control: Overrun	—	—	—	—	+/– Size Diff.	—	+0	+0	–0.75 S / –0.5 M	—	—
Engagement Control: Successful Evade		—	—	—	–3	—	+1	—	—	—	—
Engagement Control: Failed Evade	—	—	—	—	—	—	+1	+2	–0.5 / –0.5	—	—

* Damage Modifier for the damage a Formation deals; any amount after the slash modifies the damage a Formation receives.
† Against aerospace Formatons only.
‡ See Headhunting, p. 361.
§ Only for the Recon Strike attack roll and damage; Recon Formation modifiers not applicable.

ABSTRACT COMBAT SYSTEM MASTER MODIFIER TABLE (CONTINUED)

	INITIATIVE	DETECTION AND RECONNAISSANCE			MOVEMENT	COMBAT				MISC. MODIFIERS	
Effect or Situation	**Initiative Bonus**	**Concealment**	**Detection**	**Recon**	**Engagement Control**	**Manuever**	**Attacker To–Hit**	**Target**	**Damage Modifier***	**Morale**	**Combat Drop**
Engagement Control: Rear Guard Tactic, Attacker entering from primary direction	—	—	—	—	–2 ‖	–2	—	—	+0. 0 (–0.5 against another Formation) / –0.25	—	—
Engagement Control: Rear Guard Tactic, Attacker entering from opposite direction	—	—	—	—	+2	—	—	—	+0.0 (–0.5 against another Formation) / –0.25	—	—
Engagement Control: Rear Guard Tactic, Attacker entering from "side" direction	—	—	—	—	–1	–1	—	—	+0.0 (–0.5 against another Formation) / –0.25	—	—
WarShip	—	—	—	—	—	—	—	—	—	—	—
Combat Unit											
Wet Behind the Ears	—	+3	—	–3	+3	+4	+2	+2	–0.2	+2	+4
Really Green	—	+2	—	–2	+2	+3	+1	+1	–0.1	+1	+3
Green	—	+1	—	–1	+1	+2	—	—	—	—	+2
Regular	—	—	—	—	—	+1	–1	—	—	–1	+1
Veteran	—	–1	—	+1	–1	—	–2	—	+0.1	–2	—
Elite	—	–2	—	+2	–2	–1	–3	—	+0.2	–3	–1
Heroic	—	–3	—	+3	–3	–2	–4	—	+0.3	–4	–2
Legendary	—	–3	—	+3	–4	–3	–4	—	+0.4	–5	–3
Target Movement Modifier	—	—	—	—	—	—	+TMM	—	—	—	—
Morale: Shaken	—	–1	–1	–1	+1	+0	+1	–1	—	—	—
Morale: Unsteady	—	–2	–2	–2	+2	+1	+2	–2	—	—	—
Morale: Broken	—	Autofail	–3	–3	+3	+2	+3	–3	–0.2	—	—
Morale: Retreating / Routed	—	Autofail	–4	–4	Auto Fail	+2	+4	–4	–0.4	—	—
Fatigue	—	–0 to –5	–0 to –5	–0 to –5	+0 to +5	+0 to +5	+0 to +5	—	–0 to –0.4	+0 to +5	+0 to +5
No Supply	—	—	—	—	+4	—	+3	—	– 0.1¶	+4	—
Conducted a Quick March		Autofail	–1	–1	—	—	+1	–1	—	—	—
Combat Modifier											
Attack at Short Range	—		—		—	—	–1	—	—	—	—
Attack at Medium Range	—		—		—	—	+2	—	—	—	—
Attack at Long Range	—		—		—	—	+4	—	—	—	—
Standard Tactics	—		—		—	—	—	—	—	—	—
Aggressive Tactics	—		—		—	—	+1 to +5	—	+0.1 to +0.5	—	—
Defensive Tactics	—		—				+1 to +5	—	+0.0 / –0.1 to –0.5	—	—
Target is a secondary target	—		—		—	—	+2	—	–0.25	—	—
Formation is in a Fortification	—		—		#	—	—	#	—	—	—
Combat Drops	—	—	See Combat Drop Results Table, p. 321							+4 / +5	—
Ambush (Ambushed/ Failed Ambush)	—	—	—	—	—	—	—	–6	—	+4 / +3	—
Attacker is sallying from a Castle Brian	—		—		—	–2	–2	—	–0.2	—	—
Formation attacked from Behind	—		—		—	—	–1	—	+0.2	—	—
Infantry or ProtoMech is Urban Hex	—	+2	—		—	—	—	+1	—	—	—

‖ Only Overrun Formation may attempt to avoid engagement
¶ Cumulative.
# +1 per level of Fortification

ABSTRACT COMBAT SYSTEM MASTER MODIFIER TABLE (AEROSPACE)

	INITIATIVE	DETECTION AND RECONNAISSANCE			MOVEMENT	COMBAT				MISC. MODIFIERS	
Effect or Situation	Initiative Bonus	Concealment	Detection	Recon	Engagement Control	Manuever	Attacker To–Hit	Target	Damage Modifier*	Morale	Combat Drop
Aerospace Weapon Class Used											
Capital and Sub-Capital Non-Missiles (CAP, SCAP, SDS–C or SDS–SC)	—	—			—	—	+1	—	—	—	
Miscellaneous Aerospace Modifiers											
Advanced Capital Missile Attack	—	—			—	—	—	—	—	—	
Vs. target in same sector	—	—			—	—	—	—	—	—	
Vs. target in adjacent sector (Inner and Middle Zones only)	—	—			—	—	+2	—	—	—	
Orbital Artillery Attacks	—	—			—	—	—	—	—	—	
Orbit-to-Surface attack (base modifier)	—	—			—	—	+3	—	—	—	
Attack is from Central Zone	—	—			—	—	+1	—	—	—	
Attack is from any Inner Zone	—	—			—	—	+4	—	—	—	
Ground target designated by friendly TAG	—	—			—	—	–1	—	—	—	
Attacker is a Robotic Unit	—	—			—	—	+1	—	—	—	
Attacker is in a Naval C^3 Network (Space combat only, in same sector)	—	—			—	—	–1	—	—	—	
Attacker has Targeting Damage (per hit)	—	—			—	—	+2	—	—	—	
High-Speed Attack	—	—			—	—	+8	—	—	—	
Point Defense (PNT#) vs. Capital/Sub-Capital Missiles		—			—	—	—	—	—	—	
Point Defense damage (1 point)	—	—			—	—	+1	—	—	—	
Point Defense damage (2+ points)	—	—			—	—	Auto–Fail	—	—	—	
Screen Launchers used (SCR#)	—	—			—	—	+SCR special‡‡	—	—	—	
Target is Crippled/Drifting	—	—			—	—	–2	—	—	—	
Teleoperated Missiles (TELE + MSL/SDS–CM)	—	—			—	—	–1	—	—	—	
Air-to-Ground Attack											
Ground Strike	—	—			—	—	+2 to –3**	+2 /+0††	—	—	
Ground Bombing	—	—			—	—	+1	—	–0.75	—	
Attacking Formation is being attacked by another Aerospace Formation	—	—			—	—	+2	—	—	—	
Target is a Ground Recon Formation	—	—			—	—	+3	—	—	—	

** Player must select either to-hit modifier or damage modifier.
†† If more than half the aerospace Formationis large scale
‡‡ Max +4

INITIATIVE PHASE

Both players roll for initiative on 2D6 and consult the Master Modifier Table for appropriate modifiers. The player with the highest total wins initiative. In the event of a tie, the player who's Force Commander (COM) has the Highest Leadership Value wins, in event of further tie, reroll initiative.

DEPLOYMENT PHASE

This phase occurs anytime new forces arrive on the battlefield, either space or ground. In any turn where new forces do not arrive, skip this phase. Dropping troops from aerospace Formations occurs during the Movement Phase.

FORMATION SETUP

There are three types of Formations in *Abstract Combat Play*, Aerospace, Recon and Combat. Aerospace Formations are made exclusively of aerospace and large aerospace Combat Units and are used in space combat or to conduct Aerospace Ground Support Missions (see Abstract Combat Aerospace, p. 320). Recon Formations are made of ground Combat Units. Recon Formations represent forces that have been broken up into small units and spread across large distances, allowing them to provide bonuses towards scouting while greatly limiting their combat ability. Ground Formations are the primary playing piece in Abstract Combat Play and are made up of ground Combat Units.

ABSTRACT COMBAT SYSTEM MASTER MODIFIER TABLE (AEROSPACE—CONTINUED)

	INITIATIVE	DETECTION AND RECONNAISSANCE			MOVEMENT	COMBAT				MISC. MODIFIERS	
Effect or Situation	Initiative Bonus	Concealment	Detection	Recon	Engagement Control	Manuever	Attacker To–Hit	Target	Damage Modifier*	Morale	Combat Drop
Ground Attack Modifiers											
Surface–to–Surface Attack (Non–stationary)	—		—		—	—	+2	—	—	—	
SDS Attack against Central Zone	—		—		—	—	—	—	—	—	
SDS Attack at any Inner zone	—		—		—	—	+3	—	—	—	
SDS Airborne target designated by friendly TAG	—		—		—	—	–2	—	—	—	
Formation is conducting CAP Ground Support Mission	—		—		–2	–1	—	—	—	—	
Aerospace attacking Warship	—		—		—	—	—	–3	—	—	
Aerospace attacking DropShip	—		—		—	—	—	–2	—	—	
DropShips attacking aerospace	—		—		—	—	—	+2	—	—	
DropShips attacking WarShips	—		—		—	—	—	–2	—	—	
WarShip attacking aerospace	—		—		—	—	—	+5	—	—	
WarShip attacking DropShips	—		—		—	—	—	–1	—	—	
Formation exceeded safe thrust	—	—	–1	–1	+1	+1	+1	—	—	—	
Target conducting Orbital Bombardment	—		—		—	—	—	–3	—	—	
Defender's System covered by Defensive Patrol	—		—		+2 First Game Turn only	—	—	—	—	—	
Executed Successful Pirate Point Jump	—		—		–3§§	—	—	—	—	—	

§§ Bonus only lasts turn the jump occurred in.

Assigning Formations: Players begin by forming their initial Formations. This is done by assigning Combat Units to a specific Formation and designating the Formation as an Aerospace, Recon or Combat Formation. If playing an Inner Sphere at War campaign Formations should be based on the Combat Commands used, whenever possible. Formations are not permanent and may be adjusted during gameplay, see Adjusting Formations, on p. 310, for details.

Formation Composition: Ground Formations are from two to six Combat Units, while aerospace Formations are from one to four Combat Units.

Record Formations (Blip Counters): Once all forces are assigned to a Formation, players number their Formations. Each Formation is assigned a Blip Counter, which represents the Formation until the opposing side conducts a successful recon. Formations are numbered G# and A# representing ground and aerospace Formations (so G3 is the third ground Formation and A1 is the first aerospace Formation). The Formation Blip Counters are placed on the map using the Deploy Forces rules (see 312). The identity of which Formation belongs to which Blip Counter is then written down on the player's Force Tracking Sheet.

When assigning mercenary Combat Commands to a Formation, unless the Formation is made up of only that mercenary, then each mercenary Combat Unit is treated as twice the number of Combat Units it is made up of. For example, a single mercenary regiment, or three Combat Units, would be counted as six Combat Units.

ADJUSTING FORMATIONS

At the beginning of each turn, a player may make Formation Adjustments. A Formation Adjustment is the moving of a Combat Unit from one Formation to another. A player can move a number of Combat Units equal to their force's Leadership Rating times two (so a force with an LR of 4 could move 8 Combat Units in a turn). Combat Units may be moved from a Combat to a Recon Formation and from Recon to Combat Formation.

In order to move a Combat Unit from one Formation to another, the two Formations must begin the turn in the same Planetary Combat hex or Star-System Radar Map zone. A Formation that has more than one Combat Unit transferred to it in a single turn, reduces its MP by one for that turn (example, two Combat Units move from Formation A to Formation B. Formation B suffers -1MP for this turn. Had only one Combat Unit moved, Formation B would have suffered no movement penalties).

Should a player wish to move more Combat Units than their force has LR rating, the player must roll equal to or under their Leadership Rating on 2D6. If the roll is successful, the Combat Unit may be moved as normal. If the roll fails the Combat Unit remains in the original Formation and both Formations suffer an additional -1MP penalty in the Movement Phase of the same turn.

Adjusting Ground Formations while they are being transported on the Star-System Radar map costs double the standard amount LR amount, so moving a single Combat Unit cost 2 LR instead of 1.

After all Combat Units have been moved, Formation stats must be recalculated (see Create ACS Formations, *Conversion Rules*, p. 330).

SWITCHING FORMATION ROLE

A Formation may switch between Combat and Recon Formation at the start of the Movement Phase of any turn. A Combat Formation converting to a Recon Formation reduces its available MP by 1 in the turn it changed from a Combat to a Recon Formation. A Recon Formation reduces its available MP by 2 in the turn it converts to a Combat Formation. Additionally, Recon Formations reduce damage by one-quarter (round down) in the turn it converts.

DEPLOY FORCES

Once Formations have been assigned, players proceed by placing their Formations on the Star-System Radar Map or Planetary Combat Map, with the player who won initiative deciding whether to place a Formation first or second. All forces are initially deployed as Blip Counters, representing a lack of recon and sensor scans.

Aerospace Deployment

Aerospace Deployment happens simultaneously and new Formations always begin play on the Star-System Radar Map. Each player writes down the deployment location of each of their aerospace forces. If playing with a gamemaster these deployments are handed over to the GM who then calls out the deployments. Each Formation is placed on the map using a numerically designated Radar Blob Counter (players previously noted which Combat Units were in which Formation during *Formation Setup*).

The attacking player may only deploy new aerospace Formations to a sector in the Peripheral Zone. The exception to this is if the optional Pirate Point rules (see *Inner Sphere at War* Movement, p. 358) are being used. If a Formation is deployed in any sector other than P1 or P4, the Formation is not automatically detected and is not placed on the playing surface. See *Detection and Reconnaissance*, p. 313, for further explanation.

The defending player is also limited in where he may place his forces. Non-Jumping aerospace forces may deploy no more than one-quarter of their total Point Value (round down) beyond the Middle Zone of the SSRM. Any Formation placed outside of the Inner or Middle Zones may only start play in Outer Zone O1, O2, O12, O13, O14 and O24, or in Peripheral Zone P1 or P4. The exception to the one-quarter limit is if the system in under the protection of a Defensive Patrol combat order (see *Inner Sphere at War,* Combat Orders, p. 354), the PV of the Defensive Patrol does not count towards the one-quarter PV limit.

Defensive Patrols may only start play in Peripheral Zone P1 or P4. The defender's jump capable ships (JumpShip or WarShip) may start play in any Middle Zone, Outer Zone O1, O2, O12, O13, O14 and O24, or in Peripheral Zone P1 or P4.

All aerospace Fighter Formations must choose a base to operate from. This can be a WarShip or DropShip Combat Unit, or a ground hex which has been designated as an air base. Air Base's location must be written down by the player and given to the GM or placed face down on the playing surface.

Ground Deployment

For each Combat and Recon Formation placed, the player lays down a numerically designated Blip Counter (players previously notated which Combat Units were in which Formation during Formation Setup, see p. 310). Unless a Formation is Hidden (see Hidden Formation, p. 315), all Formations are placed on the map during Map Setup. Players may choose to place Formations in any order they wish. Unless using Combat Drop rules (see p. 321) the attacker may not place Formations in any hex with a defending Formation, Fortification, Capital or Industrial hex.

Recon Formation Distributed Deployment: While Formations represent a large combat force that can be spread over dozens of kilometers, Recon Formations take this to a further extreme. By trading concentration of firepower for a greater ability to detect and identify the enemy, Recon Formations are able to spread themselves across up to three contiguous hexes. When a player places a Recon Formation on the map they must indicate how many hexes and what hexes it is covering. It is suggested that players use a die, placed on the edge of an adjacent hex, to indicate that hex is part of the area occupied by the Recon Formation. A second die would be placed if the Recon Formation was deployed across three hexes.

Optional Terrain: Players who wish for a more varied PCM may use either of the optional rules for terrain. See *Abstract Combat with Planetary Maps*, p. 324 and *Scaled Strategic BattleForce* (see p. 324) for details.

Attack of Opportunity: If the any of the attacking player's Formations arrived using the Transport Move order (see *Inner Sphere at War,* Military Phase p. 355) and the defending player has one or more Formation set to the Defend combat order, then the defending player may choose to engage in an Attack of Opportunity (AoO). The player must declare their intent to perform an AoO before the first Formation is placed on the Planetary Combat Map.

Any Formation engaging in an AoO does not deploy until all other Formations have been placed on the PCM. Once all other Formations have been placed, an AoO Formation may deploy in the same hex as any attacking Formation that arrived via the Transport Move order. A round of combat takes place immediately between the two forces. The Formation on Transport Move orders receives a -2 modifier to its combat roll (see *Resolving Attacks* p. 316).

Andrea is using her Thirty-First Marik Militia and Second Free Worlds Guards to assault the Lyran world of Loric. Harry is defending Loric with the Stealthy Tigers, Seventh Lyran Regulars and Fourteenth Lyran Guards. The Formations of the Marik Militia use Transport Move orders to arrive on the world, while the Formations of the Free Worlds Guards uses an Assault Move order. Of the defenders, the Stealthy Tigers and Lyran Regulars Formations are on Defend orders while the Formations of the Fourteenth Lyran Guards have just arrived on Loric using Assault Move to arrive on-world ready to fight.

The Lyran player decides to engage in an Attack of Opportunity with both the Stealthy Tigers and Lyran Regulars and declares this before the first Formation is placed on the map. The Free Worlds Formations and the Fourteenth Lyran Guards deploy following the normal Map Setup rules. After normal deployment is complete, the Lyran player then places all the Formations, representing these two Combat Commands, in the same hex as the Free Worlds Guards. A single round of combat commences immediately.

Andrea and Harry divide their forces into Formations as follows.

Andrea chooses to use her existing Combat Commands as her Formations and does not assign any Formations as Recon Formations.

DEPLOYED BY THE FWLM TO ASSAULT THE WORLD ARE:

Thirty-First Marik Militia 'Mech Regiment (G1)
- 1st Battalion – One Combat Unit
- 2nd Battalion – One Combat Unit
- 3rd Battalion – One Combat Unit

Second Free Worlds Guard 'Mech Regiment (G2)
- 1st Battalion – One Combat Unit
- 2nd Battalion – One Combat Unit
- 3rd Battalion – One Combat Unit
- 4th Battalion – One Combat Unit

Support Formation (G3)
- 11th Belle Regiment (2nd Free Worlds) – Three Combat Units
- 93rd Atrean Regulars – Three Combat Units
- Infantry Transport Battalion – One Combat Unit

Aerospace Support (A1)
- 31st Marik Aerospace – One Combat Unit
- 2nd Guards Aerospace Wing – One Combat Unit

FWLS Raven (Essex-class) Combat Unit (A2)
Transport Group Combat Unit) (A3)
JumpShip Group Combat Unit (A4)

DEFENDING THE WORLD FOR THE LCAF IS:

Stealthy Tigers 'Mech Regiment (G1)
- 1st Battalion – One Combat Unit
- 2nd Battalion – One Combat Unit
- 3rd Battalion – One Combat Unit
- 4th Battalion – One Combat Unit

14th Lyran Guard 'Mech Regiment (G2)
- 1st Battalion – One Combat Unit
- 2nd Battalion – One Combat Unit
- 3rd Battalion – One Combat Unit

Conventional Support (G3)
- Light Armor Regiment – Three Combat Units
- Heavy Infantry Regiment – Three Combat Units
- Infantry Transport Battalion – One Combat Unit
- Artillery Battalion – One Combat Unit

Recon Formation (G4)
- Light Infantry Regiment – One Combat Unit
- Infantry Transport Battalion – One Combat Unit

Aerospace Wing (A1)
- 14th Lyran Guard Aerospace – One Combat Unit

Air Defense Group (A2)
- 1st Atmospheric Defense Wing – One Combat Unit
- 2nd Atmospheric Defense Wing – One Combat Unit

The numbers in parentheses correspond with the blip counters shown below.

Harry also chooses to conceal his Conventional Support Formation (see Hidden Formations, p. 315). Andrea does not feel the need to conceal any of her forces. Harry has to make a roll to see if he is successful in concealing his Conventional Support Formation. The Target Number is 7, with no other modifiers. Harry rolls a 9 and successfully conceals the Conventional Support.

Both players then reveal how many unconcealed Formations they have. Harry only has to reveal the number of Formations he has concealed, but not any other details. Harry puts his G3 Blip Counter in the Player B Off-Map Tracking area on the map.

The counters below show how the Formations will be represented on the map.

DETECTION AND RECONNAISSANCE PHASE

When battling for control of a world, knowing where to find the enemy is not always an indicator to being able to force them into combat. As with *Strategic BattleForce*, devoting attention to locating and identifying your opponent can mean the difference between sending an infantry regiment into the guns of an artillery barrage and catching your opponents commander with your assault 'Mech regiment.

STEP 1: DETECTION

In Abstract Combat Ground Formations default to being visible and start play with their Blip Counter on the Planetary Combat Map. The exception to this are Formations being transported by an Aerospace Formation, or Formations that have successfully hidden themselves using the Hidden Formations rules (see p. 315). All Aerospace Formations begin play hidden and must be detected before their Blip Counters are placed on the Star-System Radar. If the aerospace Formation begins play in a ground airbase, then it must either be detected by discovering its airfield or when it conducts an Aerospace Ground Support Mission. In the latter case, only the Aerospace Formation is detected and not its airbase, which must be detected normally.



Visual and Sensor Detection

At the Abstract Combat scale, even the best battlefield sensors are little more than a drop in a bucket. In Abstract Combat sensors, recon abilities and dedicated recon Formations provide bonuses to detection in hexes where a Formation is located. This is part of the value of a Recon Formation as it deploys across multiple hexes, giving it a larger area over which it can attempt to detect and identify enemy forces.

Detecting Hostile Forces

These rules follow the *Strategic BattleForce* rules (see p. 265), including the optional Simple Detection rules, with the following changes.

Detection Range: Ground Formations must be in the same hex as the forces it is attempting to detect. Aerospace performing Aerial Recon (see p. 266) may detect Formations in its hex and all surrounding hexes. Aerospace in the Peripheral or Outer sectors of the Star-System Radar may only detect Formations in their same sector. In the Middle Sector they may detect Formations in any adjacent Middle or Inner zone sector. In the Inner Sector they may detect a Formation in any Inner Zone sector or adjacent Medium zone sector.

Detection Results: Unless a Formation is hidden, then a Formation defaults to Solid Lock. A roll may still be made, if the detecting player wishes to attempt to gain more information.

Sensor Detection Modifiers: Use the Detection column of the Master Modifier Table for Abstract Combat modifiers.

Hidden Formations: Hidden Formations remain hidden unless a successful detection roll is made. If the roll fails or no roll is made, the Formation remains hidden. Aerospace Formations on Aerial Recon may not detect hidden Formations.

Detection Cost: It costs Combat Formations 1 MP to make a detection roll. Recon Formations may make detection rolls at no cost.

STEP 2: RECONNAISSANCE

While the location of hostile forces is better known in Abstract Combat, determining the composition of the hostile Formation still requires a concerted scouting effort. While sensors aid in this, the speed, skill and distance covered by a Formation are the best tools to determining what is behind that hostile Blip Counter.

Except as noted below, these rules follow the *Strategic BattleForce* rules for Reconnaissance (see p. 266).

Detection Range: Same as for Detecting Hostile Forces, above.

Sensor Detection Modifiers: Use the Detection column of the Master Modifier Table for Abstract Combat modifiers.

Hidden Formations: Unless a Formation has already been detected, a recon attempt may not be made.

Reconnaissance Cost: It costs a Combat Formation 2 MP per recon scan. Recon Formations get two free Recon Scans and pay 1 MP for each additional Recon Scan.

MOVEMENT PHASE

MOVEMENT BASICS

The loser of initiative moves one of their Formations (Combat or Recon) and then the winner moves one of theirs. If the force sizes are dissimilar in size, use the *Unequal Number Units* rules (see *SBF*, p. 234).

Aerospace movement is handled separately, using the same initiative. All Space Movement is done first and then both players declare their Ground Support missions (see Aerospace Ground Support, p. 320).

Movement Costs: Movement costs a base of 1 MP per hex moved.

Movement Modifiers: A hex costs an additional +1 MP for each friendly Combat Formation already in the hex.

Movement through a hostile occupied hex costs +1 MP for one hostile and +2 MP for two or more hostile Combat Formations occupying the hex. As in *SBF*, attempting to leave or move through a hostile occupied hex provokes an Engagement Control Roll, unless the hostile Formation does not wish attempt engagement (see *Engagement Control*, p. 315).

A hex occupied by a Recon Formation (friendly or hostile) costs no additional MP to move through. Recon Formations may only attempt to engage other Recon Formations, however they may be engaged by a Combat Formation.

Wrap around movement: The PCM is an abstract representation of a planet. Because the play surface is represented by a flat mapsheet, Formations may "wrap around" the mapsheet. Any Formation in an edge hex may spend an additional 1 MP and move to far hex in the same hex row. For example, a Formation in hex 0815 may spend 2 MP to move to hex 0801 and a Formation in hex 0105 could move to hex 1512 for the same 2 MP cost.

Recon Formations: Movement is based off the hex containing the Blip Counter or miniature for the Formation. After moving, the player then indicates what additional hexes, if any, are being covered by the Recon Formation. A Recon Formation may be spread across a total of three contiguous hexes with the miniature always at the center.

FACING

Heading is used to determine the general direction of movement and has a bearing on Rear Guards during Engagement Control (see p. 315). Facing is determined by the direction the playing piece is facing at the end of the turn.

A Formation may change up to 2 hexsides a turn for free. Turning more than 2 hexsides cost 1 MP.

STACKING LIMITS

The *Abstract Combat System* uses hexes that are hundreds of kilometers across. This allows significantly more forces to be placed in the same hex than in *Strategic BattleForce*. At the same time, combat forces put a heavy strain on the infrastructure of a hex and limits on passable terrain and usable roads limits the actual amount of forces that can be deployed. Stacking limits are also imposed to prevent "stacks of doom" combat, which is neither enjoyable nor an accurate representation of BattleTech combat.

A ground hex may support up to sixteen friendly Combat Units (two full-sized Formations). Combat Units assigned to a Recon Formations count as one-quarter a Formation for purposed of stacking limits, so four Combat Units in a Recon Formation count as one Combat Unit for stacking limits. Other Formations may move through the hex (paying the appropriate movement penalties) as long at the hex has no more than 16 friendly and 16 hostile Combat Units at the end of the Movement Phase. Aerospace Formations do not count towards ground hex capacity

The exception to this are Drop zones and Fortifications. Drop zones may hold up to 48 Friendly Combat Units (6 full-sized Formations), but the attacker is limited to only 24 Combat Units (3 Formations). Fortifications and Industrial Zones may support a number of Combat Units equal to its Capacity Rating, see p. 322 for details.

Star-System Radar Map zones have no stacking limits and may support as many Formations as desired.

TERRAIN

Terrain is not used in standard *Abstract Combat Play*. With hexes representing on average 750 kilometers, a single hex can be possess a large variety of terrain and will usually have a clear path through it for a combat force to travel.

If Fortification and Industrial Hexes are used, these hexes cost an additional +2 MP to move through for all Formations.

Players wishing to play with terrain may use the optional *Abstract Combat with Planetary Maps* (see p. 324) or *Scaled Strategic BattleForce* (see p. 324).

TRANSPORTING INFANTRY UNITS

So long as a Formation has sufficient transport capacity (see *Transporting Infantry,* p. 236), infantry are considered loaded when the Formation is moving and deployed during the combat phase. Loaded Infantry do not factor against the Formation's average movement modifier.

Adhoc Transports: Armies lacking sufficient integral transport for their infantry may commandeer civilian or militia vehicles to transport their infantry. Vehicles must first be commandeered which takes one game turn from when a player declares they are commandeering adhoc transport. In the following turn infantry formations have a movement of 3. If a Combat Unit using adhoc transport is attacked, the transports are damaged reducing MP to 1. It takes one full game turn to repair and replace damaged transports.

ENGAGEMENT CONTROL

The *Abstract Combat System* uses the *Strategic Aerospace* rules for *Engagement Control* (see p. 346) with the following modifications

Additional Modifiers: The Engagement Control Modifiers Table lists additional positive and negative modifiers that can impact engagement. Ground Formations do not apply the +2 modifier for operating in an atmosphere.

Movement Penalties: Movement through hex with a hostile Formation costs +1 MP for one and +2 MP for two or more hostile Formations.

Recon Formations: These Formations receive a +2 penalty to their Engagement Control roll. However, Recon Formations may not choose to engage enemy Formations and may only attack if engaged *by* an enemy Formation or by performing a Recon Strike. See *Recon Strikes*, p. 316.

Multiple Engagements and Attack Declaration: A Formation that has been engaged cannot declare a primary attack against any other Formation. It must treat this Formation as its primary target for combat purposes.

Rear Guard: *ACS* has one additional engagement tactic, the Rear Guard. When a player is attempting to retreat they may designate a Formation as a rear guard formation. This tactic is primarily used to protect a Dropzone while allied forces load onto DropShips and evacuate.

A Formation that declares rear guard may designate two side-by-side hexes as their engagement zone and must declare a primary facing for their rear guard action.

Any formation attempting to enter the hex from the primary facing is automatically engaged unless they attempt an Overrun engagement. In this event the rear guard Formation receives a –2 modifier to their Engagement Control Roll target number. If a hostile Formation attempts to enter from the hexside opposite the primary facing, the Rear Guard receives a +2 penalty to their Engagement Control Roll target number. The Read Guard receives a –1 modifier to their Engagement Control Roll if a hostile Formations enters from any other hexside.

If another Friendly Formation is in the one of the rear guards engagement hexes, it may only make artillery attacks.

If a hostile Formation successfully bypasses a rear guard Formation it may attack another Formation but at 50% their normal damage in the turn they bypassed the rear guard Formation.

LOSING CONTACT

In any turn where a Formation has no hostile Formations in the same hex or adjacent hexes, then the Formation flips its Blip Counter over to the radar blip side.

HIDDEN FORMATIONS

During Ground Combat, players can conceal Formations from their opponent at the start of play or at the start of each turn. Each player may attempt to hide as many Formations per turn as their Leadership Rating divided by two (round up), (see *Leadership Rating,* p. 307). Each attempt requires a 2D6 roll with a target number of 7, applying Concealment modifiers from the ACS Master Modifier Table (see pp. 308-311). Once game play has begun Formations may only attempt to hide themselves if they are currently represented by the radar blip side of a Blip Counter and has no hostile Formation in the same hex as it.

Formations that are concealed in this way have certain advantages, such as moving without being seen, however, they also have limitations such as reduced movement. These limitations are detailed in the appropriate sections of the rules.

Formations are automatically hidden when on the Star-System Radar Map. Aerospace formations may not hide on the Star-System Radar Map (though they may be undetected, see Detection and Reconnaissance Phase, p. 313 for details). Grounded Aerospace formations may start the game hidden.



A Binary from Clan Wolf's Alpha Galaxy close the distance and engage Republic forces just outside the ruins of Unity City.

Hidden Formation Movement

Formations that are Hidden (see p. 315) during Formation Setup (p. 310) are not placed on the map. If playing with a neutral gamemaster, players give the GM a piece of paper noting where their hidden Formations are located. If playing without a GM, players place a folded slip of paper, with the hidden Formation's hex location, under the Formations counter in their Off-Board Tracking box.

Hidden Formations can move should they wish. However, if they move they must roll to stay hidden. Once a hidden Formation has moved, a player multiplies the hexes moved by 4 and must roll equal to or more than this with a 2D6 roll, applying Concealment modifiers from the ACS Master Modifier Table (see pp. 308-311). Therefore, a hidden Formation moving 2 hexes would stay hidden on a roll of 8 or more.

Hidden Formation Ambush

Uses the *Strategic BattleForce* rules for Ambush (see p. 284) save a successful attack applies a +0.2 damage multiplier and any attacks in the Combat Phase apply a -0.5 damage multiplier.

COMBAT PHASE

TYPES OF ATTACKS

Number of Attacks: Formations gain one standard attack per Combat Unit. Large and Very Large Elements make only one standard attack per turn in *Abstract Combat System* play.

Artillery Attacks: Artillery attacks (ART) are made at the Combat Unit level, not the Formation. Number of attacks is one per Formation for each type of artillery Combat Unit it possesses. An Artillery attack is resolved like a standard attack except that instead of range to-hit modifiers, artillery receives a +2 modifier to its target number to hit.

Engaged Recon Formations: Recon Formations that have been engaged by a Combat Formation are treated as Combat Formations save that they have an additional +1 to-hit modifier and do only one-half (round up) their normal damage.

Recon Strikes: Recon Formations that have not been engaged may conduct a special flanking attack on a Combat Formation in one of its designated recon hexes. Such attacks have a base to-hit of 3 (modified by skill and other conditions as listed on the Master Modifier Table, see pp. 308-311) and does damage equal to one-quarter of the Medium Range damage of the lead Combat Unit in the Formation. Damage is applied to a Combat Unit of the attacker's choosing.

The Combat Formation attacked may make a counter attack at +2 to hit (with applicable modifiers) and equal to one-half the Long Range damage of the Combat Unit attacked.

Aerospace Formations: Rules for Aerospace Formations are covered in the Abstract Combat Aerospace Ground Support rules (see p. 320).

ATTACK DECLARATION

As with *Strategic BattleForce* all attacks are declared prior to any combat resolution. The loser of initiative chooses a Formation in its hex, and declares the Formation it will target with its attack. The winner of initiative then selects a Formation in its hex and declares its attack. Attack declaration continues, following the same pattern as used in the Movement Phase.

COMBAT TACTICS

In combat, players may choose from one of three tactics that will affect their to-hit target number and the damage they both deliver and receive. The three tactics are Offensive, Defensive and Standard.

Aggressive Tactics maximize a Formation's potential to do damage to other Formations, while Defensive Tactics minimize the damage a Formation receives. Standard Tactics put no emphasis on either offence or defense and delivers and receives damage equally.

Standard Tactics: A player who selects Standard Tactics does not receive a Tactics modifier to their base to-hit roll. Standard Tactics does not modify the damage they deal or receive. However if the roll fails, the Formation reduces the damage it deals by –0.2.

Aggressive Tactics: If a player chooses Aggressive Tactics, for each +1 modifier added to their base to-hit on a successful roll the Combat Units in the Formation have a +0.1 damage multiplier to a maximum of +0.5. If the roll fails, the Formation reduces any damage it receives by the same multiplier, and the damage it deals is reduced by –0.2

Defensive Tactics: If a player chooses Defensive Tactics, for each +1 modifier added to their base to-hit on a successful roll the Combat Units in the Formation have a –0.1 damage multiplier to a maximum of –0.5. If the roll fails, the Formation takes damage as normal. It instead reduces the damage it deals by both the same multiplier in addition to –0.2.

Andrea's Support Formation has been caught by Harry's Stealthy Tigers. She knows she needs to go all out for a chance to survive this fight. She wants to do maximum damage, so applies a +5 modifier to her to-hit roll. If she is successful, the Support Formation will do 1.5 times its normal damage. If she fails, it will take 1.5 times normal damage and deal 0.8 times normal damage. She's hoping the gamble pays off.

Harry is in an equal predicament with his Fourteenth Lyran Guard facing down both of Andrea's 'Mech Formations. Expecting to be able to have support in place in the next turn Harry decides to go on the defense. Taking a slightly conservative approach he decides to try and get a –0.2 damage multiplier, which gives him a +2 modifier to-hit. If he fails his to-hit roll, he will reduce the damage the Fourteenth's Combat Units do by –0.4.

Once all attacks have been declared and combat tactics have been chosen, play proceeds to *Resolving Attacks* (see below).

RESOLVING ATTACKS

Unless otherwise noted below, use the *Strategic BattleForce* Resolving Attacks rules (see p. 239).

The sequence for resolving attacks is as follows:

Step 1: Determine Range
Step 3: Determine to-hit number
Step 3: Roll to hit
Step 4: Determine and Apply Damage
Step 5: Roll for critical hits (if applicable)

STEP 1: DETERMINE RANGE

As *Strategic BattleForce* Determine Range rules (see p. 239) accept as follows.

VTOL Formations: This rule does not apply to *Abstract Combat System*.

Extreme Range: Is not used for ground combat in *ACS* play.

Indirect Fire: Is not used in *Abstract Combat System* play.

Behind: A formation that has successfully outmaneuvered its opponent attacks with a +0.2 damage multiplier.

RANGE MODIFIER TABLE

Range	Modifier
Short	–1
Medium	+2
Long	+4

STEP 3: DETERMINE TO-HIT NUMBER

The base to-hit for all Combat Rolls is 4. Which is then modified by range (see the Range Modifiers Table, p. 316), skill, and other conditions as listed on the Master Modifier Table (see pp. 308-311). It is also modified by the Combat Tactics (see p. 316) the player chooses for their Formations. A natural roll of 2 is always a failure.

STEP 3: ROLL TO-HIT

A Formation rolls Roll 2D6 for each Combat Unit that engages in Combat and compares the total of each roll to the modified to-hit number identified in the previous step. If the dice roll equals or exceeds the modified to-hit number, the attack is successful. Otherwise, the attack fails.

STEP 4: DETERMINE AND APPLY DAMAGE

If an attack is successful, damage is applied immediately. The damage itself does not take effect until the End Phase. Before damage can be applied the amount of damage and which specific Combat Unit is damaged must be determined.

Determining Damage

Damage is applied following using the Damage Formula:

Combat Unit Damage for selected range
x Damage Inflicted Modifier (round normal).

For example, if a Combat Element can do 25 damage at short range and has a Damage Modifier of 1.3, the damage inflicted would be 33 (25 x 1.3= 32.5 rounded normal to 33).

Damage Modifier: The damage modifier is the sum off all positive and negative damage modifiers that apply. Combat Tactics, Ambush, Attack From Behind are example contributors to the Damage Modifier. Each modifier is added or subtracted from 1.0 to determine the final modifier.

Secondary Targets

Formations that engage in combat with multiple enemy Formations apply a damage reduction modifier of –0.25 to the second Formation.

Applying Damage

Use the *Strategic BattleForce* rules for Applying Damage (see p. 240).

STEP 5: DETERMINE CRITICAL HITS

Use the *Strategic BattleForce* rules for Critical Hits (see p. 241).

END PHASE

FATIGUE

Fatigue represents the effects of extended combat on a force. Combat Units that take part in combat accumulate Fatigue Points (FP) which have an impact on their performance in combat.

Consult the Fatigue Points Earned table to determine how quickly a Combat Unit accumulates fatigue. Consult the Fatigue Effects Table (at right) for the impact of Fatigue on combat.

Reducing Fatigue: A Combat Unit that does not move, conduct any attacks or is the target of any attacks in a Turn may reduce their Fatigue Points by 1. Further methods of reducing fatigue are covered in the *ISW* rules (see *ISW* Fatigue, p. 365) and apply to the entire Combat Command a Combat Unit is a part of.

FATIGUE POINTS EARNED TABLE

Combat Unit Quality	FP accumulated per Turn Combat Unit involved in combat*
Wet Behind the Ears	2 FP
Really Green	1 FP
Green	.5 FP
Regular	.5 FP
Veteran/ Elite	.5 FP
Elite	.5 FP; Ignore first 2 FP
Heroic	.5 FP; Ignore first 3 FP
Legendary	.5 FP; Ignore first 4 FP
Miscellaneous	
Clan	Ignore first 2 FP
Word of Blake	Ignore first 1 FP

*A maximum of 4 Fatigue Points can be ignored

FATIGUE EFFECTS TABLE

Fatigue Level	Fatigue Points	Combat Modifiers	Damage Modifiers	Morale Check*
0–Rested	0-4.5	—	—	No
1–Tired	5-8.5	+1	—	No / +1
2–Flagging	9-12.5	+2	-0.1	Yes / +2
3–Exhausted	13-16.5	+3	-0.2	Yes / +3
4–Spent	17+	+5	-0.4	Yes / +4

* If the Morale Check column indicates "Yes", then an immediate Morale roll is required (see Morale, p. 317). The number after the slash indicates the Morale Check Target Modifier.

Converting *ACS* Fatigue to ISW: Combat Units do not always fight in their contiguous Combat Commands. A battalion of Third Benjamin Regulars might be attached to the Second Sword of Light to provide the Second with extra assault firepower. This means that the component Combat Units of a Command may be at different fatigue levels.

At the end of an *ISW* Game Turn (8 *ACS* Combat Turns) add the Fatigue Points of all Combat Units in a Combat Command and divide them by the number of Combat Units in the command, rounding up. This is the Fatigue Points accumulated by the Combat Command in *ISW* scale.

MORALE

A battle can often hinge on the strength of just a single unit while the steadiness of the most fanatical unit can be rocked if the rest of the force around it starts to waver.

The following Morale rules are standard for all *Abstract Combat System* games.

Morale Check Conditions:

A Morale Check must be made in any turn where one of the following occurs.

Morale Check Triggers (Damage Threshold): Combat Units must make Morale Check whenever they reach a certain damage threshold. If a Combat Unit takes enough damage in a turn to lower

its Armor value below a Damage Threshold value, then it must make a Morale Check. If more than one Damage Threshold level is passed, in a single Turn, the Combat Unit must make a roll for each level. (For example: A Combat Unit has a Damage Threshold of 15, 10 and 5. It takes 12 points of damage in a single turn, dropping its armor from 20 to 8. It must make two Morale Checks, one for the 15 and one for the 10 Damage Threshold.

Formation Damage: If two-thirds or more (round down) of a Formation have reached their second Damage Threshold, then the entire Formation rolls for morale using the experience of the Combat Unit with the LEAD special ability (if this Combat Unit is not present use the Formations overall Morale Value). The results of the check apply to all Combat Units in the Formation.

Combat Drop: If a Formation was subjected to a Combat Drop (see Combat Drop, p. 321) by a hostile Formation it must make a Morale Check with a target number penalty equal to the Drop Value. (A Formation that failed with an MoF of -5 would have a Drop Value of –2, so a Morale Check modifier of –2).

Orbital Bombardment: Any Formation directly attacked by Orbital Bombardment must make an immediate Morale Check. In addition, the Force Commander (COM) makes a Morale Check with a **–**2 modifier to the Morale Check target number. If the Force Commander fails its check, then the entire Force is subjected to the effects.

Force Morale: Any time two-thirds of a player's force becomes Shaken or worse, then the Force Commander (COM) must make a Morale Check with a +2 modifier to the roll.

Making a Morale Check

The morale check is a 2D6 roll against a base target number equal to the Combat Units Morale Value (see *Conversion Rules*, p. 326), plus all applicable modifiers listed in the Morale Check and Master Modifier Tables (see pp. 308-311). When making a Formation or Force level Morale Check, it is done using the Morale Value of the LEAD or COM Combat Unit.

If the roll is equal to or higher than this modified target number, the Combat Unit's (and Formation or Force if applicable) morale remains intact and it may continue to act normally.

MORALE SPECIFIC MODIFIERS

Event or Condition	Modifier
Third Damage Threshold (75% damage)	+2
Two-thirds Formation 50% damage or more	+1
Force has suffered orbital attack	+2*
Two-thirds Formation is Shaken or worse	–2*

* The Force Commander rolls for the entire force

MORALE FAILURE RESULTS

Margin of Failure	Damage Thresholds				
	25% Armor	50% Armor	75% Armor	No Threshold	No Damage
1-3	Broken	Unsteady	Unsteady	Shaken	Shaken
4-6	Retreating	Retreating	Broken	Unsteady	Shaken
7-9	Routed	Routed	Retreating	Broken	Unsteady
10+	Surrender	Surrender	Routed	Retreating	Broken

If the Morale Check fails, consult the Morale Failure Results Table and compare the Margin of Failure to the Combat Unit's Damage Threshold to determine the Morale Effects.

Morale Effects

Shaken: Suffers a –1 modifier to all impacted actions. (Combat, Engagement Control, Concealment, Detection and Morale Checks.)

Unsteady: Suffers a –2 modifier to all impacted actions.

Broken: Suffers a –3 modifier. May not use Aggressive Tactics, or attempt to Force or Overrun an Engagement.

Retreating: Suffers a –4 modifier. May not use Aggressive Tactics, or attempt to Force or Overrun an Engagement, and must move away from hostile forces. If force has a DropZone, Fortification or Capital under its control, then it must move towards the nearest one.

Routed: As with Retreating. However it must retreat towards the nearest DropShip Squadron. If Morale has not been raised by this time the unit will attempt to retreat off world.

Surrender: Combat Unit is no longer combat capable will try and surrender to the nearest hostile force. At any time it occupies a hostile-occupied hex, it surrenders and is considered destroyed for the purpose of Victory Points.

Recovering Nerve (Morale)

A Combat Unit may attempt to recover morale in the End Phase of any turn its morale is Shaken or worse. The roll is that same as a standard Morale Check with additional modifiers found in the Nerve-Recovery Modifiers Table (see below). If the roll is successful, morale improves by one level (from Broken to Shaken, Shaken to Normal and so on).

RETREAT AND SURRENDER

Combat Units that fail a Morale Check with a result of Retreat, Rout or Surrender break off from their parent Formation and move and act as independent Formations (see Adjusting Formations, p. 311). Formations that fail a Morale Check with a result of Retreat, Rout or Surrender retains its Combat Units and retreats, routs or surrenders as a Formation.

VICTORY CONDITIONS

In a standard pickup game victory conditions can be as simple when one player destroys the Force of another player.

Inner Sphere at War Campaign: Players using *ACS* to resolve combat in an *ISW* campaign will determine victory based on the Military Actions being conducted (see *ISW Military Phase* p. 354).

Alternate Victory Conditions: Players not playing an *ISW* campaign can adapt the *Alternate Victory Conditions* listed in *Alpha Strike* (see p. 26, *AS*), or they may modify the scenarios in *Alpha Strike Companion*

NERVE-RECOVERY MODIFIERS TABLE

Condition	Modifier
Friendly Force Commander is in the same hex	–2
Friendly Sub-Commander is in the same hex	–1
Friendly Normal or higher morale Formation in same hex	–1
Any Friendly Broken/Routed Formations in the same hex (infantry only)	+1
Every turn the Formation is not attacked and no hostile force enters the hex*	–1

*If the Formation is within a Fortification, then a hostile force may be in the same hex

(see p. 158, *ASC*) or the *Total Chaos* product to fit their *ACS* games. These rules will require adjustment and players should be in full agreement before the start of play.

Capturing Objectives: Use the rules as listed in *Alpha Strike* (see Capturing Objectives, p. 26, *AS*), save that a Formation must be inside the objective (Fortification, Capital, Factory, Airfield).

Victory Points: The rules for victory points are the same as in *Alpha Strike* with following modification.

Because *ACS* scale is greater than *Alpha Strike* players must multiply all Formation Destroyed and Withdrawn results by 0.1 to obtain the final victory points. This keeps the victory points for Formations in line with those for Objective Captured and Other Events.

ABSTRACT COMBAT AEROSPACE

As with ground combat, Abstract Combat Aerospace (ACA) is based off Advanced *Strategic BattleForce* rules (see pp. 250-264). Aerospace play in *ACS* is divided into two components, Space Combat and Ground Support Missions.

HYPERSPACE TRAVEL

Jump-capable Formations may make one hyperspace jump every two game turns. If they possess a Lithium-Fusion battery, it may be used to make one jump every two game turns allowing a Formation to either jump twice in one turn or jump every turn.

The *Inner Sphere at War* rules for Pirate Points for managing in-system jumps (see p. 358).

SPACE COMBAT

Abstract Combat Aerospace uses the Capital-Scale Strategic Aerospace rules (see p. 253-263) except as noted below.

The Star-System Radar Map

The Star-System Radar Map (SSRM, see p. 306) is based on the Capital-Scale Radar map from *Strategic BattleForce*. The major change is that the central zone is normally set over the target world for the ground operations. The scale of the Star-System differs from the Capital-Scale Radar Map and is explained below.

Central Zone: This zone corresponds to the planet being contested, and represents the atmosphere above the world, with "north" towards sector I1 of the Inner Ring. Any forces in the Inner Zone are effected by the gravity of the planet (see *SBF* Gravity, p. 255). Any Formation moving into the Central Zone may conduct Ground Support Missions (see p. 320) or Orbit-to-Surface attacks (see p. 321). Troops may also be dropped from this zone using the Combat Drop rules (see p. 322). Any WarShip, JumpShip or Space Station that enters the Central Zone is treated as if it is under the effects of Gravity (see *SBF Gravity*, p. 255).

Inner Zone: This zone represents the space immediately around the planet, within the planet's gravity well. Any forces in the Inner Zone are effected by the gravity of the planet. Units with an "a" or "p" movement code that do not have an move rating of at least 1 or have Station Keeping movement code "k" will fall into the Central Zone and crash into the planet (see *SBF* Gravity, p. 255). Orbit-to-Surface attacks can be made from this zone and troops may be dropped using the Combat Drop rules (see p. 322). Orbital fire support or combat drops will take effect on the Planetary Combat map in the same turn that they were conducted on the Star-System Radar Map.

Middle Zone: The middle zone is the near space around a planet up to 1,500,000 kilometers (6000 Total Warfare Aerospace Space Hexes). If the planet has moons they would be located in the Middle Zone (see Moons below). If using the optional pirate point rules (see *Inner Sphere at War* Movement, p. 358), JumpShips and WarShips may jump into or out of this ring, treating it as a near orbit pirate point. Doing this is done at considerable risk.

Outer Zone: Is the transit area between the target world and the jump points. If the system has more than one planet, other planets in the system would appear in the Outer Zone (see Planets below) JumpShips and WarShips can jump into and out of this ring with certain penalties, representing transit via pirate points (see p. 358). While safer than a near orbit jump, it still comes with some risk to the jumping ship.

Peripheral Zone: The outer most zone represents the proximity limit of the system and is where standard jump points are located. Sectors P1 and P4 represent the Zenith and Nadir points, with the other four sectors representing less commonly used jump points at a similar distance from the target world.

Moons: If the target planet has one or more moons, they will appear in one of the Middle Zone sectors. Moons are placed at the beginning of play and move one sector counter-clockwise each game turn. If an engagement occurs a zone with a Moon, the center zone of the engagement map is treated as being Moon and follows all the same rules for Combat Units in the SSRM Central Zone.

Planets: If the system has more than one planet, the additional planets will appear in one of the Outer Zone sectors. Planets do not change zones during game play. If an engagement occurs a zone with a secondary planet, the center zone of the engagement map is treated as being Moon and follows all the same rules for Combat Units in the SSRM Central Zone.

Zone occupancy: There are no limits to the number of Formations that can be in a single zone of the SSRM.

In-System Jump (Optional): If a jump capable ship has not expended any IMP (see *ISW Movement*, p. 358) in the current combat turn it may attempt to make an in-system jump.

Long / Short Jump Point Transit (Optional): The average star system has a transit averaging in the 7-10 day recharge time. For standard game play this is standardized to seven days or 2 *ACS* game turns.

Some stars have significantly greater transit times. Players wishing to add this additional level of realism are suggested in keeping the turn duration the same and instead dividing aerospace movement points the transit time divided by 7 (rounded up) and round up to obtain the adjusted MP. For example, if a system's transit time was nineteen days, all MP would be divided by 3. So a DropShip with an MP of 2 would end up with an MP of 1 (19 ÷ 7 = 2.7 rounded up to 3. 3 ÷ 2 = .66 rounded up to 1).

At the opposite end of the transit scale are worlds with extremely short transit times under three days. For these systems double the MP available to aerospace units. So a DropShip with an MP of 2 would have an MP of 4.

Entering and Leaving the Central Zone

Any aerospace Combat Unit that ends its movement in the Central Zone follows rules for Ground Support Missions (see p. 320).

AEROSPACE TO-HIT MODIFIERS TABLE

RANGE MODIFIERS	
Range	**Modifier**
Short Range	+0
Medium Range	+1
Long Range	+2
Extreme Range	+3

TARGET MODIFIERS	
Weapon Class Used	**Modifier**
Capital Non-Missiles (CAP or SDS-C)	+3
Sub-Capital Non-Missile (SCAP or SDS-SC)	+2
Capital or Sub-Capital Missiles (MSL or SDS-CM)	+0
Standard Weapons	+0

ATMOSPHERIC COMBAT MODIFIERS	
Target Type	**Modifier**
Airborne aerospace Formation making a Strike attack	+2*
Airborne aerospace Formation making a Bomb attack	+4*
Aerospace Formation is more than 50% Large Aerospace	–2

Air-to-Ground Attack	**Modifier**
Ground Strike or Bombing	+3
Attacking Formation is being attacked by another Aerospace Formation	+2
Target is a Recon Formation	+3

Ground Attack Modifiers	**Modifier**
Surface-to-Surface Attack (Non-stationary)	+2
SDS Attack against Central Zone	+0
SDS Attack at any Inner zone	+3
SDS Airborne target designated by friendly TAG	–2

MISCELLANEOUS MODIFIERS	
Condition	**Modifier**
Advanced Capital Missile Attack	
Vs. target in same sector	+0
Vs. target in adjacent sector (Inner and Middle Zones only)	+2
Orbital Artillery Attacks	
Orbit-to-Surface attack (base modifier)	+3
Attack is from Central Zone	+1
Attack is from any Inner Zone	+4
Ground target designated by friendly TAG	–1
Attacker is a Robotic Unit	+1
Attacker is in a Naval C3 Network (Space combat only, in same sector)	–1
Attacker has Targeting Damage (per hit)	+2**
High-Speed Attack	+8
Point Defense (PNT#) vs. Capital/Sub-Capital Missiles	
Point Defense damage (1 point)	+1
Point Defense damage (2+ points)	Auto-Fail
Screen Launchers used (SCR#)	†
Secondary Target	+1
Target is Crippled/Drifting	–2
Teleoperated Missiles (TELE + MSL/SDS-CM)	–1

Notes: Weapon Class modifiers only apply when attacking Squadron types other than DropShips, JumpShips, space stations, and WarShips. (Screen Launcher modifiers apply to both the screen launcher Squadron and its attacker.) Atmospheric Combat Modifiers apply only if both the attacking Squadron and its target are operating in/below the space-atmosphere interface.

*This modifier applies only if the attacker is *not* an airborne aerospace Squadron. Airborne aerospace also includes fixed-wing support vehicles, conventional fighters, small craft, and DropShips.

**Targeting Hits are cumulative.

†+SCR special (max +4)

Fuel Endurance (Fighters Only)

Aerospace fighters may only operate in the Central, Inner and Middle Zones. If the aerospace Elements in a Combat Team may not be carried by other Elements in the Combat Unit, then the Combat Unit may not enter the Outer or Peripheral Zones. If it does so, all aerospace fighter Elements are considered destroyed and the Combat Unit must recalculate its damage and special abilities.

The exception to this are the P1 and P4 sectors Peripheral Zones. Provided the aerospace Elements can be transported to the P1 or P4 zone they may engage in jump point combat (see below).

JUMP POINT COMBAT

If two hostile forces are both in the P1 or P4 sectors, the player winning Engagement Control (see *SBF* Engagement Control, p. 237) may elect to declare the engagement occurs at the jump point. If this occurs, combat uses engagement map resolution instead of High-Speed Engagement.

Determine Range

Attacks are limited to the same hex when the attack originates from or targets an Outer Zone sector. So an advanced capital missile strike being made from sector O4 would only be able to target Combat Units in the same sector.

AEROSPACE GROUND SUPPORT

Aerospace Combat Units that end their movement in the Central Zone of the Star-System Radar Map are considered to be conducting a Ground Support Mission. The following rules replace the standard *Strategic Aerospace* Rules and advanced Aerospace Squadrons on the Ground Map rule (see pp. 251-253).

Ground Support Missions

In Abstract Combat- Aerospace, ground mission game play is abstracted out to speed up play and mesh with the simplified ground scale of the Abstract Combat Rules. Instead of engaging in direct combat with ground forces an aerospace Combat Unit chooses one of the Ground Support Missions below each turn that it begins the Combat Phase in the Central Zone of the Star-System Radar Map.

When declaring Ground Support Missions, players must declared them in the order they appear below. For example, all Combat Air Patrol missions must be declared first and all other missions are declared before any declaration of Air-to-Air Strikes.

Once a Ground Support missions is chosen, an aerospace Formation may not engage in any other mission. So a Formation on Combat Air Patrol cannot engage in a Ground Strike, even if no hostile aerospace force conducts a mission in the hexes it is protecting.

Combat Air Patrol

Combat air patrol (CAP) is a defensive mission designed to protect a certain area of air space over the battlefield. A player declaring a CAP mission chooses one hex on the Planetary Combat Map. The CAP Mission will protect this hex and the surrounding six hexes for a total of seven hexes.

Any hostile aerospace Formation attempting to conduct any ground support mission protected by an aerospace Formation on CAP must resolve any engagement with the CAP Formation before it can conduct any other actions in this hex. A CAP Formation gains a –1 to its Engagement Control Roll.

Ground Strike

An aerospace Formation on this mission conducts a series of air-to-ground strikes against ground Formations in a specific hex. Once choosing Ground Strike, the controlling player must designate a specific hex on the Planetary Combat Map. If not engaged by another aerospace Formation (see Combat Air Patrol and Air-to-Air Strike) the Formation may not make its ground attacks.

A Ground Strike Formation may make one of two types of attacks, Strikes and Bombing. For both attack types, the base target number to-hit is equal to the Formations Skill Value plus a +3 To-Hit, modified by any targeting critical hits and any other appropriate modifiers from the Aerospace To-Hit Modifiers table (see p. 320).

Strike: A Formation conducting a strike may make one attack per Combat Unit in the Formation. Each attack does damage equal to one-half the short range damage of that Combat Unit. Alternately a Formation may forgo an available attack to improve their chance to hit or to increase their damage. For every Combat Unit that does not conduct an attack, decrease the Formation's base target number by -1 (up to a maximum of -3) or give each Combat Unit a +0.1 damage multiplier (to a maximum of +0.5).

The attacked ground Formation may make one return attack per Combat Unit in the ground Formation, doing one-half damage (round down). The base to hit is equal to the ground Formations skill plus a +2 modifier to-hit (if more than one-half (round up) of the aerospace Formation is Large Aerospace Elements, apply a –2 to-hit modifier for a total modifier of +0).

Bomb: Aerospace Formations with a BOMB value may conduct bombing missions against a ground Formation. Damage is equal to the BOMB rating and is applied in 5 point clusters to the Combat Units in the target ground Formation.

The attacked ground Formation may make one return attack per Combat Unit in the ground Formation, doing one-quarter damage (round down). This attack has a to-hit modifier of +4.

Aerial Recon

Aerospace Formations that conduct an aerial recon support mission are focused on providing reconnaissance over a portion of the Planetary Combat Map. The player must designate one hex on the Planetary Combat Map as the center of the Formations recon area. The Formation may attempt to recon any ground Formations in this hex and the hexes surrounding it (seven hexes total). If an aerospace Formation is at the edge of the map, they do not wrap their hexes around the map as is done with ground movement.

Recon Benefits: An aerospace Formation on aerial recon gains a –4 roll to its Reconnaissance roll target number. This is only –3 if any hostile aerospace attempts to engage it and +2 if the recon Formation is successfully engaged in Air-Air combat. An aerospace Formation may conduct two Reconnaissance attempts per Combat Unit in the Formation.

Air-to-Air Engagements: If another Formation engages them in combat, they make all attacks with a +1 penalty and do one-half (round down) their normal damage.

Ground-to-Air Combat: Aerospace Formations on aerial recon may not be attacked by ground units. The exception is if the Combat Unit qualifies for a Surface-to-Orbit attack (see below).

Air-to-Air Strike

This mission works exactly like a Capital-Scale Aerospace with both Formations already in the same sector.

ORBIT-TO-SURFACE AND SURFACE-TO-ORBIT

These attacks use the same rules as *Strategic BattleForce* (see Orbit-to-Surface and Air-to-Ground Capital Combat, p. 260) save for the following changes.

Damage: A successful primary attack does damage equal to one-quarter (round up) of the Combat Unit's damage value plus 1 point (for a minimum of 1 point of damage per attack. A successful secondary attack does one-half the primary damage (round up).

Scatter: Scatter may only occur in the same hex and on the result of a 5 or 6 it damages equal to a successful secondary attack.

ADVANCED ABSTRACT COMBAT RULES

The following rules are optional rules to enhance Abstract Combat.

COMBAT DROP

A Combat Drop involves a Formation dropping directly into a hex containing one or more enemy Formations. BattleMech, ProtoMech conventional infantry or battle armor formations are eligible to

COMBAT DROP RESULTS TABLE

Margin of Success	Drop Value	Drop Damage	Combat Roll Modifier	Damage Modifier*	Drop Result
>12	+5	—	-4	–	Parade ground precision
9 to 11	+4	—	-3	–	Concentrated avalanche
6 to 8	+3	—	-2	–	Strong pattern and little scattering
3 to 5	+2	—	-1	–	Adequate drop pattern
0 to 2	+1	—	0	-0.1	Scattered but effective
–1 to –3	-1		+1	-0.1	Poor pattern and moderate scattering
–4 to –6	-2	5%	+2	-0.2	Scattered concentrations
–7 to –9	-3	10%	+3	-0.4	Scattered and disorganized
–10 to –12	-4	15%	+4	-0.6	Scattered beyond recovery
>–12	-5	20%	+5	-0.8	Unmitigated disaster

* Apply this damage modifier to a Combat Unit's damage rolls in the turn it landed. In the following turn, divide the modifier by 2 (round down) and if the value more than 0, then apply this to the Combat Unit's damage.

attempt a drop. The maximum size of a Formation conducting a drop is three Combat Units. Additionally, Combat Drops can only be made from aerospace Formations with DropShip, WarShip or Space Stations that are in the in the Inner Ring of the Star-System Radar Map or by DropShips from the center zone of the SSRM. Utilizing the Inner ring or center zone simulates dropping from orbit and/or within the atmosphere.

To attempt a Combat Drop, Players must make a Combat Drop Roll equal to or over the Target Number of 6. Players must also consult the Combat Drop Column of the Master Modifier Table (see pp. 308-311) to determine the modifiers for the Target Number. The result of the roll is then cross-referenced on the Combat Drop Results Table (see p. 321).

Questionable loyalty units will not perform combat drops unless Elite or greater skill. Green, Really Green and Wet Behind the Ears will only perform a combat drop if they have Fanatical Loyalty.

Depending on the margin of success, the Combat Drop can result in a positive or negative combat roll modifier, which applied to the combat roll (see *Resolving Attacks*, p. 316).

A Formation that fails its Combat Drop roll (Margin of Failure of -1 or more) will also take damage equal to Drop Damage Value. So a Formation that had Drop Value of -3 (a MoF of 7 to 9) would remove 10% of its Combat Units' initial Armor value.

FORTRESS HEXES

There are three classes of fortifications, Standard Fortifications, Capital Fortifications and Castles Brian (see *Inner Sphere at War, Fortifications* p. 350)

The defending player may designate one hex a Fortress for every *ISW* fortification a world possesses. Each fortress hex is specific to a given fortification, with a value equal to that fortification. If playing a non-*ISW* game players may agree ahead of time on the number of Fortress Hexes in play

Fortress Types

Standard: A standard fortress consists of fortified walls around a military base or industrial complex composed of standard buildings. It primarily protects against ground attacks, offering limited defense against aerospace and artillery (both standard and orbital). It provides no protection against nuclear or chemical/biological attacks.

Capital: Fortified walls with hardened structures within. A fully self-contained structure, it offers equal protection against ground attacks, aerospace and artillery attacks. They also equal protection to nuclear and excellent protection and strong protection to chemical/ biological attacks. Level 5 structures are immune to all attacks including nuclear and ortillery. However occupants of a Level 5 Capital Fortification may not damage an opponent outside the fortification.

Castle Brian: The peak of defensive fortifications. A fully enclosed and self-contained structure. Surface fortifications are like the tip of an iceberg only exposing a fraction of the structure. Offering strong protection against all attacks they are completely immune to chemical and biological attacks.

Fortress Capacity

A Fortress can shield a number of Combat Units based on its class and fortification level. Consult the Fortress Table, Combat Unit Capacity to determine the maximum force levels for fortifications.

Fortress Defenses

Standard Fortifications: A Standard Fortress possess 100 points of armor per fortification level. They may be attacked by Combat, Aerospace and Artillery Formations as well as Orbital Bombardment and Nuclear weapons.

Capital Fortifications: A Capital Fortress possess 125 points of armor per fortification level. They may only be attacked by Artillery Formations, Orbital Bombardment and Nuclear weapons. Capital-5 fortresses are immune to damage.

FORTRESS TABLE

Fortification Type	Defense Modifier Ground	Air	Attack Mod	Fortress Armor	Weapons Damage S/M/L	Combat Unit Capacity*
Standard-1	-10%	-5%	-5%	100	8/8/5	3
Standard-2	-20%	-10%	-10%	200	8/8/5	6
Standard-3	-30%	-15%	-15%	300	8/8/5	6
Standard-4	-40%	-20%	-20%	400	8/8/5	9
Capital-1	-20%	-20%	-20%	125	10/10/7	6
Capital-2	-40%	-40%	-40%	250	10/10/7	8
Capital-3	-60%	-60%	-60%	375	10/10/7	10
Capital-4	-80%	-80%	-80%	500	10/10/7	12
Capital-5	-100%	-100%	-100%	600†	10/10/7	15
Castle Brian-1	-20%	-20%(30%)**	-20%	150	12/12/9	9
Castle Brian-2	-40%	-40%(50%)**	-40%	300	12/12/9	12
Castle Brian-3	-60%	-60%(80%)**	-60%	450	12/12/9	18
Castle Brian-4	-80%	-80%(100%)**	-80%	600	12/12/9	24
Castle Brian-5	-100%	-100%	-100%	800†	12/12/9	30

* Divide Clan Combat Units by 3 to determine the maximum that can be shielded.

** Number in parentheses represents protection against standard artillery and aerospace attacks.

† This Fortress class is immune to external weapon attacks. Damage is for tracking internal damage done by special attacks such as sabotage.

NUCLEAR WEAPON DAMAGE TO FORTIFICATIONS TABLE

Weapon	Damage vs. Standard	Notes	Damage vs. Capital*	Notes
Type Ia	50	NA	25	NA
Type Ib	50	NA	25	NA
Type II	500	Automatic loss of level	250	NA
Type III	5 000	Total Destruction of Fortification	2 500	Automatic loss of level
Ahab	15 000	Total Destruction of Fortification	7 500	Automatic loss of 2 levels
Type IV	50 000	Total Destruction of Fortification	25 500	Automatic loss of level 3 levels
AMW	300 000	Total Destruction of Fortification	150 000	Automatic loss of Fortification

*Unless a Level5 Capital or Brian Fortification, in which case all damage above are ignored
Note: Divide all Capital damage by half for attacks on Castles Brian Fortifications

Castle Brian: A Castle Brian possess 150 points of armor per fortification level. They may be attacked by Orbital Bombardment or Nuclear weapons. Brian-5 fortresses are immune to damage.

Conventional Weapons: A Fortress equipped with weapons may make one attack per turn. As the fortification is immobile, range is determined by the enemy force based on the range it chooses to attack the Fortification's occupants or the fortification itself. Fortifications are always Regular experience level. Damage dealt is based on the Fortifications weapons level and range.

Surface to Orbit Weapons: Capital-5 and Castle Brian fortifications may mount Surface to Orbit weapons (STO). Each level of STO does 4 Capital Scale (CAP) damage. Any WarShip(s) attempting to use ortillery on an STO equipped Fortification, suffers damage equal to the STO level times 4 points for every round of orbital fire (if multiple WarShips, the defending player chooses which WarShip is fired at). If a Combat Formation attempts to combat drop on an STO equipped Fortification, the DropShip assets used to drop the Combat Formation suffer the same damage from the surface to orbit weapons. Additionally, if there is an STO equipped Fortification in an adjacent hex in which the drop is occurring it can also fire at the DropShips. The laser batteries are also able to be fired at any Aerospace Formation that are engaged in combat in the hex they occupy.

Attacking a Fortress

Combat Formations: In any turn a Combat Formation is in the same hex as a Standard Fortress, it can choose to reduce the fortress instead of engaging in combat. Damage from the attack is divided by 3 before being applied to the fortification.

Orbital Bombardment against Standard Fortifications is treated like standard artillery dividing its damage as is appropriate before applying it to the fortifications armor points.

In any turn when Combat or Artillery Formation is in the same hex as a Fortress, it can choose to reduce the fortification instead of engaging in combat. Damage from the artillery attack is divided by 2 before being applied to the fortification. Orbital Bombardment against Standard Fortifications is treated like standard artillery dividing its damage as is appropriate before applying it to the fortifications armor points.

When a level of fortification is destroyed, the defending forces take damage equal to the number of levels destroyed divided by the total number of levels the original Fortification possessed, times by 10 and applied as a percentage. Therefore if a Level 3 Fortification loses one level due to damage, the defending forces within that fortification would suffer 3% damage to their armor value (1/3 = 0.33. Multiplied by 10 = 3.3%).

Nuclear weapons attacks are resolved differently than Artillery. Consult the Nuclear Weapons Damage to Fortifications Table (see above) when resolving such attacks.

If an enemy has successfully performed a sabotage Fortification attack, the fortification is reduced by one fortification level. Capital-5 or Brian-5 fortifications that are successfully sabotaged are now vulnerable to nuclear and ortillery attacks. They remain immune to aerospace and standard artillery.

- The Defender receives a +2 to their initiative roll so long as their PV is 25% or more of the Attacker (round up).
- The Defender reduces ground damage taken by 5% per level for Standard Fortifications, 10% per level (maximum 30%) for Capital and Castle Brian fortifications.
- Defender still receives the standard protection afforded by a fortification against aerospace, artillery and ortillery attacks.

Damage: Standard Fortifications can only be damaged by Combat and Aerospace Formations as well as artillery, ortillery and nuclear weapons. Combat and Aerospace Formations divide all damage by 4 (round up).

For every 500 points of artillery damage a Standard or Capital Fortification absorbs, the Fortress loses one level of Fortification, therefore players will need to keep track of the Fortification's remaining armor level. Capital Fortifications can only be reduced using Artillery (Divide all damage by 10, round up), Nuclear WMDs or concentrated Orbital Bombardments. Capital-5 fortresses are immune to damage.

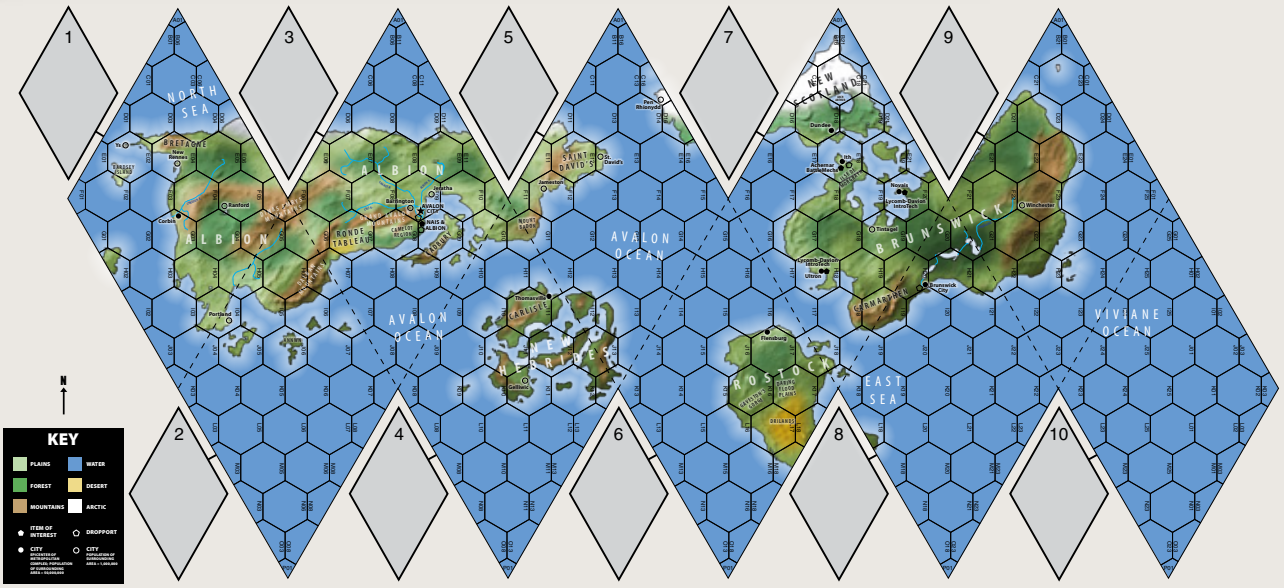
Castle Brian fortresses can absorb 1000 points of damage per level and are immune to all but Nuclear and Orbital Artillery. Brian-5 fortresses are immune to damage.

Castles Brian

Castles Brian are the pinnacle of defensive fortifications. Used by the Star League and reused or copied by others, they have served as the turning point of many of BattleTech's pivotal moments.

Castles Brian are more resilient to being reduced by nuclear attacks. On the Nuclear Weapons Damage to Fortifications table (see above) divide all Capital damage by half (round up)

Beyond granting the same protection as Capital formations, another benefit of the Castes Brian is that in combat, defenders in a Castle Brian can sally out of special defender ports, allowing them to engage their attacker on their own terms.



CAPITALS AND INDUSTRY

Worlds which are capitals (regional or national) or have industrial facilities (see Inner Sphere at War, p. 348, for details) must designate a hex for each. Multiple types can be placed in single hex and these facilities can also be placed within fortifications. An example of this is the fortified factory city of Tikograd or the Hesperus Factory facilities.

When placed in fortifications, these facilities take up space that could be used by defending regiments. The Hex Element Details Table details the size of each.

In addition to being captured (see *SBF Capturing* Objectives, p. 244) these hex elements may be destroyed through concentrated firepower. To determine a hex element's armor, consult the Hex Element Details Table (see below). If a Formation is in the same hex it may attempt to damage or destroy the hex element. If there are no forces friendly to the element in the hex (defenders), a Combat Unit does full damage from its standard attacks. If there are defenders in the hex, damage is multiplied by 0.5. If the defender outnumbers the attacker by 2:1 then the attacker's damage multiplier is 0.25 and if the defender is outnumbered by 2:1 then the attacker's multiplier is 0.75. Artillery always multiples its damage by 0.25 when attacking hex elements.

The world of Skye is a Minor Capital and possesses two Industrial Facilities. Each of these three elements must be placed within a hex and all three can be placed in the same hex, if a player so chose. Were all three to be placed in a Fortification, they would take up 24 Combat Units worth of space.

HEX ELEMENT DETAILS

Element	Combat Unit Space Used	Armor
Minor Capital	6	500
Major Capital	12	1000
Industrial Facility (Factory)	6	500

ABSTRACT COMBAT WITH PLANETARY MAPS

Players wishing to have the variety of terrain, may use planetary maps such as those provided the *Turning Points* series. Other maps may be used as well, provided the players mutually agree on the map and set the scales prior to game play starting.

Game play follows the Abstract Combat Rules except as noted below.

SCALE

Map Scale: An *ACS* Planetary Map should have hexes equal to 750 kilometers. If a map lacks hexes, players should either overlay a hex map with the appropriate sized hexes or convert to miniature style movement with 1 MP of movement equal to 750 kilometers.

MOVEMENT PHASE

Square Map Hexes: If the map being used has squares instead of hexes, a Formation may move into any of the eight hexes that surround their current hex.

Terrain: With the exception of full water hexes (there is no other terrain feature in the hex except for water), all hexes are considered to be mixed terrain. All non-naval Movement Modes may travel through a mixed terrain hex, paying the MP penalty for the hexes terrain type. So a Combat Unit with the Hover Movement Mode (h) would be allowed to travel through a light woods hex, paying the +1 MP penalty to traverse the hex.

SCALED STRATEGIC BATTLEFORCE

Players wishing the detail of *Strategic BattleForce*, using the scale of forces found in the *Abstract Combat System* can do so with these simple conversion rules. This allows players the ability to use standard BattleTech maps with their *ACS* forces. Players need to understand that these alternate rules will add time and complexity to game play. All parties should agree to use these rules in advance.

SCALE

Map Scale: A single Scaled *SBF* hex is equal to 100 kilometers.

Turn Duration: One game turn is equal to 12 hours, or one standard day.

Force Structure: A Combat Unit (battalion, Level III, Trinary) is the standard playing piece in Scaled BattleForce. When using *Strategic BattleForce* rules, all mentions of Unit are replaced with Combat Team and all references to Formations are replaced with Combat Unit.

Stacking Limits: Use the Abstract Aerospace Combat rules for stacking.

DETECTION AND RECONNAISSANCE PHASE

Scaled BattleForce uses the *Abstract Combat System* rules for Detection and Reconnaissance. This includes devoting forces to scouting to determine the composition of an enemy blip counter.

MOVEMENT PHASE

Terrain: With the exception of full water hexes (there is no other terrain feature in the hex except for water), all hexes are considered to be mixed terrain. All non-naval Movement Modes may travel through a mixed terrain hex, paying the MP penalty for the hexes terrain type. So a Combat Unit with the Hover Movement Mode (h) would be allowed to travel through a light woods hex, paying the +1 MP penalty to traverse the hex.

Engagement Control: Scaled BattleForce uses the *Abstract Combat System* rules for Engagement Control.

Jumping: Jumping is not used in Scaled *Strategic BattleForce*, instead use the Combat Unit's TMM which factors in the JUMP ratings of the Strategic BatlteForce Units it is composed of.

COMBAT PHASE

Types of Attacks: Scaled *Strategic BattleForce* uses the *Strategic BattleForce* rules for determining attacks, with Combat Teams being what conducts attacks.

Determine Range: Use the *Abstract Combat System* rules for determining range. The exception is for Cruise Missile 90 and 120. These weapons may make artillery attacks into an adjacent hex.

Determine Damage: Combat Teams are what take damage in Scaled *Strategic BattleForce*.

END PHASE

Follows *Strategic BattleForce* rules.

STRATEGIC AEROSPACE

Use the Abstract Aerospace Combat System rules.

ADVANCED RULES

Scaled BattleForce uses the Advanced *Strategic BattleForce* rules except as noted below.

Unused Rules

The following Advanced *Strategic BattleForce* rules are not used in Scaled *Strategic BattleForce*

- Sprinting (See Quick March below for replacement)
- Hull Down/ Partial Cover
- C^3 Networks
- Transporting Non-Infantry (Scaled *Strategic BattleForce* uses the *ACS* Transporting Rules).
- Exceptionally Large Elements
- Expanded Ground Ranges
- Hidden Formations
- VTOL Special Attacks
- Terrain Conversion
- Glider ProtoMechs
- Quad-Vees
- Design Quirks

Quick March

This rule replaces *Strategic BattleForce* Sprinting. A Combat Unit may increase its Movement by 1.25 (round normal). Any turn that it uses Quick March it reduces all Detection rolls by 1. In the Movement Phase, the Combat Unit has a -1 modifier to their Engagement Control and in the Combat Phase they are at a -1 to hit.

Advanced Terrain

As with standard terrain, only the movement penalty is used in Scaled *Strategic BattleForce*. Bogging down rules are not used.

Alternate Munitions

Air Defense Arrow IV: Arrow IV equipped Combat Teams with these munitions gain a +1 to-hit modifier for attacks against aerospace targets.

Copperhead: Acts the same as an Arrow IV homing munition.

Thunder and Thunder Active: As *Strategic BattleForce* (see p. 276).

Unused Munition Types: Flechette, Illumination, and Smoke munitions are not used in Scaled *Strategic BattleForce*.

Boarding Actions

These rules are usable against Large Aerospace Elements.

Environmental Effects

Only atmospheric density rules are used (see p. 280).

Urban Hexes and Advanced Buildings

These rules replace all Urban Hex (see p. 285) and Advanced Building and Urban Terrain (see p. 288) rules.

Combat: In Urban Hexes combat occurs at Short or Medium range only. If the winner of the Maneuver Control Roll declares Long Range, then no attacks may take place in that turn. Infantry, battle armor and ProtoMechs gain a +1 to all detection rolls and are at a -1 to be hit (-2 for Foot, Jump and Motorized conventional infantry).

Damage: All Combat Units in an Urban hex reduce damage taken by 1 per attack. Battle armor and ProtoMechs reduce damage by 2 and conventional infantry reduce damage by 3.

Armed Buildings: Gun Emplacements (armed buildings in an Urban Hex) are not used in Scaled *Strategic BattleForce*. Fortifications use the *Strategic BattleForce* rules, treating a Fortification as a one Combat-Team Combat Unit. In Scaled *Strategic BattleForce*, players may construct Large Fortifications, which consist of 2-5 Combat Team Fortifications acting as a single Combat Unit referred to as a Large Fortification. These Large Fortifications are directly equivalent to an *Abstract Combat System* Standard Fortress with Level 1 weapons (see p. 323).

Land-Air BattleMechs

If a Combat Unit has the LAM special ability (One or more Combat Teams must have the LAM special), then the Combat Unit receives a +1 to all Detection rolls.



This Free Worlds League Pursuit lance is comprised of a Vulcan, Flea, Cicada *and a* Spider.

CONVERSION RULES

The following rules detail how to convert existing player forces from Total Warfare or *Alpha Strike* to playable units in *Strategic BattleForce* and the Abstract Combat System.

Creating Strategic BattleForce Formations: Creating a *SBF* Formations begins with converting *Alpha Strike* Elements into *SBF* Units (see Phase 1, Creating *Strategic BattleForce* Units, p. 326). Units are then formed into Formations in Phase 2: Create an *SBF* Formation or *ACS* Combat Team (see p. 329).

Creating Abstract Combat System Combat Units: Creating *ACS* Combat Units begins with *SBF* Units which are formed into Combat Teams (see Phase 2: Create an *SBF* Formation or *ACS* Combat Team, p. 329). Combat Teams are then assembled into two to four Combat Teams to create a single force (see Phase 3: Creating Combat Units, p. 329).

Converting from Total Warfare: Players wishing to use individual Total Warfare Elements must first convert the Elements to *Alpha Strike* (see p. 90, *Alpha Strike Companion*) or they may refer to the Master Unit List (http://masterunitlist.info/) for any published game units.

The Conversion Process is:

Phase 1: Create *Strategic BattleForce* Units from *Alpha Strike* Elements
Phase 2: Create *SBF* Formations or *ACS* Combat Teams.
Phase 3: Create *ACS* Combat Units
Phase 4: Create *ACS* Formations
Phase 5: Assign Special Abilities

PHASE 1: CREATE STRATEGIC BATTLEFORCE UNITS FROM ALPHA STRIKE ELEMENTS

The first step to converting forces for either *Strategic BattleForce* or Abstract Combat System is to convert from individual *Alpha Strike* Elements into the *Strategic BattleForce* Unit. The *SBF* Unit forms the basic building block for all strategic combat forces.

Note: Unless the term "Ground Unit" is specifically used, Flight can be substituted for any reference to Unit. Any reference to Flight is exclusive to aerospace forces.

STEP 1A: CHOOSE ELEMENTS

A *Strategic BattleForce* Unit may consist of one to six *Alpha Strike* Elements. Units with LG Elements may have a max of two Elements in a Unit. Units with VLG or SLG may have a max of one Element in a Unit.

ProtoMechs: PromoMechs are a special case as individual ProtoMechs are treated as Elements in *Alpha Strike*, but *Strategic BattleForce* uses ProtoMech Points of five as Elements to build *SBF* Units. To create a ProtoMech Point Element, follow the steps below:

1. A ProtoMech Point (Element) is always Type "PM."
2. ProtoMech Points (Elements) are all Size 1.
3. Follow Step 1D as written to determine Ground Movement. To determine Jump Movement, average the Jump MP of the ProtoMechs and record this as the Point's Jump MP. Target Movement Modifier need not be determined at this stage.
4. Follow Step 1E to determine Armor. Divide the result by two (round up) instead of three (round normally).
5. Follow Step 1F to determine Damage Values. Divide the result by two (round up) instead of three (round normally).
6. Determine a ProtoMech Point's Skill and PV by following Steps 1G and 1H.

After following these steps and determining all the values for the ProtoMech Point, it can be added to a Unit and converted as per the following steps. Note that the Point has no Structure or modifying abilities when determining the Unit value in Step 1E.

STEP 1B: DETERMINE TYPE

SBF Ground Units are assigned one of seven different Types (called Unit Type in *Alpha Strike*) for ground Units and two types for aerospace Flights. They are shown in the *SBF* Element Type Table (see p. 328).

A Unit's Type is determined by the predominant *SBF* Type (if any) amongst its component Elements. For all ground Units, if two-thirds or more (round normal) of the Unit is comprised of a single *SBF* Type, that is the Unit's Type. Otherwise, the Unit Type is Mixed Ground (MX). For aerospace if any Large Aerospace Elements are in the Flight, then the Flight is always Large Aerospace.

Limitations: Aerospace Elements may not be mixed with Ground Elements in a in a Unit. Ground Elements may not be part of an Aerospace Flight, unless the Ground Element has the SOA, LAM or BIM special ability.

STEP 1C: DETERMINE SIZE VALUE

A Unit's Size value is the average Size of all *Alpha Strike* Elements rounded normally.

STEP 1D: DETERMINE MOVEMENT STATS

Alpha Strike Movement Conversion: Alpha Strike Movement Points for ground units is listed in inches, at 2 inches per hex of MP. Divide ground Element's MP (including Jump values) by 2 before proceeding.

Standard Movement (Ground): A Ground Unit's Movement Points are based on the average MP of all Elements within that Unit (Round Normal). However, if the Unit contains infantry or battle armor, then the Unit's Movement is either the average MP of all the Elements or the lowest infantry/battle armor MP, whichever is lower.

Standard Movement (Aerospace): Aerospace Flights use the Thrust of the slowest Element in the Flight. An aerospace Flight possessing Elements with the SOA ability have a Thrust of 0.

Transport Movement: If a Unit possesses any of the Transport Special Abilities ((CK#, CT#, IT#, OMNI, VTM#, VTH#. VTS#, AT#, DT#, MT#, PT#, ST#) then the Unit has a Transport Movement rating.

Transport MP is determined by only averaging the MP (or Thrust) of the Elements not capable of being transported by another Element in the Unit. So a Unit with a Maxim Hover Transport (IT12), a squad of Ravager battle armor (CAR4) and two Gladius Hover Tanks would have a standard Move of 2 (equal to the Ravager's MP) and a Transport Move of 8 (the average of the three hover tanks' movement).

JUMP Value: To determine a Unit's *SBF* JUMP value begin by adding together the Jump MP of each Element in the Unit (an Element with no Jump MP would add 0). Average this total together, do not round. Finally divide the average by 2, rounding normally. So an Inner Sphere Unit with two PNT-10k Panther (MP 4j) and 2 SCB-9T Scarabus, (MP 10) would have a JUMP value of 1 (Add jump MP 4+4+0+0=8. Average total, 8 ÷ 4=2 and divide this value by 2, 2 ÷ 2=1).

Movement Mode: If a Unit has Elements of all the same movement mode, as found on the Movement Mode Table, then record this mode. If the Formation has mixed movement modes, consult the Restriction Rank column and find the Mode with the lowest number. This is the most restrictive movement mode and is listed as the Unit's Movement Mode. If there are different movement modes with the same lowest value, assign the movement mode that is listed first on the Movement Mode Table. Players should note the Movement Mode list is slightly different from that found on p. 93 of *Alpha Strike Companion*.

Target Movement Modifier: Average the standard movement of all Elements in the Unit, rounding normal. Using this value, consult the Target Modifier Table (see p. 328) and apply any appropriate modifiers to get the Units TMM. Transport movement is not used to factor TMM.

STEP 1E: DETERMINE ARMOR VALUE

Total the *Alpha Strike* armor and structure values of all Elements within the Unit. Add 0.5 points for each Element with any of the following, a structure of 3+, AMS, or CASE. Add 1 point for each Element with any of the following, ENE, CASE II, CR or RAMS.

Divide this total by three (round normally) to find the Unit's final *SBF* armor value.

STEP 1F: DETERMINE DAMAGE VALUE

All damage values below are divided by 3 (round normal) to determine a Unit's final damage value for that attack type (if an attack has more than one range, divide each range separately). Any value that is or rounds to 0 is considered 0. *Alpha Strike* Minimal Damage rules are not used at this scale of play and any value of 0* is considered a 0.5.

Short Range Damage: Total the Short Range (S) damage values of all Elements in the Unit. To this add any damage derived from Artillery Cannons (TC, SC, or LTC special ability). Add half an Element's Overheat value (do not round). For infantry units with the Anti-'Mech (AM) ability, add 1 point.

Medium Range Damage: Total the Medium Range (M) damage values of all Elements in the Unit. Add any damage derived from Artillery Cannons (TC, SC, and LTC special ability damage values). If an Element has a medium range damage of 1 or more add half an Element's Overheat value (do not round).

Long Range Damage: Total the Long Range (L) damage values of all Elements in the Unit. Add any damage derived from the TC and LTC Artillery Cannon special abilities (but not SC). If an Element has a long range damage of 1 or more add half an Element's Overheat value (do not round).

Extreme Range Damage: Total the Extreme Range (E) damage values of all Elements in the Unit. Add any damage derived from the TC and LTC Artillery Cannon special abilities (but not SC).

Indirect Fire Damage: Total the Indirect Fire (IR) damage values of all Elements in the Unit.

Flak Damage: Total the Medium and Long Range Flak (FLK) damage values of all Elements in the Unit. Short Range damage is not used at this scale.

Artillery Damage: Total Short, Medium, Long and Extreme Range damage values of each Artillery type on each Element individually (total all ART-LT, total all ARTAIS and so on). See Artillery, p. 274, for each type's base damage values.

Elements with ARTAIS or ARTAC record their ART damage as X(X), where the first value is for normal damage and the second is the lesser value used if employing homing missiles. For example, a lance of Inner Sphere 'Mechs all with Arrow IV launchers would have ARTAIS-4(3), after dividing by 3.

Bomb Damage: Total Bomb rating for all Elements in the Unit and then divide as above.

Torpedo (TOR), Missile (MSL), Capital (CAP), Screen Launcher (SCR), Sub-Capital (SCAP) and Space Defense System (SDS): Total Short, Medium, Long and Extreme Range damage values of each Element individually (total all Short, total all Medium and so on).

Elements with Multiple Firing Arcs: An Element with multiple firing arcs (any Large Aerospace, as well as any Element with LG, VLG or SLG can potentially have weapons in more than one arc) calculate the damage value of each arc separately using the rules above. If a LG, VLG or SLG Element has one or more turrets, see the Turret special ability (see p. 338) for conversion rules.

STEP 1G: DETERMINE SKILL VALUE

The Skill value of a Unit is equal to the average skill value of each Element (round normal) in the Unit. To determine an Element's experience value, based on its skill rating, use the Experience Skill Table (see p. 328).

If a Unit has the Basic Fire Control (BFC), Drone (DRO) or Robotic Unit (RBT) special ability adjust the final Skill value up by 1 point. So a Veteran Unit with BFC would have a skill value of 4. Exception, if a RBT Unit that also has the SDDC ability or is being controlled by an ATAC equipped Unit, does not modify its skill value.

If a Unit has the Direct Neural Control System (DC) reduce its skill value by 1. So an Elite Unit with the DC ability would have a skill value of 1.

STEP 1H: DETERMINE POINT VALUE (PV)

A Unit's Point Value is determined by adding together the base PV of all Elements in the Unit (do not modify PV for skill), and then dividing this total by three (round normally).

The final PV is then determined by multiply it by the skill value modifier. A Unit with a skill value of 4 does not modify its PV.

Less Experienced Units: For each point that the Unit's Skill value is higher than 4, multiply the Unit's PV by 1 – (0.1 per Skill value above 4). Round normally. A Unit's highest possible Skill value is 7.

More Experienced Units: For each point that the Unit's Skill value is lower than 4, multiply the Unit's PV by 1 + (0.2 per Skill value below 4). Round normally; the minimum PV increase is 1 point per point of Skill value improvement. A Unit's lowest possible Skill value is 0.

Kari has a lance consisting of two Elements that cost 25 PV each and have a Skill value of 2, and two other Elements that cost 40 PV each and have a Skill value of 3. Adding their Skill values together and taking the average, the Unit Skill value is 2.5, rounded normally to 3. This is a one level improvement over the standard Skill value of 4.

Kari next determines the Unit's PV. Its base PV is [(48+48+40+40) / 3] 58.66, rounded normally to 59. As the Unit has a one-level Skill value improvement, Kari then multiplies its base PV by 1.2. The Unit's final PV is thus (59 x 1.2) 70.8, rounded normally to 71.

TARGET MOVEMENT MODIFIER TABLE

Unit's Available MP	TMM Modifier
Immobile	–4
1-2	+0
3-4	+1
5-6	+2
7-9	+3
10-17	+4
18+	+5
Unit's Type	**Modifier**
Battle Armor	+1
ProtoMech	+1
VTOL	+1
WiGE	+1
Miscellaneous	**Modifier***
Has LG special	–1
Has VLG or SLG special	–2
Has MAS or STL special	+2

*LG, VLG and SLG apply if any Element in the Unit has this ability. MAS and STL only apply if entire Unit has the ability.

SBF ELEMENT TYPE TABLE

SBF Type	Code
Ground Type	
Mixed Ground	MX
BattleMech / IndustrialMech	BM
Land-Air-BattleMechs	BM
ProtoMech	PM
Vehicle	V*
Battle Armor Infantry	BA
Conventional Infantry	CI
Mobile Structure	MS
Aerospace Type	
Aerospace	AS**
Large Aerospace	LA†

*Encompasses all Combat Vehicles (including VTOLs and WiGE) and Support Vehicles (except Airships, Fixed-Wing and Satellite) Types.

**Encompasses Aerospace Fighters, Small Craft, Conventional Fighter, Fixed-Wing, Airships and Satellites.

†Encompasses DropShips, JumpShips, WarShips and Space Stations.

EXPERIENCE SKILL VALUE TABLE

Experience Value	Skill Rating
Wet Behind the Ears	7
Really Green	6
Green	5
Regular	4
Veteran	3
Elite	2
Heroic	1
Legendary	0

MOVEMENT MODE TABLE

Ground Movement Type	Movement Code	Restriction Rank
Mechs, ProtoMechs, Battle Armor		
Ground: 'Mech/Proto	l	6
Ground: Battle Armor	l	5
Jumping: 'Mech/ Proto	j	7
Jumping: Battle Armor	j	6
UMU - 'Mech / Proto	s	6
UMU - Battle Amor	s	5
QuadVee (Tracked)	qt	6
QuadVee (Wheeled)	qw	6
Vehicles		
Hover	h	3
Naval (Surface)	n	*
Naval (Submarine)	s	*
Rail	r	1
Tracked	t	4
VTOL	v	8
Wheeled	w	2
Wing-in-Ground Effect	g	8
Conventional Infantry		
Infantry: Foot	f	5
Infantry: Jump	j	5
Infantry: Motorized	w	2
Mechanized (Hover)	h	3
Mechanized (Wheeled)	w	2
Mechanized (VTOL)	v	8
Aerospace Movement Type	**Movement Code**	**Restriction Rank**
SOA Ground Unit	k	1
Airship	i	4
Fixed-Wing	a	5
Aerodyne craft	a	5
Bi-Modal LAM	l	5
LAM	l	6
Spheroid Craft	p	2
Station Keeping Vessels	k	1
WarShips	aw	3

* Naval Formations may only operate in water hexes and are not allowed as part of a mixed Ground Unit unless all other Elements may also operate in water terrain.

PHASE 2: CREATE SBF FORMATIONS OR ACS COMBAT TEAMS

Phase 2 provides the final instructions to create a playable *Strategic BattleForce* Formation or to create the Abstract Combat System building block, the Combat Team.

The following steps apply to both creating a Formation and a Combat Team. Formation refers generically to the creation of either force type, except as specifically noted.

Note: Unless the term "Ground Formation" is specifically used, Squadron can be substituted for any reference to Formation. Any reference to Squadron is exclusive to aerospace forces. Abstract Combat System aerospace is referred to as Aerospace Combat Teams at this scale.

STEP 2A: SELECT UNITS

A Formation may consist of one to four Units, to a total maximum of 20 Elements.

A Combat Team may consist of one to four Units, to a total maximum of 30 Elements.

STEP 2B: DETERMINE TYPE

A Formation's Type is determined exactly as in Step 1B.

STEP 2C: DETERMINE SIZE

A Formation's Size value is the average Size of all Units in the Formation, rounded normally.

STEP 2D: DETERMINE MOVEMENT STATS

Standard Move (Ground): A Formation's movement is based on the average of all Units in the Formation.

Standard Thrust (Aerospace): A Squadron's Thrust is based on the lowest Thrust of all Units in the Squadron.

Transport Move: A Formation's transport movement is based on the average of all Units in the Formation (rounding normal).

JUMP: Average the JUMP for all Units in the Formation.

Movement Mode (Formations only): Follow Step 1D (see p. 327) to determine movement mode.

Target Movement Modifier: Average the TMM of all Units (rounding normal).

STEP 2E: DETERMINE COMBAT TEAM ARMOR VALUE

Total the armor value for all Units in the Combat Team. If the Unit has the SCL# ability, add its rating to the armor value. If the Unit has the PNT# ability, add its rating to the armor value.

Divide total by 3 (round normal). This value becomes the Armor Value for the Combat Team.

Note: For Combat Teams only, skip this step for *SBF* Formations.

STEP 2F: DETERMINE COMBAT TEAM DAMAGE VALUE

Total the each range (S/M/L/E) or attack (ART, IR, and similar) damage value in the Unit. Apply the following modifiers.

- **Indirect Fire:** Divide the Units IR value by 3 (round normal). If this value is 1 or more, add this value to the Long and Extreme Range damage values.
- **Flak:** If a Unit has a Flak value of 2 or more, the Unit is given the FLK special ability.
- **Elements with multiple Firing Arcs:** Total the Damage Value for all arcs together. Divide this by 2.

Once all range and attack damages have been adjusted and totaled, divide the total for each by 3 (round normal). These values becomes the damage value for the Combat Team.

STEP 2G: DETERMINE FORMATION SKILL VALUE

Average the skill value of each Unit in the Formation and round normally.

STEP 2H: DETERMINE FORMATION TACTICS VALUE

The base value of a Formation's Tactics value is 10, subtracted by its standard Move or Thrust value. This is then modified by the Formation's skill. For every point a Formation's skill average is greater than 4, add 1 to the Tactics value. For every point a Formation's skill average is lower than 4, subtract 1 from the Tactics value.

If the Formation has an MHQ rating, divide the total by two (round normal, to a maximum of 3) and subtract the result to determine a final Tactics value.

Minimum Tactics value possible is 0.

STEP 2I: DETERMINE FORMATION MORALE VALUE

Morale is a Formation's skill value plus 3.

STEP 2J: DETERMINE POINT VALUE

Formations

A Formation's Point Value is simply the total PV of its constituent Units.

Combat Teams

Total the PV of each Unit. Divide this total by 3 (round normal). This is the Combat Team's *ACS* Point Value.

Skill Modifier: If converting from *Strategic BattleForce* Units, experience has already been factored into the Point Value. If using pre-generated or wish to modify the skill of converted *SBF* Units, calculate the experience adjusted PV the same as for a Unit in Step 1G (see p. 327).

PHASE 3: CREATE ACS COMBAT UNITS

The following rules cover the combining of Combat Teams into a single Combat Unit.

STEP 3A: CHOOSE COMBAT TEAMS

A Combat Unit may not be smaller than two Combat Teams and may be no larger than four Combat Teams in size. Regardless of the number of Combat Teams, a Combat Unit may have a maximum of 48 Elements.

Clan Combat Units: Clan Combat Units are Trinary in size, the same as a Formation in *Strategic BattleForce* (from two to four *SBF* Units). When converting an *SBF* Clan Formation to a Combat Unit, this phase is not used. The Clan Combat Team converted in the previous phases becomes the Clan Combat Unit.

STEP 3B: DETERMINE TYPE

A Combat Unit's Type is determined by the predominant Type (if any) amongst its component Combat Teams. For all ground units, if two-thirds or more (round normal) of the Combat Unit is comprised of a single Type (see Step 1B: Determine Type, p. 327**),** then that is the Combat Unit's Type. Otherwise, the Unit Type is Mixed Ground (MX).

Aerospace and Large Aerospace are both classified as Aerospace (AS). Battle Armor Infantry and Conventional Infantry are both classified as Infantry (CI).

Aerospace and Ground types may not be mixed in Abstract Combat System play.

STEP 3C: DETERMINE SIZE VALUE

A Combat Unit's Size value is the average Size of all Combat Teams in the Combat Unit, rounded normally.

STEP 3D: DETERMINE MOVEMENT STATS

Standard Move (Ground): A Formation's move is based on the average of all Combat Teams in the Formation.

Standard Thrust (Aerospace): An aerospace Combat Units' Thrust is based on the lowest Thrust of all Units in the Formation.

Transport Move: A Combat Unit's move is based on the average of all Combat Teams in the Formation.

JUMP: Average together the JUMP of the Combat Teams and divide the result by 3 (round normal). And add this to the TMM below.

Target Movement Modifier: Average together the TMM of the Combat Teams in the Combat Unit (round normal). Add the JUMP total (above) to determine the final TMM of the Combat Unit.

STEP 3E: DETERMINE COMBAT UNIT'S ARMOR VALUE

Total the Armor of each Combat Team to determine the Armor Value of the Combat Unit.

STEP 3F: DETERMINE COMBAT UNIT'S ATTACK VALUES

Total the Attack Value for each Range Class to determine the Attack Value at that range for the Combat Unit.

STEP 3G: DETERMINE COMBAT UNIT'S TACTICS VALUE

The base value of a Formation's Tactics value is 10, subtracted by its standard Move or Thrust value. This is then modified by the Formation's skill. For every point a Formation's skill average is greater than 4, add 1 to the Tactics value. For every point a Formation's skill average is lower than 4, subtract 1 from the Tactics value.

If the Formation has an MHQ rating, divide the total by two (round normal, to a maximum result of 2) and subtract the result to determine a final Tactics value.

Minimum Tactics value possible is 0.

STEP 3H: DETERMINE COMBAT UNIT'S MORALE VALUE

Add 3 to the Combat Unit's skill value.

Determine Morale Triggers: Multiple the Combat Unit's Armor value by 0.25 (rounding down) and subtract this value from the Armor value. This is indicates the amount of damage a Combat Unit can take before it has to make its first Morale Check (see *Morale*, p. 317). Subtract this value again to get the Armor value for the second check and one last time for the third Morale Check level. So a Combat Unit with an Armor value of 20 would make a Morale Check at 15, 10 and 5 points of Armor (Armor 20 x 0.25= 5pts of Armor. 20 – 5= 15pts for the first check, 15 – 5= 10pts for the second check and 10-5= 5 for the third check).

STEP 3I: DETERMINE SKILL VALUE

Skill value is the average of all the Combat Teams in the Combat Unit.

STEP 3J: DETERMINE POINT VALUE

A Combat Unit's Point Value is determined by adding together the Point Values of all Combat Teams in the Combat Unit, and then dividing this total by three (round normally).

PHASE 4: CREATE ACS FORMATIONS

The following rules cover the putting of Combat Units into *ACS* Formations. As a reminder, this can occur many times during the course of *ACS* play. Players are recommended to place the Formation Tracking Sheet into a sheet protector and use dry erase markers to track the *ACS* Formations' statistics.

STEP 4A: CHOOSE COMBAT UNITS

An *ACS* Formation may consist of one to eight Combat Units. To be placed in a Formation a Combat Unit must follow the rules for Adjusting Formations (see p. 311)

STEP 4B: DETERMINE TYPE

An *ACS* Formation is either a Ground or Aerospace type. To be designated an Aerospace type, all Combat Units in the Formation must be Aerospace, Large Aerospace or capable of being fully transported by another Combat Unit in the Formation.

STEP 4C: DETERMINE ACS FORMATION'S MOVEMENT

Movement is equal to the Transport MP of the slowest Combat Unit in the Formation.

STEP 4D: DETERMINE ACS FORMATION'S TACTICS VALUE

The base value of a Formation's Tactics value is 10, subtracted by its standard Move or Thrust value. This is then modified by the Formation's skill. For every point a Formation's skill average is greater than 4, add 1 to the Tactics value. For every point a Formation's skill average is lower than 4, subtract 1 from the Tactics value.

If one or more of the Combat Units has an MHQ rating, subtract the highest MHQ value (to a maximum of 2) from the Formation's Tactics value.

Minimum Tactics value possible is 0.

STEP 4E: DETERMINE ACS FORMATION'S MORALE VALUE

Use the Morale value of the Combat Unit with the lowest Morale value.

STEP 4F: DETERMINE ACS FORMATION'S SKILL VALUE

Skill value is the average of all the Combat Units in the *ACS* Formation.

PHASE 5: ASSIGN SPECIAL ABILITIES

Due to the scale of *Strategic BattleForce* and Abstract Combat System, many special abilities useful at a smaller scale of play have no appreciable effect at this scale of game play. The following rules cover the use and conversion of special abilities in game play.

CONVERTING SPECIAL ABILITIES TO STRATEGIC BATTLEFORCE AND ABSTRACT COMBAT SYSTEM

Players converting *Alpha Strike* Elements to *Strategic BattleForce* or Abstract Combat System begin by consulting the *Strategic BattleForce* & Abstract Combat System Special Abilities Table (see pp. 332-334). If an ability appears on this in the table, then the ability is used in *Strategic BattleForce* rules or is factored into the conversion to a *Strategic BattleForce* Unit. If an ability appears on the table and the *ACS* column indicates "Yes", then the ability also applies to Abstract Combat System play. Players must first convert

an Alpha Strike ability to *Strategic BattleForce* before converting it to Abstract Combat System.

Step 5A: Converting to Strategic BattleForce Units

Consult the table for the *SBF* Unit Requirements columns.

- **U1 column has an X**: If one Element, in the SBF Unit, has the *Alpha Strike* ability then the SBF Unit has the ability.
- **U 1/2 column has an X**: If one-half of the Elements (round down) in the SBF Unit has this ability, then the SBF Unit has the ability.
- **UA column has an X**: If all Elements in the SBF Unit have the *Alpha Strike* ability, then the SBF Unit has the ability.

Unless otherwise noted by additional conversion rules, if a special ability abbreviation is followed the "#"symbol (for example, BRID#, CRW# or MDS#), add the value of each Elements with the ability to determine the ability total.

Additional Conversion Steps: Consult the Special Abilities Details (see pp. 331-338). Some entries have an "*SBF*" addendum detailing how to convert and use the abilities in *SBF* play.

Step 5B: Converting to Strategic BattleForce Formations

Once all *SBF* Units in a Formation have been assigned their special abilities, the player then reviews the *SBF* Formation / *ACS* Combat Team Requirements columns of the table.

- **F1 column has an X:** One Unit in the Formation must have the SBF Ability.
- **F2/3 column has an X**: For Formations with three or four Units, two-thirds (round up) the Formation must have the SBF Ability. For Formations with two Units, one-half (round up) the Formation must have the SBF Ability.
- **FA column has an X**: All Units in the Formation must have the SBF Ability.
- **All columns have N/A:** Ability does not apply at the Formation level.

If a special ability abbreviation is followed the "#"symbol (for example, BRID#, CRW# or MDS#), add the value of each Elements with the ability to determine the ability total.

Step 5C: Converting to Abstract Combat Teams and Combat Units

Assigning special abilities to Abstract Combat forces is done by first following Step 5B to assign special abilities to a Combat Team.

Once each Combat Team has been assigned special abilities, add together any abilities with a **#** value and assign these to the Combat Unit if applicable.

Additional Conversion Steps: Consult the Special Abilities Details (see pp. 331-338). Some entries have an "*ACS*" addendum detailing how to convert and use the abilities in *ACS* play.

SPECIAL ABILITIES DETAILS

The following rules document how special abilities work in game play as well as conversion rules, as needed. It also includes new, unique *Strategic BattleForce* special abilities. If a special ability is listed on the *Strategic BattleForce* Special Abilities Table but does not appear in this list, its rules are covered elsewhere. Consult the Rules column of the table for instructions.

Active C³ Network (AC³)

AC³ is a new special ability in *Interstellar Operations*. This ability indicates that a Unit can create an active C³ network (see p. 131, TW) capable of improving a to-hit roll by an *SBF* Unit or *ACS* Combat Unit.

An *SBF* Unit gains the AC³ ability if it has one of the following:

- An Element with the C³M# and sufficient Elements with the C³S or C³BSS ability to equal one-half or more of the Unit's size.
- An Element with the C³BSM# and sufficient Elements with the C³S or C³BSS ability to equal one-half or more of the Unit's size.
- One-half or more of the Elements in the Unit have the C³I special ability.

C³EM and C³RS are not used in *SBF* game play and cannot be used to give a Unit the AC³ ability.

See C³ Networks p. 279 for game play rules

Advanced Tactical Analysis Computer (ATAC#)

A Unit with this special is able to feed improved tactical input to robotic units. This ability provides a –1 to-hit modifier to a number of SDCS or RBT units equal to this ability's numerical value (so a unit with an ATAC³ special may provide this modifier to up to 3 robotic *SBF* Units).

SBF Conversion: Divide the total ATAC value by 3 (round normal).

Amphibious (AMP)

A Unit with this ability is able to travel over the surface of water hexes at the costs of 2 MP per hex moved. For a Formation to be able to cross water hexes all Units in the Formation must have either the AMP special ability or one of the following movement types, h, n, s, v, or g.

Anti-Missile System (AMS)

A Unit with the AMS ability reduces damage from IR based attacks by 1 point.

Armored Components (ARM)

A Unit with this ability ignores the first critical hit chance rolled against it during a single *Strategic BattleForce* scenario. The first time circumstances arise that would normally generate an opportunity for a critical hit, the Unit's controlling player must strike off this ability as "spent" for the remainder of the scenario, and the attacker loses his first opportunity to roll for a critical hit.

Armored Motive Systems (ARS)

Armored Motive System works the same as Armored Components, see above.

Atmospheric Only (ATMO)

Any Squadron with an Element possessing this ability may not enter the Capital-Scale or Star-System Radar Maps.

Barrier Armor Rating

A Unit with this ability rolls for a critical hit anytime it takes damage. Once its armor is 50% or less, it rolls for critical hits twice when it takes damage.

BattleMech Harjel (BHJ)

A Unit equipped with BHJ only rolls for one Critical Hit when taking damage under water or in a vacuum, instead of the usual twice.

BattleMech Harjel II and III (BHJ2-#, BHJ3-#)

Units that have one or more Elements protected by HarJel II or HarJel III will recover armor points lost to damage as long as they begin the End Phase with at least one-quarter of armor remaining (round up). The amount of armor recovered at this point is 0.5 point for Elements that have the BHJ2 special, or 1 point for units with the BHJ3 special. This is then multiplied by the number of Elements equipped with the abilities (rounding down all partial numbers). So a Unit with two Elements with

SPECIAL ABILITIES TABLE: GROUND

Ability	Abrv.	Unit or Formation Requirement					
		U1	U1/2	UA	F1	F2/3	FA
Active C³ Network	AC3	–	X	–	–	X	–
Actve Probe	(PRB)	X	–	–	–	X	–
Amphibious	(AMP)	–	–	X	–	–	X
Angel ECM	(AECM)	X	–	–	–	X	–
Anti-'Mech	(AM)	–	–	X	–	–	–
Anti-Missile System	(AMS)	–	X	–	N/A	N/A	N/A
Armored Components	(ARM)	–	X	–	N/A	N/A	N/A
Armored Motive Systems	(ARS)	–	X	–	N/A	N/A	N/A
Artillery	(ARTX-#)	X	–	–	X	–	–
Barrier Armor Rating	(BAR)	–	X	–	–	–	–
Basic Fire Control	(BFC)	–	X	–	N/A	N/A	N/A
BattleMech Harjel	(BHJ)	–	–	X	N/A	N/A	N/A
BattleMech Harjel II and III	(BHJ2, BHJ3)	X	–	–	N/A	N/A	N/A
Blood Hound Active Probe	(BH)	X	–	–	–	–	X
Booby Trap	(BT)	X	–	–	N/A	N/A	N/A
Boosted Active C³ Network	(BAC3)	–	X	–	–	X	–
Bridge Layer	(BRID#)	X	–	–	X	–	–
C³ Networks	N/A	–	–	–		–	–
Boosted C³ Master	C3BSM#	–	–	–	–	–	–
C³ Boosted Slave	C3BSS#	–	–	–	–	–	–
C³ Master Computer	C3M#	–	–	–	–	–	–
C³ Slave Computer	C3S	–	–	–	–	–	–
C³ Improved Computer	C3I	–	–	–	–	–	–
Capital Weapons	(CAP)	X	–	–	X	–	–
Cargo	(CAR#)	X	–	X	X	–	–
Cargo Transport, Kilotons	(CK#)	X	–	–	X	–	–
Cargo Transport, Tons	(CT#)	X	–	–	X	–	–
CASE	(CASE)	N/A	N/A	N/A	N/A	N/A	N/A
CASE II	(CASEII)	N/A	N/A	N/A	N/A	N/A	N/A
Crew	(Crew#)	X	–	–	X	–	–
Critical Resistance	(CR)	–	X	–	N/A	N/A	N/A
Direct Neural Control System	(DN)	X	–	–	X	–	–
Door	(D#)	X	–	–	X	–	–
Drone	(DRO)	N/A	N/A	N/A	N/A	N/A	N/A
Drone Carrier Control System	(DCC#)	X	–	–	X	–	–
Electronic Counter Measure	(ECM)	X	–	–	–	X	–
Elementary Engine or Fuel Cell Engine	(EE or FC)	–	–	X*	–	–	X
Energy	(ENE)	N/A	N/A	N/A	N/A	N/A	N/A
Engineering	(ENG)	–	X	–	–	X	–
Environmental Sealing	(SEAL)	–	–	X*	–	–	X
Extended Mechanized	(XMEC)	–	–	X	X	–	–

SPECIAL ABILITIES TABLE: GROUND (CONTINUED)

Ability	Abrv.	Unit or Formation Requirement					
		U1	U1/2	UA	F1	F2/3	FA
Flak	(FLK #/#/#/#)	X	–	–	X	–	–
Force Commander	(COM)	–	–	–	X	–	–
Hyperpulse Generator	(HPG)	X	–	–	X	–	–
Indirect Fire	(IF#)	X	–	–	X	–	–
Infantry Transport	(IT#)	X	–	–	X	–	–
Jump Jets	(JUMP)	X	–	–	X	–	–
Large	(LG)	N/A	N/A	N/A	N/A	N/A	N/A
Leader	(LEAD)	–	–	–	X	–	–
Light Active Probe	(LPRB)	X	–	–	–	X	–
Light ECM	(LECM)	X	–	–	–	X	–
MagLev	(MAG	–	–	X**	–	–	X
Magnetic Clamp System	(MCS, UCS)	–	–	X	X	–	–
Mechanized	(MEC)	–	–	X	X	–	–
Mimetic Armor System/ Light Mimetic Armor System	(MAS/LMAS)	–	–	X†	X	–	–
Mine Dispensers	(MDS#)	X	–	–	X	–	–
Minesweeper	(MSW)	X	–	–	X	–	–
Mobile Army Surgical Hospital	(MASH#)	X	–	–	X	–	–
Mobile Field Base	(MFB)	X	–	–	X	–	–
Mobile Headquarters	(MHQ#)	X	–	–	X	–	–
Off-Road	(ORO)	–	–	X*	–	X	–
Omni	(OMNI)	X	–	–	X	–	–
Paratroops	(PAR)	–	–	X	–	–	X
Rail	(RAIL)	–	–	X**	–	–	X
Recon	(RCN)	–	X	–	–	X	–
Remote Sensor Dispender	(RSD#)	X	–	–	X	–	–
RISC Advanced Point Defense System	(RAMS)	–	C	–	–	–	–
Robotic Drone	(RBT)	–	X	–	–	–	X
Saw	(SAW)	–	–	X	X	–	–
Searchlight	(SRCH)	–	X	–	–	X	–
Shield (SHLD)	(SHLD)	–	X	–	–	X	–
Space Defense System	(SDS)	X	–	–	X	–	–
Stealth	(STL)	–	–	X†	N/A	N/A	N/A
Super Large	(SLG)	N/A	N/A	N/A	N/A	N/A	N/A
TAG	(TAG)	X	–	–	–	X	–
Torpedo	(TOR#)	X	–	–	X	–	–
Trenchworks/Fieldworks Engineers	(TRN)	–	–	X	X	–	–
Turret	(TUR)	X	–	–	X	–	–
Underwater Maneuvering Units	(UMU)	–	–	X*	–	–	X
Vehicle Transport	(VTM#) (VTH#) (VTS#)	X	–	–	X	–	–
Very Large	(VLG)	N/A	N/A	N/A	N/A	N/A	N/A
Watchdog	(WAT)	X	–	–	–	X	–

SPECIAL ABILITIES TABLE: AEROSPACE

		Unit or Formation Requirement					
Ability	Abrv.	U1	U1/2	UA	F1	F2/3	FA
Advanced Tactical Analysis Computer	(ATAC#)	X	–	–	N/A	N/A	N/A
Aerospace Transport	(AT#)	X	–	–	X	–	–
Atmospheric Only	(ATMO)	X**	–	–	–	–	X**
Bimodal Land-Air BattleMech	(BIM (a#))	–	–	X	–	–	X§
Bomb	(BOMB#)	X	–	–	X	–	–
DropShip Transport	(DT#)	X	–	–	X	–	–
Flight Deck	(FD)	X	–	–	X	–	–
Fuel	(FUEL#)	X**	–	–	–	–	X**
Helipad	(HELI)	X	–	–	X	–	–
Kearny-Fuchida Drive	(KF)	X‡	–	–	X‡	–	–
Land-Air BattleMechs	(LAM (#g/#a)	X	–	–	–	–	X§
Lithium-Fusion Battery	(LF)	X‡	–	–	X‡	–	–
Mech Transport	(MT#)	X	–	–	X	–	–
Missile	(MSL #/#/#/#	X	–	–	X	–	–
Naval C^3	(NC3)	–	–	X	–	–	X‖
Point Defense	(PNT#)	–	X	–	N/A	N/A	N/A
ProtoMech Transport	(PT#)	X	–	–	X	–	–
Screen Launcher	(SCR#)	–	–	X	X	–	–
SDS Control System	(SDCS)	X	–	–	X	–	–
SDS Jammer	(JAM)	X	–	–	X	–	–
Small Craft Transport	(ST#)	X	–	–	X	–	–
Space Operations Adaption	(SOA)	–	–	X¶	–	–	X¶
Spaceflight-Capable	(SPC)	–	–	X¶	–	–	X¶
Sub-Capital	(SCAP)	X	–	–	X	–	–
Teleoperated Missile	(TELE)	X	–	–	X	–	–

*Only the Elements that require this ability to gain a benefit or avoid a penalty must have the *Alpha Strike* ability. If any impacted Element lacks this ability, the entire Unit and Formation the Element is in is limited. For example, if there was an IndustrialMech with ICE engine and it did not have the SEAL ability, then the entire Formation would not be able to enter Depth 2 Water hex.

**If any Element has this ability, the entire Formation is restricted to the limitations of this ability.

† If all Elements have a mix of STL or MAS/LMAS treat as if the Unit had MAS/LMAS.

‡ If all Elements in the Formation may not be carried by this Element (or carried by Elements that can be carried by this Element) then the Element is unable to use this special ability during game play.

§May only use a movement mode (I or a) if all Elements have that movement mode.

||Squadron must be made up of only Large Aerospace Elements.

¶All Elements in the Flight or Squadron must be able to operate in a vacuum through the SPC, SOA, SEAL (cannot have EE), for this ability to be assigned.

BHJ2 (written on the Unit's record sheet as BHJ2-2) would restore 1 point of armor each turn (0.5 x 2=1).

The maximum armor points a unit may recover with BattleMech HarJel II or III may never exceed the Unit's original armor value.

SBF Conversion: Add up all Elements with the ability and add this total to the end of the ability. So if a Unit had three Elements with Harjel III it would note BHJ3-3 on its record sheet. If a Unit has both Harjel II and Harjel III in the Unit multiply the Elements with Harjel III by 2 and add this to the BHJ2 ability. So a Unit with one Harjel II and one Harjel III Element would record BHJ2-3 on its record sheet (1 point for BHJ2 and 2 points for BHJ3).

Bimodal Land-Air BattleMech (BIM)

For *Strategic BattleForce*, consult the LAM rules (see p. 292).

ACS: A Combat Team with sufficient LAMs (BIM or LAM) is given the LAM special ability. Combat Units with the LAM ability gain bonuses to their Detection rolls and Scouting Points.

Booby Trap (BT)

The booby trap may be activated during the Combat Phase, in place of a weapon or physical attack. Once activated, the booby trapped Element is destroyed, removing this ability from the Unit. The booby trap delivers damage equal to booby-trapped Element's weight/size class times its Move.

One hostile Unit takes full damage from this attack, while the Unit with the booby trapped Element takes one-half this damage. For example, a booby-trapped assault 'Mech with a Move of 3 would deliver 12 points of damage (Size 4 x 3 = 12) to the opposing Unit and 6 points to its own Unit.

Airborne Booby Traps: A booby traps have no effect on any Radar Map. Airborne units on the ground map that activate a booby trap are treated as a ground Element above. Damage from an aerospace booby trap is equal to the booby-trapped Element's weight/size class. Thus a heavy aerospace fighter with a booby trap would inflict 3 points of damage on the opposing Unit and 1 damage to the Flight it was a part of.

Boosted Active C3 Network (BAC^3)

BAC^3 indicates that a Unit can create an active Boosted C^3 network (see p. 131, TW) capable of impacting the Unit's attack rolls and is immune to standard ECM field.

A Unit gains the BAC^3 ability if it has one of the following:

- An Element with the C^{3}BSM# and sufficient Elements with the C^{3}BSS ability to equal one-half or more of the Unit's size.

Bridge Layer (BRID#)

SBF Units with the BRID ability may be used to span water hazards in an *SBF* hex (see Terrain, p. 234). The Formation may span a number of *TW* water hexes equal to the BRID rating of the Formation. If the BRID rating is equal or greater than the span the water hazard, then the MP to cross this hex is reduced to 1 MP, otherwise it provides no benefit to movement.

Non-infantry placed Bridges have a CF of 18 and may support Formations up to Size class 3. The bridge may be targeted as a building and will be destroyed once its CF is reduced to 0. Formation's that exceed the weight limit of a bridge may not use the bridge to reduce movement.

Infantry Bridgelayers: Infantry with this ability may erect a bridge using gear and parts carried with them for the task, but may only do so once per scenario. Infantry bridgelayers require 2 turns to complete their bridges, which possess a starting CF of 8, and can support units up to Size 2.

ACS: An *ACS* Formation that has one or more Combat Unit with BRID ratings that equal to the two times the number of Combat Units in the Formation gains a +1 to their Maneuver Control Roll. So a Formation with three Combat Units would need to have BRID# value of 6 (2 x 3).

Crew (CRW#)

Elements with the Crew ability may be boarded and repel boarders using the Boarding Action rules (see p. 277). **ACS:** In Abstract Combat System play, only Large Aerospace Combat Units may be boarded.

SBF Conversion: Total all the value of all Crew equipped Elements. Divide this total by 3 (round up) to determine the Unit's Crew rating.

Critical Resistance

Units with this ability gains a -1 to their Critical Hit die roll (see Step 6: Roll for Critical Hit, p. 241).

Door (DR#)

Doors determine how quickly a Formation may load or unload non-infantry forces (see Transporting Non-Infantry Forces, p. 269).

Drone (DRO)

Elements with this special ability are unmanned units capable of movement and (occasionally) combat. Ground drones must stay within 25 hexes of their control vehicle, unless the control vehicle is airborne or in orbit, in which case range is functionally limitless for a ground game. In space, drones need only remain within the same sector as its control.

Drones in the same hex as hostile ECM field shut down during the End Phase of the turn in which they were they entered the hex. They remain shut down until the ECM generating Formation is no longer present. Drones restart automatically in the End Phase of the turn in which the ECM field is removed. If the drone control unit (DCC) is in a hex with a hostile ECM Formation, all of its drones shut down until the DCC is no longer in a hex with hostile ECM. If the drone control unit is eliminated, the drones shut down for the rest of the game.

When not affected by hostile ECM, and as long as their control units are operational, drone units may Move, attack, spot for indirect fire, and use special abilities as an equivalent unit of the same motive type and capabilities. The Skill rating of a drone is equal to that of its controller's Skill, plus 1.

Converting to SBF: Drones are not part of standard *SBF* Formations and are always played as individual Units. Drones are converted with one Drone Element equaling one *SBF* Drone Unit. Drones are an exception to stacking limits and up to four friendly Drones may be in a hex on top of the normal stacking limits (see Stacking, p. 234).

Drone Carrier Control System (DCC#)

Units with the drone carrier control system (DCC) special ability may control units with the drone (DRO) special. The numerical value of this ability indicates the number of drones the unit can control. All drones controlled by this unit will shut down if the control unit is destroyed, disabled, or enveloped in hostile ECM fields.

Elementary Engine or Fuel Cell Engine (EE or FC)

Elements with EE or FC specials use non-fusion engines for power and must have the SEAL special to operate underwater. Formations with Elements with the elementary engines (EE) ability may not operate in a vacuum. Formations where all the fuel cell engines (FC) Elements also have the SEAL special may operate normally in a vacuum.

Engineering (ENG#)

Formations with this ability may clear woods hexes or create paths through rubble and wood hexes.

A Formation with ENG4 can clear a path through a rubble hex in 6 game turns. For every additional ENG, reduce the time to clear by 1 turns (to a minimum of 1 turn). So an IndustrialMech Formation with ENG8 could clear a path in 2 turns (6 – (8-4)=2.

Units with this ability may also create Fortified Positions (see p. 290).

Environmental Sealing

Environmental sealing allows Vehicles, Infantry and non-Fusion BattleMechs to operate underwater or in Vacuum and Trace Atmosphere conditions. If a Formation possess any Elements that are Type V, CI or BA or are Type BM (IndustrialMechs) with EE or FC engines they may not operate underwater or in a vacuum without this ability.

Fuel (FUEL#)

If any Element in a Unit has FUEL and cannot be carried by another Element in the Unit, then Unit must assign a FUEL rating. The Element with the lowest FUEL rating determines the Unit's FUEL. FUEL impacts space operations in Strategic Aerospace and Abstract Combat System game play.

SBF Unit Conversion: A Flights FUEL value is equal to the Element with the lowest FUEL rating and a Squadron's FUEL is equal to the Flight with the lowest Fuel. Aerospace fighters and conventional fighter Elements that lack a FUEL rating are assumed to have a FUEL of 4.

ACS: The Combat Team with the lowest FUEL determines a Combat Unit's fuel.

Flight Deck (FD)

An Element with this special ability can be used as a landing area by an aerospace fighter, conventional fighter, small craft, fixed wing support vehicle, airship support vehicle, or VTOL unit. Treat the surface as a paved runway for purposes of landing modifiers, regardless of the underlying terrain.

ACS: If a Combat Unit has the FD ability, the hex the Unit is in counts as an airfield (see *ACS* aerospace movement, p. 319).

Helipad (HELI)

An Element with this special ability can be used as a landing area by a unit with VTOL movement, regardless of the underlying terrain.

Hyperpulse Generator, Mobile (HPG)

Strategic BattleForce: If a unit equipped with a mobile HPG is operating inside an atmosphere, it may use the device to send a signal once every 6 turns. Doing so, however, draws incredible amounts of power and produces an immense electromagnetic pulse that affects all units in the general vicinity—including the HPG-carrying unit itself. These effects can vary with the operating unit.

Charging and Firing: An HPG can be fired in any turn that the Formation has not moved. A Formation that fires an HPB may still conduct standard and artillery attacks, but does so at a +1 to-hit modifier to hit. If the unit is a VLG or SLG Element in the process of being boarded or repelling a boarding action, its marines and other infantry defenses may continue to function normally, but all mounted weaponry is inert. At the end of the combat phase, the HPG fires, instantly shutting down the firing unit until the Combat Phase of the following turn (this prevents the Formation the Element is in from moving in the following turn)

HPG Effects Radius: As long as there is an atmosphere (or, if the Atmospheric Density rules are in effect per p. 280, an atmosphere of Thin or greater density), the HPG pulse will affect all units within a radius of 1 hex if the firing unit is not a Mobile Structure, a DropShip, a building, or a Support Vehicle of Size Class 3+. If the firing unit is a Mobile Structure, a DropShip, a building, or a Support Vehicle of Size Class 3+, the pulse will affect all units on the ground map, and all units in the Central Zone and Inner Ring of the atmospheric Radar Map above the HPG's position.

HPG Effects: The HPG pulse inflicts a +4 to-hit modifier on all non-conventional infantry units within the area of effect for 1 full turn. This effect persists even if an affected unit subsequently moves outside of the initial effect radius. This modifier will apply to all attacks including artillery and orbital fire. It will also prevent command detonated minefields (see Minefields, p. 284) from being activated. Any Drone or Robotic Unit caught in the blast is treated as if it is in a Hostile ECM field.

ACS: HPGs have no direct on *ACS* game play.

Sending and Receiving HPG Signals: The sending and receiving of an HPG signal is beyond the scope *Strategic BattleForce* game play.

Large (LG)

SBF: This ability impacts a Formations Target Movement Modifier (see Target Movement Modifier Table, p. 328). It also can alter modifiers or limit actions of a Formation based on the size of the Element.

ACS: If a Combat Unit has twelve or more Elements that have this ability (or any combination of LG, VLG and SLG that adds up to twelve or more), then it receives a -1 die roll modifier for all Engagement and Maneuver Control rolls.

MagLev (MAG)

A variation of the Rail (RAIL) special ability (see Rail, p. 337), Formations that possess any Element with magnetic levitation (maglev) systems may only travel along rail terrain designated for maglev units.

Magnetic Clamp System (MCS#, UCS#)

ProtoMechs with magnetic clamps may ride on a BattleMech as if they were a battle armor infantry unit with the XMEC special (see Transported Infantry p. 338). No more than 2 ProtoMechs with the MCS special (or 1 with the UCS special) may ride on a single transporting Element at the same time. When transporting ProtoMechs via the MCS or UCS special, the transport 'Mech will lose 1MP of Move, per ProtoMech, so long as the ProtoMechs remain attached to it. This ability allows one Element (MCS) or two Elements (UCS) of ProtoMechs to be carried by an OMNI equipped Unit. The entire Unit must be equipped with MCS or UCS to be carried.

All Elements in the Unit must have a Transport Ability (see Transport Abilities, p. 328) for the Unit to be transported by a Formation.

SBF Conversion: Add all the Elements in the Unit with MCS and divide by two. Add this number after MCS to determine the Units MCS value.

Do the same for UCS only do not divide by 2. If MCS and UCS Elements are in the same Unit, add the MCS# value and UCS# value together and record this value as MCS(#) where # is the total.

Mobile Army Surgical Hospital (MASH#)

MASH units can provide a bonus for "repairing" of infantry Formations after a battle is over. Consult the campaign system being used (Inner Sphere at War or Total Chaos) or Medical Care rules in Strategic Operations (see p. 187, SO).

During game play, a Unit with the MASH ability can accommodate infantry units as if it has an Infantry Transport (IT#) special equal to half its MASH# value, rounded up. (For example, a unit with a MASH6 special can act as a unit with the IT3 special.).

Mobile Field Base (MFB)

A mobile field base is equipped to handle technical servicing, maintenance, and even battlefield repairs on other Elements. During game play, a mobile field base has no direct effect. As part of campaign play, its presence enables bonuses to repairing other combat units. Consult the campaign system being used (Inner Sphere at War or Total Chaos) or Maintenance, Repair, Salvage and Customization rules in Strategic Operations (see p. 166, SO).

Mimetic Armor System/ Light Mimetic Armor System (MAS/LMAS)

Treat as Stealth Armor (see p. 328) save that the modifier to hit is only available if the Formation moved less than one-quarter (round down) its MP in the turn.

ACS: If a Combat Unit has twelve or more Elements (5 for a Clan Combat Unit) that have any combination of the MAS, LMAS, STL ability, then it receives a +1 to-hit modifier for all attacks made against it.

Mine Dispenser (MDS#-#)

This Unit is equipped with Elements that can lay minefields during combat. See the Minefield rules (p. 284) for more information.

SBF Conversion: The number before the slash represents the total number of mine dispensers in the Unit. The number after the slash indicates the number of Elements with the MDS ability.

Mine Sweeper (MSW#)

This Unit is equipped with Elements that can detect minefields. See the Minefield rules (p. 284) for more information.

SBF Conversion: Total the number of Elements in the Unit with this ability, this become the MSW value.

Mobile Headquarters (MHQ#)

MHQ ability grants bonuses to initiative (if using Battlefield Intelligence, see p. 276).

SBF Conversion: Subtract 1 from the MHQ value of each Element with this ability. Add the new MHQ values together. If using Design Quirks, add any MHQ values granted by these to the total. Divide this total by three (round normal). This is the Units MHQ value.

Naval C^3 (NC^3)

This special represents an advanced large-scale version of the C^3 network system, developed for spacecraft. Up to 6 large craft Elements may link into a single NC^3 network. In abstract aerospace combat (including capital-scale combat), all units in a NC^3 network receive a –1 to-hit modifier. Naval C^3 networks are immune to ECM, but not to the SDS Jammer (JAM) system.

SBF Conversion: A Squadron receives the NC^3 ability if all Elements in the Squadron have NC^3.

ACS: If a Combat Unit has twelve or more Elements (5 for a Clan Combat Unit) with this ability, then it receives a -1 to-hit modifier for all attacks made at Short, Medium or Long range.

Off-Road (ORO)

If a wheeled (w) Support Vehicle Element does not possess the Off-Road ability, than the Formation the Element is in must pay an additional 1 MP per hex moved on all non-paved hexes.

SBF Conversion: All wheeled Support Vehicles must have this ability for it to be granted to the Unit and Formation.

Omni (OMNI#)

A Unit with OMNI# may carry MEC or XMEC Elements equal to their OMNI# rating. See the Transported Infantry rules (p. 338) for more information.

SBF Conversion: Add the number of Elements with the OMNI special ability together and list this as OMNI# for the Unit's special abilities.

Paratroop (PAR)

These units may dismount from airborne transport units (including aerospace units) just like jump infantry.

SBF Conversion: All Elements in the Formation must CI or BA unit types and either have the have PAR ability or a jump rating.

Point Defense (PNT#)

Point Defense allows a Unit to reduce damage from Missile (MSL), Arrow IV (ARTAIS or ARTAC) and Indirect Fire (IR) attacks.

Each turn the Unit may expend PNT up to the PNT value of the Unit. The controlling player decides which attacks they will defend against and how many points they will invest in the defense. So a Unit with PNT6 may reduce six separate attacks, depending on the points invested in each defense.

For all MSL, ARTAIS or ARTAC fire, 1 point of defensive damage will apply a +1 to-hit modifier to the missile's attack roll, and reduce the incoming attack's damage value by half (rounded down, to a minimum of 0 points). If 2 or more points of defensive damage are assigned to an incoming missile attack, the attack is eliminated entirely. For standard attacks from an IR equipped Unit, reduce the damage received by 1 point for every point of PNT expended to the IR rating of the attacker. So if a Unit with an IR3 makes a standard attack, the Unit with PNT can reduce the attack by up to 3 points.

SBF Conversion: Add PNT rating for all Elements and divide by 3 (round down) to determine the Flight's PNT rating.

Recon (RCN)

The Recon special ability is primarily used in the Detection and Reconnaissance Phase (see p. 265) of game play.

SBF Conversion: In *Strategic BattleForce* play additional Elements qualify for this ability reflecting the greater flexibility of reconnaissance at this scale of game play.

Any Element that meets either of the following criteria is given the RCN ability.

- Any BattleMech, Size 1 or Size 2 with a Move of 7 or greater.
- Any BattleMech or ProtoMech with Jump of 6 or greater.
- Any Ground Element, Size 1 or Size 2 with a Move of 9 or greater.
- Any Element that has a quirk or is specifically designated with a name of "Scout", "Recon" or "Sensor" in their name. (For example, the Pegasus (Sensor) and the Skulker Wheeled Scout Tank are considered to have RCN ability).

A Unit must have two or more Elements with the RCN ability to be granted RCN.

Rail (RAIL):

Any Formation that possesses one or more Element with the RAIL ability may only travel through hexes with rail terrain. In addition, any Formation with RAIL (or MAG) divides its TMM in half (round up) to reflect the highly predictable travel path.

Remote Sensor Dispensers (RSD#)

Remote Sensors allow a greater view of the battlefield, giving the controlling player the ability to see parts of the battlefield even when no forces are deployed there.

An Element equipped with sensors may deploy one sensor in a hex up to a maximum of six deployed per turn.

Remote Sensors are not detectable until a Formation is in the same hex as the sensor and then detection is automatic. The hostile Formation must then make a successful recon scan with a result of Partial Scan or better to be able to target the sensor. A Formation may use one of their attacks to destroy the sensor. Artillery or Bomb attacks will destroy the sensor on a 1D6 roll of 5 or 6 and any Capital scale attack on a hex with a sensor, will automatically destroy the sensor.

ACS: If a Combat Unit has an RSD value of twelve or more (5 for a Clan Formation) then it receives a +1 to its Detection and Recon rolls.

Robotic Drone (RBT)

See the *Strategic BattleForce* Robotic Drone rules (see p. 291) for game play details.

ACS: If a Combat Unit is composed of less than one-half (round up) Robotic Units, then they are treated as normal combat Elements. If a RBT Unit has more than one-half (round-up) the Robotic Drone Combat Unit follows the *Strategic BattleForce* rules for Robotic Drones (see p. 291).

RISC Advanced Point Defense System (RAMS)

This ability can assist in reducing damage of incoming missile attacks. Reduces damage from IF attacks by 1 point per RAMS equipped.

Saw (SAW#)

Units with this ability may convert wooded terrain or clear a path through the terrain. See Terrain Conversion, p. 290, for details.

Searchlight (SRCH)

A Unit with the SRCH ability may ignore visual range penalty for low-visibility conditions if the condition is caused by low light, and changes the visual range penalty for no visibility to low visibility if the condition is caused by no light (see Environmental Conditions, p. 280).

SDS Jammer (JAM)

A Unit with this special acts as an ECM field for Units using the ATAC or NC^3 ability. If jammer equipped Squadron is engaged with an ATAC equipped Squadron, the ATAC does not generate a –1 to-hit modifier for the Drones or Robotic Units under its control. NC^3 equipped Squadrons are disabled while engaged with a jammer equipped squadron.

SDS Control System (SDCS)

Units with this special have an extremely sophisticated and highly adaptive robotic control system not seen since the fall of the original Star League. This enables the unit to operate as a superior form of robotic drone, per the rules found on pp. 134-159.

Shield (SHLD)

A Unit equipped with the SHLD ability reduces incoming damage by 1 point for each attack (exception being IR, ARTY and BOMB attacks). However, a SHLD Unit has a +1 to-hit modifier.

Stealth (STL)

For attacks made against non-infantry targets with the STL special, apply an additional +1 to-hit modifier to attacks at Medium, Long or Extreme range.

For attacks made against battle armor targets with the STL special, apply an additional +1 to-hit modifier at Short and Medium range, and an additional +2 to-hit modifier at Long range (or greater).

SBF Conversion: The entire Unit must be equipped with STL, MAS, LMAS to gain this ability. If any Element has MAS or LMAS, the Unit is

treated as having that armor type instead (See Mimetic Armor System/ Light Mimetic Armor System, p. 336).

ACS: If a Combat Unit has twelve or more Elements (5 for a Clan Combat Unit) that have any combination of the MAS, LMAS, STL ability, then it receives a +1 to-hit modifier for all attacks made against it.

Spaceflight Capable (SPC)

Only Formations with the SPC ability may move on the Capital-Scale or Star-System Radar Maps. All Elements in the Formation must either have the SPC ability or be able to be transported by SPC equipped Elements (see Transport Abilities below).

Super Large (SLG)

SBF: This ability impacts a Formations Target Movement Modifier (see Target Movement Modifier Table, p. 328). It also can alter modifiers or limit actions of a Formation based on the size of the Element.

ACS: If a Combat Unit has twelve or more Elements that have this ability (or any combination of LG, VLG and SLG that adds up to twelve or more), then it receives a -1 die roll modifier for all Engagement and Maneuver Control rolls.

Target Acquisition Gear (TAG)

This ability allows a Unit to serve as a spotter for artillery, orbital artillery and indirect fire (see p. 273, p. 239 and p. 260, respectively).

SBF Conversion: For Units with 6 or more Elements, there must be two Elements with the TAG ability for the *SBF* Unit to receive the TAB ability.

ACS: If a Combat Unit has twelve or more Elements (5 for a Clan Combat Unit) with this ability, then it grants a -1 to-hit modifier for any artillery (including orbital bombardment) attacks made in the hex it occupies.

Teleoperated Missile (TELE)

Elements with this ability allows the Formation to use the Advanced Capital Missile Attacks, see p. 260.

Transport Abilities (CK#, CT#, IT#, OMNI, VTM#, VTH#. VTS#, AT#, DT#, MT#, PT#, ST#)

The abilities, referred to in *SBF* as Transport Abilities, allows an Element to carry another standard combat Elements (for transporting DropShips, see Docking/Undocking p. 263).

Units in the same Formation: A Formation may carry one or more of its Units (carried Units) using another Unit in the Formation (transporting Unit). The transporting Unit must be able to carry all Elements in the carried Unit. For example, a mixed force Formation has three Units. Unit A has IT4. Unit B has infantry equaling 4 Elements, so Unit A is able to transport Unit B. However a Clan Formation with an Omni5 Unit would not be able to transport a Unit with ten Elements of battle armor (CAR10). If all transportable Elements are loaded in their transports, then the movement of the Formation is equal to their Transport MP. Otherwise the MP of the Formation is equal to the standard movement.

Formations transporting Formations: Formations with surplus transport capacity may carry other friendly Formations. A transporting Formation must have sufficient capacity to transport all Elements in the carried Formation. So a Clan Formation of 15 OmniMechs (OMNI) Elements would be able to transport a Formation of 15 battle armor (MEC) Elements. However a Formation of only 10 OmniMechs would not be able to transport any portion of the 15 battle armor Element Formation.

Split Formations: A transporting Formation must be able to carry all Elements in the carried Formation. If using the optional Adjusting Formation rules (see p. 311), a transport Formation may carry individual Units in a carried Formation. If this is done, the remaining Units in the carried Formation operate as a standard Formation until the carried Units are unloading. A Formation must still be able to carry all Elements in a single Unit.

Rules for loading and unloading a transport unit are covered in the various sections of the rules. For infantry and battle armor consult the Transporting Infantry (see p. 236). For non-infantry ground units, see Transporting Non-Infantry (see p. 269). For the AT and ST ability consult Aerospace Squadron Transport (see p. 252). For DropShips consult Docking/ Undocking rules (see p. 263). And for CK and CT abilities see Units as Cargo (see p. 269).

CK# and CT#: These abilities may only be used to load and unload Infantry during combat. All other Transportable Elements must be loaded outside of combat.

SBF Conversion: Total the transport abilities of all Elements in the Unit. Then subtract capacity equal to any carried Units in the Formation. Record this as the Unit or Formation's transport capacity.

Transported Infantry (CAR#, MEC, XMEC)

All infantry in a Formation must be able to be carried by the other Elements in the Formation or by a transporting Formation (see Transport Abilities, below) to take advantage of the Transporting Infantry rules (see p. 269) and Transport MP as referenced in Transport Abilities (see p. 338).

A Formation carrying an XMEC Formation or Unit reduces its Move by 1.

Trailer Hitch (HTC#)

Formations with Elements that have this special ability are able to tow trailers equal to the HTC value. No individual trailer may be larger than the largest Element with the HTC ability.

If the total size of towed trailers is equal to one-quarter or less (round down) of the HTC value, subtract 3 from the Formation's MP or one-half its MP (round down) whichever is less. If the total size of towed trailers is greater than one-quarter (round down), the Formation's MP is one-half its normal MP.

SBF Conversion: Add the Size of every Element in a Unit with the HTC ability. This total is recorded as HTC# on the Unit's record sheet. The Formation totals all HTC# and listed this on its record sheet.

Trenchworks/Fieldworks Engineers (TRN)

A Formation with this special ability may create Fortified Positions (see p. 290).

Turret (TUR)

In *Strategic BattleForce* play, turrets are only used by exceptionally large elements reflecting their greater array of weapons.

SBF Conversion: Any LG, VLG or SLG Element that has the Turret Special ability records this on their record sheet. If it possesses more than one turret, add the value of all turrets together. Divide the totals for all ranges by three (round normally) to determine the *Strategic BattleForce* attack value.

Very Large (VLG)

SBF: This ability impacts a Formations Target Movement Modifier (see Target Movement Modifier Table, p. 328). It also can alter modifiers or limit actions of a Formation based on the size of the Element.

ACS: If a Combat Unit has twelve or more Elements that have this ability (or any combination of LG, VLG and SLG that adds up to twelve or more), then it receives a -1 die roll modifier for all Engagement and Maneuver Control rolls.

EXAMPLES

The following is an *SBF* Formation and *ACS* Combat Unit built from *Alpha Strike* (with move converted back to *BattleForce*) Elements, to help illustrate the conversion rules process.

STRATEGIC BATTLEFORCE FORMATION: AFFS CAVALRY COMPANY

Formation	Type	Size	Move	JUMP	T. Move	TMM	Tactics	Morale	Skill	PV	Formation Specials
AFFS Cavalry Company	BM	3	5	2	5	2	4	7	4	125	IF3, MHQ2

Units	Type	Size	Move	JUMP	T. Move	TMM	Arm	S	M	L	Skill	PV	Unit Specials
Command Lance	BM	3	5	0	5	2	14	6	6	3	4	52	IF2, MHQ1
Strike Lance	BM	2	5	2	5	2	12	4	4	2	4	44	MHQ1
Fire Lance	BM	1	6	3	6	2	7	3	3	2	4	29	IF1

Elements	Type	Size	Move	Jump	Arm	Str	S	M	L	OV	Skill	PV	Element Specials
Command Lance													
Rakshasa MDG-1A	BM	3	5	0	7	3	4	4	4	1	4	42	IF2
Rifleman RFL-6D	BM	3	5	0	6	3	3	3	0	0	4	32	AC(2/2/0),CASE,C3S,MHQ1
Thunderbolt TDR-9NAIS	BM	3	5	0	6	3	6	6	0	0	4	41	CASE,ECM
Warhammer WHM-9D	BM	3	5	3	7	3	4	4	3	0	4	40	ENE
Strike Lance													
Enforcer ENF-6M	BM	2	5	5	5	2	3	3	3	0	4	30	
Shadow Hawk SHD-5D	BM	2	5	5	6	5	4	4	0	0	4	37	CASE
Hatchetman HCT-6D	BM	2	5	5	5	2	3	3	0	0	4	30	ECM,MEL
Fennec FEC-3C	BM	2	6	0	6	3	2	3	3	0	4	34	C3S,ENE,MHQ1
Fire Lance													
Valkyrie VLK-QD1	BM	1	5	5	3	1	2	2	2	0	4	20	IF1
Osiris OSR-5D	BM	1	7	7	3	1	2	2	2	0	4	21	ENE
Garm GRM-01A2	BM	1	6	6	2	2	2	2	1	0	4	19	CASE,IF1
Javelin JVN-11A	BM	1	6	6	3	3	4	4	0	0	4	26	ENE

ABSTRACT COMBAT SYSTEM COMBAT UNIT: AFFS 1ST BATTALION

Combat Unit	Type	Size	Move	Transport Move	TMM	Arm	S	M	L	Tactics	Morale	Skill	PV
1st Battalion	BM	3	4	4	3	47	15	15	12	4	7	4	53

Combat Unit Specials	Morale Check Trigger: 75% Armor	Morale Check Trigger: 50% Armor	Morale Check Trigger: 25% Armor
IF1, MHQ7	35	23	11

Combat Teams	Type	Size	Move	JUMP	T. Move	TMM	Arm	S	M	L	Skill	PV	Combat Team Specials
Cavalry Company	BM	3	5	2	5	2	11	4	4	3	4	42	IF3, MHQ2
Assault Company	BM	4	3	0	3	1	21	7	7	6	4	67	IF1
C3 Command Company	BM	3	5	1	5	3	15	4	4	3	4	50	MHQ5

Units	Type	Size	Move	JUMP	T. Move	TMM	Arm	S	M	L	Skill	PV	Unit Specials
Cavalry Company													
Command Lance	BM	3	5	0	5	2	14	6	6	3	4	52	IF2, MHQ1
Strike Lance	BM	2	5	2	5	2	12	4	4	2	4	44	MHQ1
Fire Lance	BM	1	6	3	6	2	7	3	3	2	4	29	IF1
Assault Company													
1st Lance	BM	4	3	0	3	1	24	7	7	5	4	71	ECM
2nd Lance	BM	4	3	0	3	1	20	7	8	6	4	68	IF1
3rd Lance	BM	4	4	0	4	1	19	5	6	4	4	60	IF2
C3 Command Company													
1st Lance	BM	4	3	0	3	1	21	5	6	4	4	66	AC3,C3M,TAG,MHQ3,IF1,FLK(0/1/1)
2nd Lance	BM	3	6	1	6	2	13	4	4	2	4	47	AC3, C3M, C3S, MHQ1
3rd Lance	BM	2	6	3	6	2	11	2	2	1	4	35	AC3, C3M, C3S, MHQ1

Cutting Losses

Herbert A. Beas II

SUQUAMISH BADLANDS
POULSBO
LYRAN COMMONWEALTH
11 MAY 2811

Colonel Raymond Hempsted pushed his *Flashman* into a run as a mixed chain of missiles and autocannon shells burst the rocky ground behind him. His BattleMech's torso was twisted hard to its right, the muzzles of its powerful large lasers aligning themselves with the *Orion* that had loosed the volley. Hempsted held his breath for a moment, bracing himself against the wall of heat to come, then thumbed the triggers.

A trio of scarlet beams flashed, momentarily connecting the *Flashman*'s arms and navel with its target. Raymond's shots were true, melting away armor and structure alike inside the blocky, triangular missile rack that dominated the *Orion*'s left shoulder. Already worn down from what felt like hours of battle between the two, the *Orion*'s hull could not take the punishment. Golden fire erupted from somewhere inside the seventy-five ton machine. An instant later, it was a mangled, smoking heap on the ground, its pilot already rocketing away from the doomed 'Mech's cockpit.

Not that Raymond noticed; he was too busy gasping for air as his cockpit became a sauna, and fighting controls that were now more sluggish than ever. The 'Mech lurched, its center of balance momentarily lost, but he managed to fight the torso back into its forward-neutral position, avoiding both a nasty fall and a collision with a tower of stone that jutted up from the ground just ahead.

The battle damage monitor continued flashing for attention, highlighting the injuries from which his own 'Mech still suffered: cracked fusion engine shielding, depleted armor in several body locations, and, a gyroscope just one more solid hit away from complete failure. And here he was, pushing the machine along like it was still factory-fresh.

"Some damned vacation!" he hissed, not for the first time today, as he wiped the sweat out of his eyes with a grimy glove.

Ahead, two BattleMechs sprang up to support his stricken *Flashman*. Both bore the same solid, pearlescent black color scheme as his own ride—and both looked just as battered. The larger 'Mech, a beetle-like *Lynx*, unleashed a bolt of manmade lightning from the large muzzle that made up its right arm, then took an awkward step forward as sparks flew from its hip. The far more humanoid *Phoenix Hawk* beside it unleashed its own beam of destruction from the rifle-like laser held in its right hand.

Both shots connected with the blocky chest of a *Warhammer* bearing the dappled grays and browns of mountain camouflage. Though the hits flashed away enough of the Marik 'Mech's armor to expose some of its inner workings, the worst damage the enemy machine suffered in the attack was the loss of its already-shattered searchlight, which spun off into the distance in a cloud of black smoke.

The *Warhammer* responded with a dual blast from the particle cannons that made up its arms. One caught the *Lynx* in its left arm, rocking the rounded 'Mech backward another awkward step. The other seared another hole in the landscape.

"Carson, O'Leary!" Raymond barked over the lance channel. After days of running battles in the badlands surrounding Poulsbo's capital city, it seemed somehow unnecessary to maintain the stuffy pretense of code names and designators. "Fall back! I'm right behind you!"

"Don't be ridiculous!" shot back Hauptmann Elisa O'Leary, piloting the *Phoenix Hawk* that even now was twisting around a rockslide half its size, keeping its limp left arm away from the incoming *Warhammer*.

"Yeah, boss," Leutnant Carson added, his *Lynx* unleashing a flash of red energy from its other arm. "If we left you behind, who'd pay us?"

"The generous citizens of the Commonwealth, that's who!" Raymond spat. With a quick jerk of his controls, he maneuvered his *Flashman* around just behind Carson's 'Mech, twisted his torso again, and gave himself half a heartbeat to align his crosshairs before unleashing a pair of laser bolts at the *Warhammer*.

At almost the same instant, the *Warhammer*'s right shoulder rack spat out a six-pack of short-range missiles.

The lasers gouged his enemy's left leg and flank, as the antimissile system mounted in the *Flashman*'s shoulder made an angry grinding noise—trying in vain to intercept the incoming volley despite its lack of ammo.

"That one was almost funny, sir!" O'Leary shouted over the din of battle.

Raymond was too busy getting his 'Mech back up to speed to reply. Before him, the jutting walls of two sheer-walled miniplateaus beckoned, offering a gap barely wide enough for his *Flashman* to fit through. Like so many others in the Suquamish Badlands, they were formed when the place once was a river delta. These shallow chasms transformed much of the region's terrain into clusters of mazes the size of a typical village or big-city neighborhood. Jumping 'Mechs could easily traverse them, but those that lacked such options—including himself and the *Warhammer*—had to navigate them to hunt down any units hiding within.

As he expected, the Marik MechWarrior slowed his gait the moment Raymond reached the opening; there was no way he was dumb enough to follow a member of the infamous Stealths regiment into a death maze like *that*.

As soon as he cleared the opening, Raymond heard the roar of jump jets behind him, and smiled grimly to himself as he spotted Carson's *Lynx* launching itself upwards—and backwards—in the rear view of the *Flashman*'s compressed-360 display. The radar gave one last ping as the solid red markers of the Free Worlds 'Mechs behind him vanished from his direct view, and becoming less distinct blips whose signatures registered within a vaguely estimated part of the map.

Raymond's practiced eye counted at least five of the bastards.

And only four friendlies in his vicinity.

"Welcome back, chief!" a new voice sounded in his ears. His sensors auto-traced the signal to one of the green blips ahead of him, deeper inside the rocky maze. "What did you bring us this time?"

Raymond allowed himself a smirk. "Well, it *was* two lances, Kelly," he said, "but I managed to get them down to a comfortable five Baker-Mikes for you."

There was a loud crash somewhere nearby, and Raymond almost halted his 'Mech's stride, until he heard Carson's grunt, followed by an "I'm okay!"

The radar showed the *Lynx* was now stationary somewhere out of sight to Raymond's left.

"Jumping with a blown hip isn't too bright, Carson," O'Leary quipped.

"Stow it, ya Skye-spawn!"

"Alright, folks," Raymond interrupted,

"let's keep the chatter to a simmer. Kelly, I hope you have an ammo and armor truck in there; I don't think the Leaguers will stay outside our little hovel here for too long."

"Sorry, sir," Kelly's voice came back. "Had to keep that all back at Point Charlie; too much heat."

Raymond steered his *Flashman* around the last corner, and was greeted by the appearance of two more BattleMechs in Stealths colors. Kommandant Vera Kelly's *Zeus* faced him, its armor pockmarked in several areas, while a nasty web of cracks marred its blocky canopy. Beside her was a *Griffin* that seemed relatively pristine in comparison; Leutnant Hector Fadden's ride.

"Damn," Raymond groused. "What *can* you tell me that I might like?"

"We got word a few minutes ago that the flyboys have sortied for the Bangor spaceports. In about ten minutes, I reckon these Mariks are going to be having a very bad day."

About time! Raymond thought. The Free Worlds League dropped a reinforced regiment on Poulsbo, clearly expecting an easy victory against the planet's meager conventional militia. Weeks later, the Stealths persisted in a game of cat and mouse with them. The Marik assault came less than a month after the Commonwealth High Command sent him and his Stealths here—supposedly for R&R—and the timing of it all made him wonder if the Mariks were just *that* unlucky, or if someone in the LCAF leadership actually developed a coherent strategy for a change.

Whatever the cause, the effect was that one of the Commonwealth's best mobile combat formations was in a prime position to outmaneuver and outsmart the Free Worlds' military with a good old bait and switch. A faked retreat sent much of the League's fighters on a long and wild goose chase after the Stealths' DropShips—a task that cost several aerojocks their lives, but kept the Mariks out of position long enough for the Stealths' 'Mechs to strike at the League ships after they grounded. Raymond now hoped to stretch the League forces out across the wastelands, far from the main cities and townships on Poulsbo, until the surviving LCAF fighter groups, operating from the planet's lunar mining outposts, could repair and rearm for an overwhelming attack on the enemy's transports.

Now, after weeks of attrition, the long-awaited attack was coming. Destroying the League ships on the ground would strand their 'Mechs, demolish their command structure, and demoralize their surviving troops on-planet. Their fighters would have to choose between returning to a planet they failed to capture, or make a very, very long trek back to their JumpShips on limited fuel.

Either way, Poulsbo wasn't falling today.

"They'll probably be really pissed when it happens," Carson said. "Think they'll rush us?"

"None of those 'Mechs out there are jumpers," Raymond told him. "If they lose their cool enough to come in here, it'll be bloody. We'll hold the advantages of position and terrain familiarity, but those are poor substitutes for the armor and ammo we're running out of."

"Then what do we wanna do, chief?"

Raymond smiled. "We're the Stealths, boys and girls! We're going to do what we always do in a tight spot…"

▲▼▲

LCCC HEADQUARTERS
MARIK
FREE WORLDS LEAGUE
14 MAY 2811

"The *Stealths*!?"

Thaddeus Marik, Captain-General of the Free Worlds League, glared at the young officer before him, feeling incredulity wrestle with the rage that exploded the moment he heard of the defeat at Pouslbo.

To his credit, the young captain did not shrink away, even in the face of a man who could destroy his career—to say nothing of his very life—on a whim. "Yes, my lord," he said, his tone sympathetic, but formal. "The colors, insignia, and mobility definitely fit the profile."

"But that regiment was last seen back on the Combine border," protested Colonel Bryce McLelland, standing behind and to the left of his liege—well outside of the man's angry view. "How did they get all the way to the arse-end of Elsie space?"

The captain blinked. "We're not sure, sir. Comm intercepts are unclear. What we do know is that the Lyrans allowed our ground forces to land, and the Stealths kept them engaged while an aerospace force slipped around from the planet's moon to attack their DropShips. Our own efforts to intercept the outbound DropShips that we *thought* were those of the Stealths, resulted in even more losses. It is apparent that those ships were a diversion.

"When our DropShips were destroyed on the ground, it appears the Stealths launched a blitz on the 'Mechs left in the field and outmaneuvered them. Between the Stealths, their fighter support, and the sudden loss of C and C on the ground, our troops were in disarray. Those who survived, surrendered."

"The whole thing was a trap, by the sound of it," Marik growled. Finally turning away from the younger officer, freeing him with a dismissive wave of his hand, he turned his scowl on McLelland. "Colonel, every intel briefing we had said that Pouslbo was down to local militia only, and the Stealths have not been on our borders in ten years. Yet, somehow, we waltz blithely into a trap—one that includes the Commonwealth's very best mobile strike force—on the very *first* world we targeted to win back the Bolan region. I want to know how this happened!"

Despite possessing a decade more experience than the captain who bore the bad news, and several promotions to prove it, McLelland began to wither before Thaddeus' wrath. "My lord," he nearly stammered, "I am as shocked as you."

"An entire regimental assault force is *gone*, Bryce! And, by the looks of it, the Lyrans were just waiting for them! It doesn't take a genius to work it out! SAFE has a lot of explaining to do!"

As McLelland stood there, stunned into a brief silence, it became clear to Marik that the man was far too stupid and weak to lie to him. Hell, the comms officer had more spine than this man! Making a mental note to get that captain's name for a possible promotion, he snarled once more at the colonel, and turned his gaze back to the large half-projection glowing upon the nearby wall. There, a giant map of the current Commonwealth-League border floated in the air.

Long gone from this map was the extended slice of purple worlds that cut across the Lyrans' blue-hued space from Malazan to Valloire. Even before his father, Kenyon, died in 2804, the Lyrans tore into that so-called Bolan Thumb, dismantling its defenders while the League fought a far more intense war on its spinward fronts. Now, only a small purple island—surrounding the worlds of Acrux and Marsalle—remained of the dagger that House Marik had jammed into Steiner's belly before the days of the Star League. And one of those worlds, Marselle, was tinged in yellow.

In fact, several worlds along the border now were colored in yellow, instead of the standard white. A few more were red. The yellow systems indicated those that had suffered massive infrastructural damage, heavy WMD usage, and other crippling effects significant enough to require evacuation or abandonment. Restoring their sustainability during wartime would be far more than the League could afford, especially after all the damage done to the shipbuilding industries near the former Terran Hegemony reaches. Besides Marsalle, the former League worlds of Tylarzka, and Rochers also burned yellow—along with Bolan itself, where this whole mess started. The Lyrans had even managed deeper strikes, inflicting enough damage on the worlds of Szepes and Esztergom to put them into the yellow as well.

The red worlds were in their final stages of life, in terms of population loss, infrastructure, and strategic viability. Of the former Thumb worlds, Malazan now glowed red, while Lyran deep raids that nobody saw coming also placed the tiny worlds of Hell's Paradise and Heraklieone on the red list. Marik could not fathom the logic behind some of those deep strikes; he'd never even *heard* of Heraklieone before the day it began dying.

Fortunately, the League gave the Commonwealth as good as it got since Bolan, and there was little chance that the Lyrans would recover those dying worlds either. One or two, maybe, but only if they held onto the Thumb and took the forces on Acrux out of the picture. On the Lyran side of the lines, Myrrdin, Pardeau, Hornir's Keep, and Aquavita flashed yellow, while Duantia, and Aigle displayed the red of their imminent death.

"Maybe *that* should be the strategy at this point," Marik muttered aloud. "Burn them all down."

"My lord?" an uncertain voice asked.

Thaddeus had nearly forgotten that McLelland was still there.

"If the Elsie's are going to start laying clever traps for our every landing now, maybe we're not using *enough* nukes on them."

"Begging the Captain-General's pardon, but that approach didn't stop the Bolan worlds from falling. In fact, in a few cases, the locals on several former Thumb planets actively aided the Steiner raiders as news of Bolan reached them. They saw the Commonwealth as the lesser of two evils."

Marik shot a stern look at McLelland, who paused only for a moment before adding, "…And it certainly won't save Acrux, at this stage."

So, Marik thought, *the man has a spine after all!*

His scowl deepened as he turned back to the map and took in the strategic situation. Acrux, for all its strategic value, now lay three jumps away from the League's borders at best speed, surrounded by LCAF regiments priming themselves for a final assault. The entire Poulsbo offensive relied on taking worlds that should have been largely undefended, to support the eventual campaign to drive the Lyrans back on the anti-spinward border.

A strategy already fouled by a single, crushing defeat.

"I detest surrender, Colonel," he said. "If the Lyrans want Acrux, they won't get it without a fight—but you have a point, after a fashion."

He swung around again. McLelland's mouth was frozen half open, his reply unformed.

"Send orders to all of the regiments staged for the offensive to stand down from launch orders and hold their positions. They are to annihilate any Steiner forces that cross the line. Meanwhile, I want six additional regiments to firm up our positions from Cavanaugh to Cascade. As we do this, I want all surviving remnants of the Bolan Defenders brigade to make their way to Acrux, avoiding direct combat with Lyran forces until they get there…"

Thaddeus' voice trailed off for a moment as he considered the rest of these orders. Yes, he was giving up on the Thumb—and all of the defenders who'd failed to hold it—but he didn't need them knowing that just yet. He needed them to make Steiner *bleed*.

"My lord?" McLelland prompted as the silence dragged on.

"See to it that those forces are adequately supplied with tactical and strategic munitions before they launch. Tell the Bolan Defenders that their time of vengeance is at hand."



INNER SPHERE AT WAR

BattleTech began life as a tactical board game envisioned against the backdrop of the sweeping conflicts of the Succession Wars, engagements that involved whole planets—and in some cases, dozens or hundreds of worlds. *BattleForce* and *Alpha Strike* took the game a step further, to the tactical level, and *Strategic BattleForce* (p. 230) takes the fighting to the level of regiments clashing over entire worlds.

The *Inner Sphere at War (ISW)* steps the *BattleTech* experience up to conflicts at the interstellar level. With these rules players can re-fight campaigns such as the Marik Civil War, the Andurien-Canopian Invasion or even restage whole Succession Wars, at a level involving multiple worlds and regiments. Though the rules emphasize military action, they also incorporate economic and political aspects of running a star-spanning nation, all of which may play a role in the campaign. *Inner Sphere at War* is designed for play as a stand-alone game or in conjunction with more detailed *BattleTech* tactical systems from *A Time of War RPG* to *Strategic BattleForce*.

While these rules attempt to capture the basics needed to run a campaign, the scale of *ISW* is too great to cover all possible variations in game play. These rules are a framework around which players can construct a campaign spanning just a few worlds, or all 2,000-plus worlds in the *BattleTech* universe. The size and scope of a campaign is left up to each player and player group. The considerable wealth of information concerning the various worlds, factions, factories, forces and more published in numerous *BattleTech* sourcebooks and novels, when used in conjunction with these rules, will provide players with the tools they need to design campaigns of virtually any type and size. The added complexity of these rules and their time-consuming effect on the game makes it important for all players to read through them and agree to their use before beginning play.

TERMINOLOGY

The following terminology applies to *Inner Sphere at War*. While some of these carry terms over from *Strategic BattleForce* and *Alpha Strike*, their use may vary somewhat at the scales of play reflected under these rules.

Army

A generic term that refers to the sum total of a Faction's armed forces.

Combat Command

This term refers to the military units that are tracked during *ISW*-scale play. There is no maximum size for a Combat Command; they range from a single Combat Unit (e.g. The Death Commandos) to multiple regiments of mixed forces (e.g. A Federated Suns RCT). In *ISW* play, all Combat Commands are tracked by the number and type of Combat Units which comprise them.

Experience Points (XP)

Experience Points (XPs) are used to rate the overall skill level of a given formation.

Gamemaster (GM)

A Gamemaster is a player who serves as a neutral third party to resolve any special events and actions.

Game Turn

A Game Turn is four weeks (one month) long.

Interstellar Map

The playing field for the *Inner Sphere at War* campaign. An Interstellar Map can range from a small section of space, such as the Andurien/Capellan border, to the entire Inner Sphere.

Interstellar Map Hex
The basic unit of measure in *ISW*. Interstellar Hexes measure 30 light-years across.

Interstellar Movement Points (IMP)
The unit of measure that determines how far a Transport Unit may move on the Interstellar Map. One IMP allows movement into one Interstellar Hex.

Occupied World
Any world a Faction controls that was not one of its original worlds at the start of the game.

Original World
A world controlled by a Faction at the start of the game.

Phase
A Phase represents a single group of actions that may occur and/or be resolved during a Game Turn.
Sub-Phase: A Sub-Phase is a part of a complex Phase.

Resource Points (RP)
Resource Points (RPs) reflect the materials and money used in *Inner Sphere at War*.

OBJECT OF THE GAME

Inner Sphere at War is best played when players set specific objectives at the start of play. Examples of objectives can include the seizure of a specific area of space (such as the Sarna March during the Fourth Succession War) or the sacking of specific targets.

Alternatively, it can be played as a more open-ended game, where the objective is to play until one faction becomes too dominant to contest. In order for the game to be fun, all players must be relevant and have a chance at victory, so a game where several players have become marginalized may benefit from a reset.

SCOPE OF THE GAME

Inner Sphere at War is specially designed to allow players to replicate any Inner Sphere conflict from the Age of War up through the Fourth Succession War. Any of the five Successor States and the major Periphery powers is playable; ComStar, if available, is a non-player faction that can be managed by a gamemaster.

Support for other eras in *ISW* game play may be provided in future supplements.

SEQUENCE OF PLAY

Inner Sphere at War consists of a series of Game Turns, each constituting one month of in-universe time. Each turn has several distinct Phases, which break down the various actions and activities that can occur in a Game Turn. Phases generally occur once per turn.

Additionally, each Game Turn is broken down into four Sub-Turns. Each Sub-Turn represents approximately one week of in-universe time. Sub-Turns are used primarily in the Military and Movement Phases to track actions that require a closer focus than the standard Game Turn allows.

The players execute the phases of every turn in a specific order. Available actions—managing resources, creating combat commands, diplomacy, and so forth—are discussed later in this section. Game play is separated into two main sections: Game Setup and Playing the Game. *ISW* does not have its own combat resolution system; instead it utilizes the *Abstract Combat System* (see pp. 304-325) for determining the results of combat.

Game Setup:
1. Choose Campaign Size
2. Setup the Map
3. Choose Factions
   a. Faction Abilities and Flaws
4. Starting Setup
   a. Starting Economy
   b. Starting Military

Playing the Game:
1. Order Writing
2. Economics and Logistics Phase
   a. Calculate Resource Points (RP)
   b. Banking RP
   c. Infrastructure
   d. Supply
   e. Mercenary Supply and Hiring
3. Military Development Phase
   a. Creating Combat Commands
   b. Fortifications
4. Diplomacy Phase
5. Military Phase
   a. Orders to Combat Commands
   b. Military Actions
   c. Combat Resolution
6. End Phase
   a. Damage
   b. Salvage
   c. Repair
   d. Retreat and Surrender
   e. Fatigue
   f. Morale
   g. Experience

GAME SETUP

CHOOSE CAMPAIGN SIZE

The first step in setting up an *Inner Sphere at War* campaign is to determine the scope and scale of the campaign. This will help determine the level of detail needed for various game concepts, such as resources.

ISW is intended to support campaigns ranging from a single border clash (The War of 3039, SLDF invasion of the Rim Worlds Republic) to vast interstellar conflicts (such as the Fourth Succession War). In smaller-scale conflicts, many of the variables of the game are reduced or removed, which can speed up game play at the cost of some control and detail.

The following setup rules provide guidelines for different campaign scales.

SETUP THE MAP

Inner Sphere at War maps use a scale of 30 light-years per hex. During setup, players must determine the size of the territory in which they will play, from the entire Inner Sphere down to a few

handfuls of worlds, and the era in which they will play. Once this is determined, the map can be set up.

Pre-generated Maps can be downloaded from the *BattleTech* website. Players may also generate their own maps through whatever means they agree upon, as long as the scale of each hex is 30 light-years.

CHOOSE FACTIONS

Players may choose which Faction they will command in the game. Will they be Maximillian Liao, bent on restoring the glory of his Capellan Confederation, or Hanse Davion—conspiring with House Steiner to transform the Inner Sphere itself? The Available Player Factions Table lists the common Factions available in 3025, a popular era of play representative of the late Succession Wars. Support for other periods of play may be covered in future supplements.

SAMPLE PLAYER FACTIONS (3025)

Inner Sphere
Capellan Confederation
Draconis Combine
Federated Suns
Free Worlds League
Lyran Commonwealth
Periphery
Magistracy of Canopus
Outworlds Alliance
Taurian Concordat

It is strongly recommended for players to choose only those Factions that border each other, starting with the larger Inner Sphere powers. (Smaller Periphery Factions and other minor powers are not generally suitable for larger-scale games; they are only listed here for use in conflicts that cover more localized border wars.) Mercenary forces are *never* considered Factions unto themselves; they are controlled only by the player Factions currently employing them, or by the gamemaster when unemployed.

ComStar: This Faction is not available as a player Faction in the base game, since it is highly complex and can unbalance the game. The way this Faction historically operated, and the methods by which it acquired its resources and power, are beyond the scope of *ISW*'s basic rules. It is thus recommended for use only as a gamemaster-run Faction, allowing the GM to adjust its power level to suit the campaign.

Assign NPC Factions to Gamemaster

If there are fewer players than available Factions in the campaign, the gamemaster must run these NPC Factions if they are to interact with player Factions in any way.

FACTION ABILITIES AND FLAWS

Not all Factions are created equal; it is a fact of the universe. Some Factions have a booming economy, while others are so insular that it is nearly impossible to infiltrate them, even with espionage. Factions can also be fatally flawed, whether from a collapsing infrastructure or military doctrine that is unable to respond to attacks.

Consult the *Sample Faction Starting Abilities* (above) table to determine any special Abilities with which a Faction begins play. If a Faction is not listed, it has no outstanding Abilities or Flaws for the purpose of game play.

If more than one Ability adds the same bonus or negative modifier, these modifiers stack. If two Abilities have opposite modifiers, subtract the negative modifier from the positive modifier for a final modifier. For example, the FWL has both Merchant Kings and Parliamentary Chaos. If on turn 1 they get a 15 percent bonus on their Parliamentary Chaos role, this adds to their Merchant King bonus for a total bonus of 35 percent. However, the FWL also has a Decentralized state and always subtracts 20 percent from their Resource Points, so their final bonus is 15 percent (35 percent–20 percent).

Booming Economy: This Faction's economy is humming like a well-oiled *BattleMaster.* The Faction generates an additional 10 percent of its base RP per Game Turn.

SAMPLE FACTION STARTING ABILITIES

Inner Sphere	
Capellan Confederation	State Run, Closed State, Poison Pill, Superior Black Ops
Draconis Combine	State Run, Fanatical Offense, Fanatical Defense
Federated Suns	Decentralized State, Open State, Superior Doctrine
Free Worlds League	Decentralized State, Inferior Black Ops, Merchant Kings, Parliamentary Chaos, Supply Problems
Lyran Commonwealth	Merchant Kings, Flawed Doctrine, Superior Black Ops
Periphery	
Magistracy of Canopus	Merchant Kings, Poison Pill, LosTech: BattleMechs and Aerospace, Superior Black Ops
Outworlds Alliance	Decentralized State, Flawed Doctrine, Unsteady, LosTech: BattleMechs, Production Specialist: Aerospace
Taurian Concordat	Dug-In, Poison Pill, Fanatical Defense, Inferior Black Ops, LosTech: BattleMechs and Aerospace, Production Issues: BattleMechs

Closed State: This Faction firmly believes in monitoring its own citizenry and crushing all signs of dissent. The oppressive regime makes it harder for the Faction's warriors to desert. Apply a –2 target number modifier for any rolls this Faction makes when checking for desertion (see p. 365), but also apply a +1 target number modifier for Morale checks in combat (see *Abstract Combat System*, pp. 317-318).

Decentralized State: This Faction has a very open society which relies more heavily on regional government. Such a state enjoys higher Morale, but is less efficient than a more centralized government. A Faction operating as Decentralized State receives a –2 Morale modifier (see *Abstract Combat System*, p. 317) when defending worlds it possessed at the start of game play. It also reduces its base RP per Game Turn by 20 percent, to account for the inefficient government structure.

Despotic State: Possessing all of the negatives and none of the positives of a State Run economy, this Faction is stifled by its own government. This faction reduces its base RP per Game Turn by 10 percent.

Dug-In: This Faction excels in fighting on their home ground, and its border worlds are well-fortified with bunkers and prepared defenses. When defending a world this Faction controlled at the start of the game, the Faction's forces reduce all damage from combat by 10 percent (rounding up), while opposing forces will suffer an additional 5 percent damage in combat (rounding up), representing losses caused by land mines and other prepared defenses.

Fanatical Defense: The Faction's Forces will fight to the death for the safety of their realm, taking great risks to defeat their foe. This Faction's forces receive a –2 modifier to Morale checks in combat, and deal 10 percent more damage (rounded up) when defending worlds it possessed at the start of game play. Unfortunately, this Faction also *suffers* 10 percent more damage in combat when defending its original worlds, to reflect its troops' reluctance to retreat.

Fanatical Offense: The Faction's Forces will fight to the death for victory, taking great risks to defeat their foe. The attacking Faction delivers 10 percent more damage when attacking a world controlled by

another Faction, but this berserker style of warfare also means that the attackers will also suffer 10 percent more damage. A Faction with this ability also receives a –2 Morale modifier in combat when acting as the attacking force.

Flawed Doctrine: This Faction's command structure is chronically flawed or often misreads the military situation, giving their military forces weaknesses that are not immediately apparent. Examples include the Lyran Commonwealth's propensity for "social generals", and the Federated Suns' internally divisive military at start of the First Succession War. The Faction with this ability receives a +1 penalty to Engagement rolls and suffers a –1 to all Initiative rolls in the Abstract Combat System (see p. 304).

Inferior Black Ops: This Faction lacks an effective training program for the special operatives who take on the dirtiest deeds. Apply a +1 modifier for any actions this Faction's forces make when operating under Counter-Insurgency, Guerrilla Warfare, and Go to Ground orders (see *Military Phase*, p. 354).

Jury-Rig Experts: This Faction's technical teams have a knack for keeping things running with bailing wire, duct tape and elbow grease. Decrease the repair costs for damaged units by 20 percent of the Armor Points or RP required (rounding down, see *Military Phase*, p. 354).

Logistics Experts: The Faction excels at maintaining its readiness. Reduce the Base Supply Costs for all Formations in a Combat Command by 1 RP (to a minimum of 1 RP).

LosTech: This Faction is lacking in technicians knowledgeable about the repair and maintenance of certain specified types of combat equipment (e.g. BattleMechs, or Aerospace units). All repairs to Formations that use the specified equipment increase their effective cost (in Armor Points or RP) by 20 percent, rounding up.

Merchant Kings: This Faction excels at wheeling and dealing. This ability bolsters its economy, adding a 20 percent bonus to its base Resource Points generated per Game Turn.

Open State: This Faction has an open and free government, which promotes civil liberties and a right to choose. This leads to a happier state, applying a –1 Morale modifier in combat (see *Morale, Abstract Combat System*, p. 317), but also makes it easier to infiltrate and subvert (providing a +1 modifier to all actions taken while undertaking Counter Insurgency and Pacification operations). See *Military Phase*, p. 354.

Parliamentary Chaos: This Faction's government is highly fracturized, resulting in wild swings in economic and military strength. At the start of each Game Turn, its controlling player must roll 1D6 to determine economic stability. On a result of 1–3 the economy suffers; multiply the die result by 5 and subtract this percentage from the Faction's base RP generation during the Economics and Logistics Phase. On a result of 4–6, the economy is booming; roll 1D6, subtract 3 (to a minimum of 1) and multiply the result by 5, to find the percentage *increase* in the Faction's base RP for the turn. After determining economic stability, roll another 1D6 to determine supply issues. On a result of 1–3 the Faction suffers from Supply Problems, receiving a +1 modifier to Morale and a –1 to Initiative for any combat actions. On a result of 4–6, all forces identified as in combat receive 1 extra RP and apply a –1 modifier to Morale and +1 Initiative for any combat actions.

Poison Pill: The population of this Faction is hyper-loyal or otherwise incentivized to remain with its starting Faction at all costs. If a world from this Faction is successfully captured, it generates no RP for twice the normal period and doubles all pacification times (rounding up).

Production Specialist: This Faction excels at the production of a certain type of combat unit. The player chooses which (e.g. BattleMech, Aerospace, Armor, Infantry or Artillery) at the start of game play. When producing these units, the player pays 25 percent less in RP costs (round up).

Production Issues: The Faction has difficulty producing a certain class of combat unit. The player chooses BattleMech, Aerospace, Armor, Infantry or Artillery at the start of game play. When producing these units, the player pays 25 percent more in RP costs (round up)

Superior Black Ops: This Faction benefits from a highly motivated, well-equipped, and well-trained special operatives program that supports its dirtiest deeds. Apply a –1 target number modifier for any actions this Faction's forces make when operating under Counter-Insurgency, Guerrilla Warfare, and Go to Ground orders (see *Military Phase*, p. 354).

Superior Doctrine: This Faction has a superior understanding of the nature of war not shared by its enemies. It thus receives a –1 modifier to its Engagement rolls and reduces its To-Hit number by 1 on all combat rolls in the Abstract Combat System (see *Abstract Combat System*, p. 304).

Supply Problems: This Faction has critical flaws in its military supply and procurement process. Add +1 to all RP Supply Costs per Formation to represent the inherent waste in the system.

Stalled Economy: This Faction's economy is unable to find its balance and is constantly on the edge of decline. The Faction generates –10 percent of its base RP per turn.

State Run: This Faction maintains tight controls on its populace and economy. As a result, the Faction produces 25 percent more RP per turn, but its forces suffer from lower morale. When attacking another Faction, the Combat Commands of this faction suffer a –1 Initiative modifier (see *Morale, Abstract Combat System*, p. 317).

Unsteady: This Faction lacks a strong military *esprit de corps* and suffers in the field. The Faction's ground forces suffer 5 percent more damage in combat (round normally) and apply a +1 TN modifier to all Morale checks. If taken twice, these modifiers apply to both ground and aerospace forces.

STARTING SETUP

The following rules outline how to set up each Faction for start of play.

STARTING ECONOMY

Resource Points (RPs) are the currency of *Inner Sphere at War*. They are used to carry out almost every action in the game. Resource Points are an abstraction representing C-Bills, raw materials, investments and work force. Because they are an abstraction, it can be possible for certain uses of RP to cause units and infrastructure to appear out of nowhere, and with little warning.

Economy Setup

The resource values for different worlds depend on their specific nature. The World Values Table determines how many Resource Points each world produces. Maps of the various nations in the *BattleTech* universe indicate which worlds are national or regional capitals, but players should agree between themselves what constitutes a major or minor industrial world and "other" worlds. As a rule of thumb, a major industrial world manufactures large quantities of 'Mechs and vehicles (three or more factories), while minor industrial worlds have one to two factories. Hyper Industrial worlds are extremely rare (e.g. Terra in all eras, Hesperus during the Star League) and are worlds with eight or more factories (worlds with more than 16 factories count as two Hyper Industrial worlds). Worlds that do not produce significant military equipment and are not political centers are "other" worlds.

SAMPLE FACTION STARTING RESOURCES (3025)

Inner Sphere	Number of Planets	Starting RP/ RP per Turn*
Capellan Confederation	207	966
Draconis Combine	412	1,480
Federated Suns	509	1,554
Free Worlds League	333	1,336
Lyran Commonwealth	443	1,738
Periphery		
Magistracy of Canopus	36	212
Outworlds Alliance	37	220
Taurian Concordat	33	316

*Does not include modifiers for Faction Abilities

Refer to the *Major Factories* table (see p. 349), for a list of factories and unit production lines by era to determine Major and Minor Industrial worlds.

Abstracted Economy Values: If playing outside the major eras, an abstracted approach to computing a Faction's economy is to assign each realm a capital, 2 to 5 regional capitals. Furthermore, 2 percent of its worlds are Major Industrial Worlds (up to 9 worlds total, regardless of nation size), 8 percent are Minor Industrial Worlds (up to 20 worlds total, regardless of nation size) and the rest are "other" worlds. Major and Minor Industrial worlds must be clearly identified on the map and in each player's Faction Orders Sheet at start of game play.

Playing in a game set in 3025, the Lyran Commonwealth would gain 1,738 Resource Points per turn: 120 for Tharkad (Capital and Major Industrial World), 200 for Donegal, Skye and Tamar (Regional Capitals; Donegal and Skye are also Major Industrial Worlds), 360 for nine additional Major Industrial worlds, 144 for six Minor Industrial Worlds and 914 for the 457 other worlds.

Using the Abstracted Full Economy approach, in a game set in 3025 the Federated Suns would gain 1958 Resource Points per turn: 120 for New Avalon (Capital and Major Industrial World), 160 for other regional capitals (New Syrtis and Robinson, both of which are also Major Industrial Worlds), 240 for the 6 Major Industrial Worlds (2 percent of 509 is 10 Major Industrial Worlds, but the maximum allowed is 6), 480 for the 20 Minor Industrial Worlds (8 percent of 509 is 40, but the maximum allowed is 20) and 958 for the 479 other worlds.

STARTING MILITARY

The initial number of Combat Commands each Factions must be determined before game play begins.

Army Size: Each combat unit type lists the number of standard Formations available to that Faction. In terms of combat units, BattleMech and combat vehicle regiments have a base of 108 units. An Aerospace wing has a base of 18 fighters. An artillery battalion has a base of 36 pieces. Infantry regiments have a base of 756 troopers (108 squads).

WORLD VALUES TABLE

World Type	RP Value	Improvement Cost
National Capital (e.g. Luthien)	80	1,920
Regional Capital (e.g. Robinson)	40	960
Hyper Industrial (e.g. Terra)	64	N/A
Major Industrial (e.g. Donegal)	40	960
Minor Industrial (e.g. New Earth)	24	576
Other world (e.g. Lancaster)	2	N/A

*Values are cumulative, so a Capital that is also a Major Industrial World will generate 120 RP

Note: Many Factions use a different base number of combat units in their combat commands. The army size tables take this variation into account. For example, ComStar and the Word of Blake use a base six unit formation type and do not use Regimental (108 unit) formations. Their BattleMech army sizes are still reflected as Regiments for purposes of the Starting Military tables.

Formation Stats: The *ACS* stats for each Faction's Combat Commands (e.g. Move, Damage, Armor, and so forth) may be constructed using the rules found on pp. 330-331. Pre-made *ACS* stats and guidelines appropriate to the various eras of play may appear in future supplements.

Detailed Militaries

Detailed army lists for various game eras, will also be available in future products. These detailed army lists are compatible with the *ISW* Order Sheet, allowing a quick setup of a detailed army.

The below lists the typical composition of a 3025-era Combat Command for each Faction. The numbers indicate the amount of Aerospace Wings, Armor and infantry Regiments and Artillery Batteries are assigned to a single 'Mech Regiment. For ease of play (and ease of accounting), these units move together, though it is possible to create new units that lack some or all of the sub components.

Starting Mercenary Assets

Even Factions that despise the very concept of mercenary troops have found themselves hard-pressed to survive the Succession Wars

STANDARD COMBAT COMMAND COMPOSITIONS (3025)

Inner Sphere	'Mech Regiment	Aerospace Wings	Armor Regiments	Infantry Regiments	Artillery Battalions
Capellan Confederation	1	2	3	5	2
Draconis Combine	1	3	3	5	1
Federated Suns	1	2	3	5	1
Free Worlds League	1	2	3	8	1
Lyran Commonwealth	1	2	5	7	1
Periphery	**'Mech Regiment**	**Aerospace Wings**	**Armor Regiments**	**Infantry Regiments**	**Artillery Battalions**
Magistracy of Canopus	1	2	3	5	1
Outworlds Alliance	1	10	4	7	1
Taurian Concordat	1	2	3	5	1
Mercenaries	1	1	1	1	1

MAJOR FACTORY WORLDS (IN 3025)

Capellan Confederation	
World	Factories
Ares	3
Betelgeuse	1
Capella	4
Corey	1
Grand Base	1
Indicass	1
Nanking	1
Sarna	2
Sian	1
St. Ives	1
Styk	1
Tikonov	3
Total:	20

Draconis Combine	
World	Factories
Al Na'ir	1
Alshain	2
Altair	1
Avon	1
Chatham	3
Dieron	1
Dover	1
Irece	1
Jarett	1
Luthien	4
New Oslo	1
New Samarkand	1
Proserpina	1
Satalice	1
Schuyler	2
Spittal	1
Total:	23

Federated Suns	
World	Factories
Axton	1
Belladonna	1
Crofton	1
Delavan	1
Galax	1
Johnsondale	1
Kathil	4
Kirklin	1
Layover	2
Marduk	1
New Avalon	4
New Syrtis	2
Panpour	1
Quentin	1
Talon	3
Total:	25

Free Worlds League	
World	Factories
Andurien	2
Ascuncion	1
Atreus	1
Bernado	1
Calloway	1
Clipperton	1
Dalton	1
Emris IV	1
Gibson	2
Irian	3
Kalidasa	1
Kendall	1
Keystone	3
Loyalty	2
Marik	1
Oliver	1
Savannah	1
Shiro III	1
Stewart	1
Tematagi	1
Thermopolis	1
Wallis	1
Westover	1
Total:	30

Lyran Commonwealth	
World	Factories
Alarion	3
Arc Royal	1
Carlisle	1
Coventry	3
Donegal	2
Furillo	1
Gibbs	2
Gienah	1
Hesperus II	6
Loburg	1
New Earth	1
Pandora	2
Skye	3
Sudeten	1
Tharkad	3
Twycross	2
Total:	33

Magistracy of Canopus	
World	Factories
Canopus IV	2
Dunianshire	3
Total:	5

Outworlds Alliance	
World	Factories
Alpheratz	1
Mitchella	1
Ramora	1
Total:	3

Taurian Concordat	
World	Factories
Iliushin	2
McLeod's Land	1
New Vandenburg	2
Perdition	2
Pinard	2
Sterope	2
Taurus	3
Total:	14

without them. The exact number of mercenaries in an *ISW* campaign, and their availability, depends on the campaign and its gamemaster. The Starting Mercenary Combat Commands Table provides a list of available mercenary Combat Commands suitable for use in campaigns set during the late Succession Wars era. These starting mercenaries are available to their respective Factions at beginning of play, and are counted as "already hired" by those Factions for the purposes of these rules.

For the purposes of these rules, each mercenary Combat Command consists of 1 BattleMech regiment, 1 aerospace wing, 1 armor regiment, 1 infantry regiment, and 1 artillery battalion. Smaller and less dynamic mercenary forces are almost ubiquitous throughout the *BattleTech* setting, but are simply too trivial to track at the scale of an *ISW* campaign.

SAMPLE STARTING FORCES (3025)

Inner Sphere	Combat Commands	Mercenary Combat Commands
Capellan Confederation	47	11
Draconis Combine	68	15
Federated Suns	77	38
Free Worlds League	55	4
Lyran Commonwealth	53	22
Periphery		
Magistracy of Canopus	8	3
Outworlds Alliance	1	0
Taurian Concordat	9	2

Assigned JumpShips and Experience Levels

The experience levels of the various Combat Commands each Faction fields, and whether or not they also receive permanently-assigned JumpShips for interstellar transport, are factors ultimately left up to the players and gamemaster of an ISW campaign. For the purposes of these rules, each Inner Sphere faction should assign at least 30 percent of their total Combat Commands an Experience Rating of Green, with another 30 percent assigned a Rating of Regular, another 25 percent a Rating of Veteran, and have the remaining 15 percent be assigned an Experience Rating of Elite. Periphery factions and mercenaries, by comparison, should have fewer Green and Veteran forces to their name, with more Regular-rated Formations taking up the slack.

In the 3025 period, Inner Sphere military forces tended to receive assigned JumpShips only 20 percent of the time, while their Periphery analogs could achieve 50 percent (mainly thanks to having fewer overall forces to transport around). Mercenary commands with permanently assigned JumpShips were quite rare in the 3020s, and so only about 15 percent of all mercenary Commands assigned to a Faction at the start of play should receive their own JumpShips.

Fortifications

Some worlds boast permanent fortifications. Fortifications will protect a defender during combat for the control of a world. Rules for the construction of fortifications are found in the *Economics & Logistics* Phase (see p. 350). Rules for their use are detailed in the *Abstract Combat Rules* (see p. 322) and the Military Phase (see p. 354).

Major Factions start with one Capital–5 and three Standard–4 fortifications on their Capital; one Capital–3 and one Standard–2 fortification on each Regional Capital; and may place one Capital–4, one Capital–2 and two Standard–4 fortifications on any world they control. Intermediate Factions start with a Capital–3 and two Standard–4 fortifications on their capital world and may place two Standard–2 fortifications. Minor Factions may place one Standard–4 and one Standard–2 fortification on any world. Tertiary powers may place one Standard–2 fortification. All starting fortifications need to be noted on the Factions order sheet.

PLAYING THE GAME

A Game Turn is made up a series of phases (see *Sequence of Play*, p. 345). These phases are played out sequentially.

ORDER WRITING PHASE

Inner Sphere at War is not a game system that relies on rolling dice for Initiative and seeing who goes first, but a double-blind game where the execution of orders across hundreds of light-years takes place simultaneously for all sides. A neutral gamemaster is thus required to act as an arbiter for the actions of all player Factions, reviewing the detailed instructions the players write concerning the actions their realms will take in the current Game Turn, and determining when (if at all) these Factions may interact.

This "order writing phase" is where the Faction-controlling players will decide how they will commit their resources in the economics and logistics phase, where they will move their Combat Commands on the interstellar map, and what these Combat Commands will do upon their arrival. Once all players have submitted their written orders for the game Turn, it falls to the gamemaster to call for any required dice rolls outside of combat, and to declare whether or not the players' forces encounter each other in transit—or on the battlefield.

The following phases describe what the Faction's player can do in each part of the Game Turn, so the written orders must follow the sequence from Economics and Logistics to Military Development, to Diplomacy, and finally to the Military Phase. Any commands whose outcomes do not directly affect the other Factions can be carried out without interference, but some—such as a loss of mercenary forces, diplomatic overtures, and military actions—may quickly become news across the Inner Sphere as the gamemaster informs the other players of such actions.

ECONOMICS AND LOGISTICS PHASE

The Economics and Logistics Phase consists of the following steps: Calculating Resource Points, Banking Resource Points, Infrastructure, Supply and Mercenary Supply and Hiring. Each player determines his Faction's Resource Points for the current turn and adds them to any RP the Faction has retained from previous turns (see below).

CALCULATING RESOURCE POINTS

The base amount of Resource Points (RP) that each Faction produces per Turn is determined in the game's starting setup (see *Starting Economy*, pp. 347-348). This value may change each Game Turn, based on:

- Capture or loss of worlds (see Worlds Value Table, p. 351, and *Pacification and Integration*, p. 363)
- Infrastructure improvements made during the current Economics and Logistics phase (see *Infrastructure*, p. 351)
- Economic treaties (see *Diplomacy Phase*, p. 354)
- Factional abilities and flaws affecting RP (see pp. 346-347).

RP should be calculated in this sequence and any improvements made during this Phase will add to the Faction's RP earnings immediately, but so will all RP spent on such improvements, the support costs for all military assets, the upkeep and/or hiring of any mercenaries, and so forth.

BANKING RESOURCE POINTS

At the start of this phase, all RP left over from the previous Game Turn is multiplied by 1.05 (rounding normally). This represents a reinvestment in the realm's economy. This does not take place in Turn 1.

INFRASTRUCTURE

In the Inner Sphere, the BattleMech is the primary tool of diplomacy and conquest. Supporting these BattleMech forces is a legion of conventional and aerospace forces, and a web of technology and infrastructure that ties together a Faction's economy, production and more.

The following rules cover the creation a Faction's industry and infrastructure. Worlds can be improved incrementally, one improvement per turn; an Other World can be improved to a Minor Industrial World, which in turn can be improved to a Major Industrial World. A world can also be a Regional or National Capital along with an Industrial world.

Note that every Faction can only have 1 National Capital. When building a second one, the original one automatically reverts to a Regional Capital.

Josh wants to improve a normal world such that it becomes a Regional Capital that is also a Major Industrial World. In turn 5, he spends 576 RP to improve the world to a Minor Industrial World. In turn 6, he spends 960 RP to improve the world to a Regional Capital that's also a Minor Industrial World.. In turn 7, he spends 960 RP to improve it to a Regional Capital world that's also a Major Industrial World.

SUPPLY

In the Supply Sub-Phase, a Faction manages resources specific to maintaining and repairing their combat forces. All Formations consume supplies such as ammunition, food, medicine, spare parts, toilet paper, and so on. A unit engaged in combat uses supplies at a much higher rate. Consult the Supply Cost table below to determine the total RP cost needed each turn for each Formation.

SUPPLY COSTS TABLE

Formation	SUPPLY RP PER GAME TURN Non-Combat	Combat
BattleMech Regiment	2	8
Aerospace Wing	1	4
Armor Regiment	1	4
Infantry Regiment	.5*	2
Artillery Battalion	1	4
Fortification (Standard)	2	8
Fortification (Capital)	8	32

*Round up fractions to arrive at the total RP cost.

Keith tries to determine his Supply cost this turn. He is playing the Draconis Combine, and has to cover 68 Formations, each with 1 'Mech at 2 RP each (136 RP), 3 Aerospace at 1 RP each (204 RP), 3 Armor at 1 RP each (204 RP), 5 Infantry at 0.5 RP each (170 RP) and 1 Artillery at 1 RP each (68 RP) for a total of 782 RP spent on Supply. As he had 1,500 RP to start his Turn with, he is able to cover this cost.

Next turn, Keith will be sending 8 Formations in to combat, which increases their normal Supply of 92 to 368, so he would have to ensure he has the 276 additional RP next turn to cover the extra expense.

Supply and RP Deficit

If insufficient RP was left over from the prior turn, a number of units must be designated as having "No Supply" in the subsequent turn (see *Abstract Combat System*, p. 309). The player has total control over which forces in a Combat Command are designated such. If an entire Combat Command's supply cost cannot be covered, the whole Combat Command suffers the "No Supply" penalty.

Any Formations that go without supply must have "No Supply" noted on their appropriate ACS Combat Unit Record Sheet. If an entire Combat Command has been left unsupplied, all of its constituent ACS Combat Record Sheets must have this note.

Sustained Neglect: If a Formation does not receive supplies and *already* has the "No Supply" note on it from the previous turn, apply 10 percent of its starting Armor Value (rounded up) in damage in order to reflect the deterioration of its equipment from ongoing neglect. Roll critical hits for this effect as if the damage occurred in combat (see p. 241).

Keith still has to pay 1,058 RP in Supply this turn (see also the prior example) but only has 967 available. As he is 91 short, he picks 8 of his unengaged Formations to be unsupplied. Hopefully they won't be attacked. He could have picked two of his attacking Formations to be Unsupplied instead, but does not want to harm his offensive.

Broken Supply Lines

There are numerous times when a Combat Command may find itself unable to receive supplies even when its Faction has the available RP for them. If a Combat Command is operating in hostile or neutral territory, for example, it is automatically assumed to have broken supply lines if it cannot trace a line of friendly or neutral interstellar hexes between its position and the nearest friendly-controlled world.

Even if a Combat Command *can* trace a supply line, the gamemaster should roll 2D6 for any Combat Command that is outside of friendly territory, applying a +1 to the roll if it was in combat during the previous Game Turn. On a modified result of 6 or higher, the Combat Command is suffering from broken supply lines. The roll may be further modified (by either attack or defender) at a cost of 10 RP for +/–1 or 30 RP for +/–2.

Any Combat Command that has broken supply lines will suffer the "No Supply" penalty in combat. Any RP assigned to a command that suffers from broken supply lines during this phase will return to the faction's total RP reserve.

MERCENARY SUPPLY AND HIRING

Mercenary Combat Commands are largely maintained and used in *ISW* gameplay in much the same way as their regular army equivalents, but are more prone to changing alignment if not paid and maintained regularly. The following rules outline the hiring and use of mercenary forces in an *Inner Sphere at War* campaign.

Supplying Mercenaries

While serving a Faction, mercenary forces are tied to their Faction's logistical chain, with the RP spent on their upkeep reflecting the payment of warrior salaries and other supporting resources that help maintain their loyalty. Under optimal conditions, employed mercenary Combat Commands cost twice as many RP to maintain as any other Combat Command of identical composition.

Unfortunately, because of their nature, merely maintaining the optimum level of supply is not a guarantee of their continued service; unsupplied or undersupplied mercenary forces often terminate their contracts, abandoning their employers in search of greener pastures. Similarly, even fully supplied mercs have been known to change employers over time, as needs and politics change.

When paying for the upkeep of a Faction's mercenary Combat Commands, the Faction's player must total the normal RP costs for all of their mercenary forces, and double this result. The player may then allocate any amount of his Faction's available RP toward the upkeep of these Combat Commands. This amount of RP is entirely up to the player, regardless of these total upkeep costs; it may be as little as 0 RP, and as much as the Faction's entire remaining budget.

Broken Supply Lines: Mercenary forces are not immune to the potential for broken supply lines. Thus, the same rules apply for such Combat Commands as they do for their non-mercenary counterparts (see *Broken Supply Lines*, p. 251). Any mercenary Combat Command that suffers from broken supply lines is treated as though it never received its payments for the current Game Turn, even if the RP was allotted to it in that turn. (Mercenaries don't often care *why* they're not getting paid, after all.) Note: If a mercenary command's allotted RP fails to reach it due to broken supply lines, the RP cannot be assigned to another force during the current phase, even though the RP goes back into the Faction's resource pool; this reflects the disruptive effects of the mis-allocated funds and supplies.

The Mercenary Retention Roll: After paying these RPs, the Faction's player must make a Mercenary Retention Roll. This is a 2D6 roll against a Target Number of 8. For every 10 percent of RP spent on mercenary upkeep over the total mercenary upkeep cost (rounded down) add +1 to the roll result. Every 10 percent of RP spent *below* the total mercenary upkeep cost (rounded *up*) applies –1 to the roll result instead.

Retention Roll Effects: If the unmodified result of this roll is 2, roll 1D6: on a 1, *all* of the Faction's mercenary Combat Commands will abandon the Faction before the current Game Turn's Military Phase; on a 2-6, add any modifiers to the original 2D6 roll and check results below.

If the modified Mercenary Retention Roll result is 8 or higher, or if the unmodified roll result is 12, all of the currently employed mercenary Combat Commands will continue to serve the Faction normally—though any supply shortages will still affect them in combat as normal.

If the modified Mercenary Retention Roll result is less than 8, the Faction will lose 10 percent of its total number of employed mercenary Combat Commands (rounded up) for every point by which the roll failed, starting with the mercenary commands that have the lowest Reliability rating (Questionable), and proceeding upward toward the highest (those with a Fanatical rating). These mercenary Combat Commands will abandon the Faction before the current Game Turn's Military Phase.

Mercenaries and Sustained Neglect: As with regular Combat Command Formations, mercenary Combat Commands must note on their ACS Combat Unit Record Sheet that they have the "No Supply" effect after any turn in which they have not received their required supply RP from their current employer. As long as such forces remain in their Faction's employ, they will also suffer the same Armor damage effects (and requisite Critical Hits) as any other military Formation dealing with sustained neglect (see above).

Uncontracted Mercenaries

Any mercenary Combat Commands that leave a Faction become "free agents", and become available for hire by all Factions in the game (including the Faction they just left). Free agent mercenaries will lose any "No Supply" effects while unemployed, but they cannot repair any extant Armor damage until they are hired again.

Free agent mercenary forces will move toward a neutral hiring hall world (such as Galatea), or the territory of their new employing Faction (if any), at a rate of 4 hexes per Game Turn. While in transit in such a fashion, these Combat Commands need not be placed on the map (the gamemaster tracks where they are and when). Free agent mercenaries may be hired even while they are in transit, but they cannot perform combat actions for their new employers until they enter that Faction's space.

Hiring Mercenaries

To hire a free agent mercenary, the interested Faction must spend *at least four times* the mercenary Combat Command's RP upkeep cost (but may spend more) to bid for its services. After putting in the bid, the Faction's player makes a Mercenary Hiring Roll. This is a 2D6 roll against a target number of 4, applying a +1 to the roll result for every 10 percent of additional RP spent over the mercenary Combat Command's hiring cost. If the modified roll result is 3 or less, the mercenary Combat Command refuses the Faction's offer and ten percent of the bid is spent.

A mercenary Combat Command's hiring cost does not cover any repairs it may require to return to full strength. Instead mercenary forces must be repaired using the same rules found for regular military repairs (see pp. 364-365).

If multiple player Factions are bidding for the same mercenary Combat Command, the Faction player who makes a successful Mercenary Hiring Roll by the highest margin of success wins. If there is a tie, the Faction player that bid the most wins. (If there is still a tie, the tying Factions must reroll.)

These hiring rules may not be used if the mercenary Combat Command is already employed by another Faction.

MERCENARY RETENTION AND HIRING TABLE

Action	TN
Mercenary Retention Roll	8
Mercenary Hiring Roll	4
Condition	**Modifier**
Retention Roll	
Under-Supplied	–1 per 10% RP under Total*
Over-Supplied	+1 per 10% RP over Total**
Hiring Roll	
Over-Bid	+1 per 10% over Hiring Cost**

*Round up
**Round down

MILITARY DEVELOPMENT PHASE

The heart of the *BattleTech* universe is the clash of BattleMech armies. This phase is where they are created or improved.

CREATING COMBAT COMMANDS

To create a new Combat Command, a player must first determine its composition. Each new Combat Command must have 1 'Mech regiment (and can have no more than 1 'Mech regiment), but beyond that, its additional attendant units need not follow the standard for that faction. The new unit's exact composition then dictates its cost. This cost is doubled if you intend for the unit to have attendent JumpShips, which has an effect on the transportation cost for the unit (see *Movement*, p. 358). The cost is then further modified based on the Experience Rating (Green or Regular) and on its Loyalty Rating (Questionable, Reliable or Fanatical) Once this total cost is subtracted from the Faction's remaining Resource Points, the new unit can begin its existence on any world within your Faction *except* an 'Other' world. It is available for immediate use, such as combat and transportation.

Mercenary Combat Commands may not be created by the player Factions using these rules. The gamemaster may, at his own option, decide to create or introduce new mercenary Combat Commands if desired. These forces follow the basic rules.

Joshua wants to raise a new unit on his Capital. He wants it to consist of a single 'Mech, two Aerospace, one Armor, and one infantry component. The total cost for this is 66. While he would like this unit to have a higher Experience Rating, the highest quality permitted within the system is Regular, which would double the cost to 132 RP. Joshua considers it adequate for the new unit to have a Reliable Loyalty rating, which 1.5 modifier brings the total to 198 RP. Finally, he intends for this force to be very active, and invests in Attendant JumpShips, which brings the total cost for the new unit to 396 RP.

FORTIFICATIONS

Some worlds have permanent fortifications. Fortifications will protect a defender from attack during a fight for the control of a world. The full effects are detailed in the Abstract Combat Rules (see p. 322). Due to the abstract nature of these rules, a single Standard Fortification in game terms may in fact represent dozens of improved positions or a single massive walled base.

Constructing Fortifications

There are two classes of fortifications, Standard Fortifications and Capital Fortifications. A Standard Fortification costs 50 RP to build and costs 2 RP per turn to maintain. A Capital Fortification costs 250 RP to build and costs 8 RP per turn to maintain. No world may have more than 5 fortifications total. Any turn that fortification's upkeep is not paid, roll 1D6 and apply +1 for each turn that maintenance has not been paid. On a result of 6, a Standard Fortification is destroyed and a Capital Fortification is mothballed. It costs one-half the total Capital Fortification RP (base RP plus RP for the level of the Fortification) to return a Capital Fortification to use.

Fortifications may be upgraded to improve their defensive ability. The higher the fortification value, the greater the defense offered, but the damage dealt by the defender within is similarly reduced. Upgrading a fortification costs 5 RP for a Standard Fortification and 25 RP for a Capital Fortification, to a maximum of four levels for Standard and five levels for Capital (Noted as <fortification class>-<#>; for example, Standard–1, Capital–2).

Fortifications in Combat

Fortifications are limited as to the size of the Combat Command that may benefit from its defense. Standard Fortifications may hold one regiment (108 combat units) per level to a maximum of 4 regiments. A Capital Fortification can hold two regiments per level to a maximum of 10 regiments.

Fortifications can be reduced by the use of specifically-targeted attacks. Standard Fortifications can be reduced by concentrated artillery barrages. Capital Fortifications can only be reduced using Nuclear WMDs or concentrated Orbital Bombardments; Capital–5 Fortifications are immune to even these attacks. The rules for reducing a fortification are detailed in the Abstract Combat System (p. 322). Capital–5 Fortifications are exceptional in that they are immune to any attack. Capital–5 Fortifications may only be defeated through the use of espionage.

Castles Brian

Castles Brian are the pinnacle of defensive fortifications. Used by the Star League and reused or copied by others, they have served as the turning point of many of the pivotal moments in *BattleTech* history.

Castles Brian follow all the same rules as Capital Fortifications, with the following additions and modifications. Castles Brian cost 2,000 RP to build. (No Faction save for the Terran Hegemony or Word of Blake may construct Castles Brian.) Upgrading a Castle Brian costs 200. A Castle Brian's fortification level is indicated by notating the number in the same way as other fortifications (e.g. Brian–2). Castles Brian may hold four regiments (432 combat units) at Level 1. For every level above 1, they may hold an additional three regiments, so that a Brain–5 may hold 16 regiments (1,728 combat units).

During combat, defenders in a Castle Brian can sally out of special defender ports, allowing them to engage their attacker on their own terms.

NEW COMBAT COMMAND COST TABLE

Combat Formation	Cost (RP)
Formation Type	
BattleMech*	24
Aerospace	12
Armor	12
Infantry	6
Artillery	12
*Experience Modifier***	
Wet Behind the Ears (0 XP)	x0.5
Really Green (5 XP)	x0.75
Green (9 XP)	x1.0
Regular (13 XP)	x2.0
*Loyalty Modifier***	
Questionable	x1.0
Reliable	x1.5
Fanatical	x2.0
*JumpShips***	
None assigned	x1.0
Attendant JumpShips	x2.0

*No more than 1 per Combat Command
**Apply the appropriate modifier one at a time to the total cost of the Combat Command

DIPLOMACY PHASE

While war tends to be the primary arbiter for interstellar relations in the Succession Wars, they are, of course, not the *only* means. Diplomacy still maintains some viability even in the war-torn Inner Sphere. The following rules outline a framework for the players to incorporate this concept into game play.

DIPLOMACY

In the *BattleTech* universe, diplomacy often takes a backseat to warfare. This does not make mean it cannot sway the balance of power if used correctly—the marriage of Hanse Davion and Melissa Steiner is proof of that.

Players may negotiate any of the treaties and pacts below, effectively by reaching a mutual agreement. At the level of gameplay covered by these rules, with a single player representing his Faction, such agreements require little extra effort.

While diplomatic deals are often purposefully vague–to reflect the fluid and flexible nature of such relationships–the typical conditions or restrictions of most common diplomatic agreements are described below.

Military Treaties

The three main types of military treaties seen among the interstellar realms of the Inner Sphere are Mutual Assistance Treaties, Non-Aggression Pacts, and Military Defense Treaties.

Military Mutual Assistance Treaty: When two or more Factions agree to support each other should they suffer an invasion (or undertake one against a mutual enemy), then they have struck a Mutual Assistance treaty. The Mutual Assistance Treaty is considered broken if one of the participating Factions withholds military support requested by its ally.

Military Non-Aggression Pact: A non-aggression pact involves both Factions agreeing to conduct no military operations against each other greater than a Raid (see *Military Actions*, p. 358). Any violation of this will result in an immediate cancellation of the non-aggression pact, and reprisals from the former ally may prove quite severe.

Military Defense Treaty: When two or more Factions make a Military Defense Treaty, they pledge to provide military aid for defensive purposes only. The allied factions are *not* required to support one another when conducting offensive operations, even if it is against a mutual enemy. This treaty type is considered broken if one Faction withholds its military support while its ally is being attacked.

Economic Treaties

Economic treaties at the *ISW* scale are even simpler. These arrangements of financial or other non-military material support open the borders for trade between the allied realms, enabling both to improve their resource pools.

A faction receives a boost to their RP earnings during the Economics and Logistics phase for each economic treaty that exists at the beginning of that phase, for as long as the partner Factions agree to maintain that treaty. If the economic ally is a neighboring Faction (one that shares a mutual border), this boon increases each Faction's RP earnings per Game Turn by 10 percent (rounded up). If the partner Factions do not share a mutual border, the economic boon to both Factions is only 5 percent of their respective RP production per Game Turn.

Economic treaties are immediately broken the moment either Faction declares that it is opting out of the treaty or engages in military operations against its ally. Alternatively, an economic treaty may be broken if a member Faction forges another economic treaty with another Faction currently at war with its ally. Ending an economic treaty in the latter case is entirely up to the offended Faction's player.

MILITARY PHASE

This phase details the use of a Faction's ground and aerospace forces in *ISW* game play. Rules covering force upkeep, military orders, military actions and resolution of orders and actions are detailed in this section. The creation of combat forces was outlined in the Military Development phase (see p. 353). The campaign effects of military orders and actions—fatigue, morale, experience, re-organizing—are covered in the End Phase (see p. 364).

MILITARY PHASE BASICS

Orders sheet and the Military Phase

ISW game play spans hundreds to thousands of light-years. Communication across these distances can take days or even weeks. This greatly limits the flexibility and responsiveness an army commander has over their forces. To reflect this, a Faction's Order Sheet must list all planned actions for each Combat Command in the Faction's army for the entire Game Turn. Orders may be written conditionally. There must be sufficient RP to perform all conditional operations.

Military Phase Sequence of Events

The Military Phase is broken up into five Sub-Phases revolving around logistics for combat forces, military orders and actions, and resolution. Not all Military Sub-Phases need to be used, but any Sub-Phases used *must* follow the Military Phase sequence order. Training and supply must be resolved before any Military Actions in that Phase.

- Orders
  - o Logistical
  - o Movement
  - o Combat
- Military Actions
  - o Training
  - o Movement
  - o Raiding
  - o Battle
  - o Invasion
  - o Duels
- Combat Turn Resolution
  - o Capturing Worlds
  - o Interstellar Hex Control

ORDERS

Orders provide specific instructions for a Faction's Combat Commands. Orders are broken down broadly into three types: Logistic, Movement and Combat orders. Combat orders are further divided into Offensive and Defensive orders.

Each turn, a Combat Command has four Order Points, which it can spend to execute Logistics, Movement or Combat orders. Some orders take more than one Order Point to complete, and so will reduce the number of orders a Command can complete in a given turn. A Combat Command need not use all its orders available in a turn.

If a Combat Command spends three or more order points on Movement orders, it may not issue any Offensive orders, regardless of their cost.

Logistic Orders

Logistical orders cover non-combat and non-movement activities in which a Combat Command engages as part of its normal operations.

Training: Combat Commands that conduct training are issued the Training Order (see *Training*, p. 358). A Command on Training

may not use any Transport Orders or Offensive Orders in the same Game Turn it trains.

Training uses three Order Points.

Rest: This order lets a force recover 1 Fatigue Point (see *Fatigue*, p. 365). Rest orders cannot be given to forces that have been involved in combat or moved this Turn. If a Combat Command under rest orders is attacked by enemy troops, the rest order fails (unless the unit is Shielded, see *Shield*, p. 354) and the unit does not reduce its Fatigue Point score.

Rest uses two Order Points.

A unit with 4 Fatigue Points receives a rest order, and as a result its Fatigue Points are reduced to 3. It could receive a second Rest order in lieu of its combat order, which would further reduce its Fatigue Points to 2. However, were the unit attacked during that turn, both Rest orders would fail and the unit would remain at 4 Fatigue Points.

Repair: This order permits a force to recover losses per the Repair rules (see p. 364). A command under Repair orders may only field 50 percent of its total force (rounding down). Players multiply the Combat Command's S/M/L and Armor values by 0.5, rounding down.

Repair uses two Order Points.

Movement Orders

Movement orders are specific instructions that use the *Movement* rules (see p. 358) to move a Combat Command from one point to another in various forms of combat readiness. Unless otherwise noted, all *Movement* rules apply.

Transport Move: Allows a Combat Command to move one or more Interstellar Map Hexes. A command using the Transport Move order may use only the Defend combat order (see p. 357) next. If the command is attacked in combat, it is considered to be defending. Movement cost is listed in the Movement Phase (see p. 358).

If a Combat Command spends three or more Order Points on Transport Move Orders, it may not issue any Offensive Orders, regardless of their cost. If a Command was in combat in a turn, it may not issue more than two Transport Move orders.

If a command moves onto an enemy controlled world it may suffer an attack of opportunity (see *Defend*, p. 357).

Transport Move consumes one Order Point.

Assault Move: This order moves a Combat Command from one Interstellar Map Hex to another and lands troops via combat assaults, allowing it to engage in combat orders immediately. This Command must pay its Combat supply costs next turn (see p. 351), even if no battle occurs; it also receives 1 Fatigue Point.

Assault Move costs one Order Point.

Combat Orders

Combat Commands may be given various orders that affect their combat readiness, offensive or defensive stance or how they interact with other friendly or hostile commands.

Combat orders are broken into Offensive and Defensive.

Attack (Offensive): Forces with this order may engage in Battle or Invasion Military Actions (see pp. 361-362). This Command must pay Combat supply costs next turn and receives 1 Fatigue Point.

The Attack order costs 1 Order Point.

Luke wishes one of his units, the Second Sword of Light, to engage enemy forces on an adjacent world. He issues the unit two orders: An Assault Move order to relocate to the world, and an Attack order to engage the troops there. He did not use the Transport Move order, as the Second would be subject to an Attack of Opportunity (see p. 312) as if it attempted to land on a hostile world.



Planetary Raid (Offensive): A portion of the Combat Command is tasked with conducting a raid on another Faction's world. See Raiding rules (see p. 359) for details on conducting the raid. If the parent Combat Command is involved in any other combat during the same Game Turn, it must subtract the PV of the raiding force from their PV.

A Combat Command may only conduct one raid per Game Turn. Any Combat Command conducting a Raid must pay its Combat supply costs next turn. It does not suffer any Fatigue.

Raids cost 1 Order Point.

COUNTER INSURGENCY TABLE

2D6 Results	Counter Insurgency Results
2 or Less	No forces uncovered, 5 percent Armor Damage
3	No forces uncovered, 2 percent Armor Damage
4	10 percent discovered, Max 2x attack
5	20 percent discovered, Max 2x attack
6	30 percent discovered, Max 2x attack
7	20 percent discovered, Max 3x attack
8	50 percent discovered, Max 3x attack
9	60 percent discovered, Max 3x attack
10	65 percent discovered
11	70 percent discovered
12	75 percent discovered
13	80 percent discovered, Automatic 5 percent damage and salvage
14 or More	100 percent discovered, Automatic 10 percent damage and salvage

Situational Modifiers	Modifier*
Force Experience	
Wet Behind the Ears	–3 / +3
Really Green	–2 / +1
Green	–1 / +1
Regular	0
Veteran	+1 / –1
Elite	+2 / –2
Heroic	+3 / –3
Legendary	+3 / –3
Force Type	
Infantry	0 / –2
Other Forces already Hidden	
For every 3 combat units of 'Mechs	+2
For every 3 combat units of Armor	+1
For every 15 combat units of Infantry	+1
Other	
Hidden Command conducted Guerilla Warfare this Turn	+2
Hidden Command conducted Guerilla Warfare last Turn	+1
Hidden Command bribed local populace on hostile world	–1
Hidden Command on Original Faction World	–2

* The number before the slash is the modifier for the Command conducting Counter Intelligence, the number after the slash is the modifier for the Hidden Command.

Counter Insurgency (Offensive): A Combat Command may be called on to hunt down hidden enemy Commands through the Counter Insurgency (CI) order. A CI operation must be targeted at a single Hidden Command (see p. 315). The Faction conducting CI does not have to know which Commands are hidden, or even if any are present. If more than one Command is hidden on the world, the GM rolls randomly to determine which one is the target of the CI mission.

A Command assigned to CI rolls 2D6, applying the appropriate situational modifiers, and consults the Counter Insurgency table to determine if and how much of the Hidden Command they have discovered.

Discovered indicates what percentage of the Hidden force is uncovered and able to be brought to combat immediately in the Turn during which the CI operation was conducted.

Max attack limits the amount of force the CI Command can bring to bear, with the multiplier representing how much more PV the attacker can attack the Hidden force with.

A result of Armor Damage applies that percentage of damage (rounding up) to the Counter Insurgency Command. This represents wear and tear on the Command in their operation and attacks of opportunity from the Hidden Command.

A result of Automatic damage and salvage applies that percentage of damage (rounding up) to the Hidden command, and grants the same percentage to the CI Command as salvage. This represents the CI Command finding a Hidden unit base and capturing the equipment.

This Command must pay Combat supply costs next turn and gives it 2 Fatigue Points.

Counter Insurgency costs 1 Order Point.

Guerilla Warfare (Offensive): Combat Commands that have been issued the Gone to Ground or Hidden order may choose to engage in Guerilla Warfare. A Command must have spent at least one complete Turn hidden before they may engage in Guerilla tactics. Commands engaging in Guerilla operations use the same rules as Raid (see p. 359) with the exception that they do not have to make System Insertion rolls as they are already on world.

This Command must pay Combat supply costs next turn and receives 1 Fatigue Point.

Guerilla Warfare costs 1 Order Point.

Shield (Offensive): Commands issued this order protect other forces, with combat if needed. This order safeguards other Combat Commands from damage while repairing or resting. The Shielding Combat Command must have Formations within the same *ACS* hex as the Combat Command Formations it is Shielding. The Shielded Formations may not engage and may not be engaged while Shielded (See Engagement Control).

A Combat Command that uses the Shield order must pay twice its Combat supply cost the following turn; it generates 1 Fatigue Point if no combat is seen, and 2 Fatigue if engaged in combat.

Shield costs zero Order Points. It must be combined with either the Attack or Defend order.

There are three 500 PV Combat Commands on a planet, one of these 500-point commands can rest so long as the other two are using the Shield Order.

Commerce Raid (Offensive): No enemy worlds within 2 Interstellar Map Hexes of the Command's position generate RPs, unless the world's hex contains a Combat Commands with PV of at least 50 percent that of the raiding Combat Command, or if that world's hex is within range of a Patrol (see p. 357). A Combat Command may only conduct one Commerce Raid per Game Turn. The effects are not cumulative with the results of Raiding (see p. 359). This Command must pay Combat supply costs next turn.

Commerce Raid costs one Order Point.

Fortify (Defensive): This order creates field fortifications for the unit, reducing damage to the force while not impeding its ability to inflict damage. Fortify costs equal the Command's Combat Supply RP cost and 1 Fatigue Points to establish. A Command may not use the Fortify and Rest orders in the same Game Turn. Once a unit has fortified itself, it may continue to be issued the Dig-In command on subsequent turns. A Combat Command may not Fortify in a Fortification.

A fortified Combat Command reduces the damage it takes by 10 percent for ground. This is cumulative with the bonus gained by using the Defend order.

A fortified Combat Command may not move on the Planetary Combat Map. If a Combat Command moves, it loses all benefits of the Fortify order.

Fortify costs one Order Point.

Dig-In (Defensive): A Combat Command that used the Fortify or Dig-In order in the previous Turn may continue to use the protections they built using the Dig-In order. Every Game Turn in which a Command uses the Dig-In order, it must pay RP equal to its Non-Combat supply cost to maintain the fortifications

A Combat Command under Dig-In orders reduces the damage it takes by 10 percent (round up). This is cumulative with the bonus gained by using the Defend order.

A Combat Command under Dig-In orders may not move on the Planetary Combat Map. If such a Command moves, it will lose all benefits of its fortifications.

Dig-In costs one Order Point.

Defend (Defensive): The force is combat-ready and will stage an active defense against enemies, but will not initiate combat against an entrenched foe. Combat Commands with Defend orders may only use Defensive Tactics when resolving combat using the Abstract Combat System (see *Combat Tactics*, p. 316). Combat Commands issued the Defend order take 10 percent less damage and reduce the damage they inflict by 10 percent.

Enemy forces who use Transport Move Orders to land on a world where there are defenders with the Defend order may suffer an Attack of Opportunity (see *Attack of Opportunity*, p. 312).

The Command must pay its Combat supply costs next turn. The Command will only generate fatigue if it engages in combat.

Defend costs one Order Point.

Go to Ground (Defensive): Go to Ground is used by a Command in active combat that wishes to try and hide itself from the opposing force. While the Hidden order allows an entire Command to be hidden (or attempt to do so), when under the fog of war a Command may not be able to extract all its forces from battle and even those that do may be separated from the main Command.

When a Command is issued the Go to Ground order, roll 2D6 and consult the Go to Ground Results table to determine what percentage of the Command is able to go to ground (rounding down). Of the percentage of the Command that is unable to go to ground, 50 percent (rounding down) is immediately lost to attrition and the remaining 50 percent receives a surrender Morale effect (see *Retreat and Surrender*, p. 365). If more than one Command issues the Go to Ground order in the same Turn, the player must decide in which order they go prior to rolling the dice. Once a unit has executed a Go to Ground order, it operates in the same away as a Hidden Formation (see *Hidden Formations*, p. 315)

A Command that goes to ground may lower its Morale Ratings (see *Morale*, p. 367). Roll 1D6 (and subtract 1 from the result if the force is on a world originally controlled by an enemy Faction); if the result is lower than the Command's current Morale Rating, Morale worsens by 1 (for example, from Normal to Low).

A Command that is operating under the Go to Ground order also suffers the "No Supply" penalty.

Go to Ground costs 1 Order Point.

Scatter (Defensive): Under the threat of Orbital Bombardment, one of the only viable defenses a Command has is to scatter its forces to minimize losses. Commands issued the Scatter order roll 2D6 on the Gone to Ground Results table (at left) to determine what percentage of the Command's Combat Units are able to Scatter. The remaining Combat Units are lost to attrition and communication breakdowns.

If the Faction that scattered is able to gain control or retreat from the world, they may repair any damage equal to the percent lost to attrition without losing experience. This represents the pilots and soldiers linking back up with their command, even though their equipment is lost.

Commands that are scattered may only be used in Recon Formations in the Abstract Combat System (p. 312)

This Command must pay its Combat supply costs next turn and gains 1 Fatigue Point.

Scatter costs 1 Order Point and may not engage in any of the following Orders: Training, all Movement orders, all Offensive orders except Guerilla Warfare, Fortify, or Dug In.

Patrol (Defensive): Non-garrison, aerospace-only forces assigned the Patrol order counteracts the effects of enemy Commerce Raids on friendly worlds within two Interstellar Map Hexes of their location. Add a quarter of the unit's aerospace Point Value to all friendly worlds in range. Additionally, patrolling aerospace imposes a –2 roll modifier to Raiding (see p. 359) within their two-hex range of patrol.

Patrol incurs 1 FP. This Command must pay its Combat supply costs next turn.

Patrol costs one Order Point.

GONE TO GROUND TABLE

2D6 Results	Percentage Gone to Ground
2 or Less	10 percent
3	20 percent
4	30 percent
5	40 percent
6	50 percent
7	65 percent
8	70 percent
9	75 percent
10	80 percent
11	85 percent
12	90 percent
13	95 percent
14 or More	100 percent*

Situational Modifiers	Modifier
Force Experience	
Wet Behind the Ears	–3
Really Green	–2
Green	–1
Regular	0
Veteran	+1
Elite	+2
Heroic	+3
Legendary	+3
Force Type	
Infantry	+2
*Other Forces already GtG or Hidden***	
Each Regiment of 'Mech	–2
Each Regiment of Vehicles	–1
Each 5 Regiments of Infantry	–1
Other	
Command is Scattering	+4

*Only Commands issued the Scatter order may get results of 14+

**These modifiers do not apply for Commands using the Scatter order

MILITARY ACTIONS

In the *BattleTech* universe, all roads eventually lead to conflict. This section provides rules for engaging in and resolving combat. The *Inner Sphere at War* rules do not have their own combat system. Instead, *ISW* is designed to be played with any of the *BattleTech* combat systems. *ISW* is specifically set up to work seamlessly with the *Abstract Combat System* (see p. 304).

Prior to the Military Action Sub-Phase Combat Commands are issued orders (see p. 354) that cover their direct *ISW* actions and setup various potential combat conditions. This section details how to engage in combat and provides guidelines for interfacing with the combat system of choice.

Types of Military Actions: In *ISW*, all combat falls into one of the following categories; Training, Movement, Raiding, Battle, Invasion and Duels.

Training

The less experienced the unit, the more it relies on training to improve its quality and ability to survive when the battle becomes real.

Combat Commands may conduct training exercises to increase their Experience Points (XP). When a Command reaches the XP required for a new Experience Level (see *Experience*, p. 367) they may improve their Experience.

Training requires at least two combat forces of roughly equal size. The Command Commands in training must pay their Combat supply (see p. 351) RP cost the following turn and gain 1 Fatigue Point (FP, see *Fatigue*, p. 365). All the Commands in training receive the benefits listed below.

If a Command has 10 or fewer XP they automatically gain 1 XP at the end of training. If a Command is subsequently unsupplied, they gain an extra 1 FP.

If a Command has more than 10 XP, it rolls 2D6. If the result is less than the Command's Average Unit Skill (see *Experience*, p. 367), they earn 1 XP. Each additional turn spent training grants an additional –1 modifier to the 2D6 roll. However, a Command that goes a Turn without training loses all die modifiers. For example, if a Command trained in Game Turns 1 and 2, it would have a –2 modifier the next time it trained, but if it did not train again until turn 4 then it would lose all modifiers and starts over.

Training Centers: Specific worlds within a Faction are dedicated to the training and combat readiness of its forces. Forces conducting their training operations at a designated Training Center gain benefits to their training.

- Commands with fewer than 10 XP gain 2 XP instead of 1 at the end of training.
- Commands over 10 XP gain an automatic –1 modifier to their training roll. For every two consecutive turns spent training at a Training Center, add an additional (cumulative) –1 modifier to their roll.
- Commands training at a Training Center need only pay their Non-Combat Supply costs (see p. 351).

Each Major Faction starts the game with three Training Centers. Each Intermediate Faction starts with two, each Minor Faction starts with one and Tertiary Powers start with none. The location of starting Training Centers must be designated at the start of game play and should be noted on the Interstellar Map. Where possible, canon locations should be used. For example, the Osaka Fields Proving Grounds on Benjamin should be designated as a Training Center for the Draconis Combine Faction.

New Training Centers can be built at the cost of 50 RP. A Faction may have no more than double its starting number in Training Centers.

> *A new Command with 1 XP undertakes a training operation with its more experienced (XP 11) compatriots. Both Commands gain 1 Fatigue Point. The green unit gains 1 XP and so ends the turn with 2 XP. The more experienced unit rolls 2D6 and gets a 7, higher than its Average Skill (see Experience, p. 367) and does not gain XP.*

Movement

The Interstellar Map scale is 30 light-years per hex. At this scale, the only units that can ply the distances between one hex and another are JumpShips. While BattleMechs rule the battlefield, the vast empires of the Inner Sphere would not have been possible without the Kearny-Fuchida jump drive, which permit instantaneous movement across distances of up to 30 lightyears. Movement in *Inner Sphere at War* is based on the use of JumpShip fleets to move carrier and cargo DropShips that ferry a Faction's armies, supplies and equipment from planet to planet.

A Command can have up to 4 Interstellar Movement Points (IMP), unless it is equipped with Lithium-Fusion batteries, in which case it has 8 IMPs. Each use of an IMP costs 2 Resource Points (RPs) if the unit was given Assigned JumpShips during the Game Setup or Creating Combat Commands (see p. 353) steps. If it does not have Assigned JumpShips, the cost is 4 RP per IMP.

To travel from one hex to another adjacent hex requires 1 IMP. Likewise, to travel from 1 planet to another within the same hex requires 1 IMP. Finally, to land on the planet of the target system consumes the equivalent of 1 IMP. However, the trip to the planet consumes no RPs; those costs are covered as a fraction of the cost to make interstellar travel and the regular upkeep of the unit.

> *Josh wants to move his Ninth Lyran Regulars two jumps from Cavanaugh II to Bella I. This requires two IMPs to make the trip to the Bella I system, and a third IMP to land the unit on the surface of the planet. As the 9th Regulars do not have Assigned JumpShips, the cost for this trip is 8 RP.*

Commands may only move if given a Movement Orders (see p. 355). Commands may use their entire IMP in one Movement Order, but may not use more than their total IMP in an *ISW* Turn, no matter how many Movement Orders they have been issued.

Command Circuit: Command circuits are relays of JumpShips, which pass DropShips from one JumpShip to another, avoiding the recharge times needed for each leg of the trip. In game terms, command circuits allow nearly instant transportation between two worlds, enabling forces to travel vast distances quickly.

A Command circuit must trace a line of hexes through your controlled territory, and cannot pass through or end in a hex that is controlled or contested by an enemy. It can be of any length provided this condition is met. Transport costs 8 RP per jump per Combat Command, and is considered to have taken up 1 IMP of the unit's total regardless of the length of the Command Circuit. Travel can continue normally after the Command Circuit action is taken. A Command Circuit is not permanent, and each Combat Command has to pay the 8 RP per jump cost, even if they all trace the exact same path.

Pirate Points: Normal jump traffic target's a system's zenith or nadir jump points, regions of space above and below the target system that are relatively safe to use. JumpShips can also pick non-standard ("pirate") points within a system that can be much closer to their desired target location. Pirate points exist where the gravity between two celestial bodies cancel each other out enough to permit a jump. Aiming for Pirate Points, especially with large fleets, is very risky, and misjumps can occur.

Whenever an IMP is spent to enter a new system (but not when an IMP is spent to travel to the target planet), the player can designate that jump as being targeted at a pirate point. The GM rolls 2D6, and on a 2 or a 3, the unit is completely lost due to a misjump. If a near orbit pirate point is the designated target (see Middle Zone, p. 319), the unit is lost on a result of 2, 3 or 4. Should the jump complete successfully, it gives the associated unit access to the rules for Pirate Points found in the *Abstract Combat System Deployment*, p. 312.

Raiding

Raiding allows a Faction to conduct a limited strike against an opposing Faction, usually with a specific goal in mind. Raids fall into five broad categories.

- **Recon Raid:** Used to uncover specifics on a world's defenders.
- **Supply Raid:** Targets a Supply Depot's or Supply Centers and attempts to either steal or destroy supplies.
- **Disruption Raid:** Used to disrupt a world's economy and reduce its ability to generate resources.
- **Equipment Raid:** Targets a world's factories and attempts to steal equipment.
- **Industrial Raid:** Targets a world's factories and attempts to damage production.

Raid Resolution: A raid is made up of four steps: Setup, Insertion, Mission, Results.

Setup: The first step to conducting a raid is to determine what forces will be used. A raid is the only time a Combat Command may field a force smaller than a Combat Team in size (see p. 304). A raiding force is limited to no more than 15 percent of a Command's Point Value (PV) and to a maximum of two Combat Teams. The raiding force may also support their ground force with up to two Combat Teams of aerospace.

Once a raiding force is selected, the specific type of raid and target world must be determined. This must be documented on the Faction's Order Sheet at the start of the Game Turn. Only one raid may be conducted on a target world by a Faction per turn.

Insertion: A raiding force rolls 2D6 on the Raid Insertion Table and applies the appropriate modifiers. Depending on the results, the raid can continue, or be aborted. If the raid is aborted, move directly to Results.

RAID SUCCESS TABLE

2D6 Result	Result (Simple Resolution)	Victory Points Earned	Raid Result Modifier
1 or less	Raid Failed, Raiding Force Captured*	N/A	N/A
2	Raid Failed, 100 percent Raiding Force Lost	N/A	N/A
3	Raid Failed, 75 percent Raiding Force Lost	N/A	N/A
4	Raid Failed, 50 percent Raiding Force Lost	N/A	N/A
6	Raid Failed, 25 percent Raiding Force Lost	N/A	N/A
7	Raid Failed, 100 percent Raiding Force Escaped	N/A	N/A
8	Raid Success, 25 percent Raiding Force Escaped	500	–3
9	Raid Success, 50 percent Raiding Force Escaped	600	–2
10	Raid Success, 75 percent Raiding Force Escaped	700	–1
11	Raid Success, 100 percent Raiding Force Escaped	800	+0
12	Raid Success, 100 percent Raiding Force Escaped	900	+1
13	Raid Success, 100 percent Raiding Force Escaped	1,000	+2
14+	Raid Success, 100 percent Raiding Force Escaped	1,100	+3

*90 percent of Raiding force is taken as salvage, no salvage roll required.

RAID INSERTION TABLE

2D6 Result	Insertion Success	Insertion Result	Defender Size*
1 or less	Failed	Jump Failure Raiding Force Lost	N/A
2	Failed	Jump Detected, Aerospace fight	1.5 aero
3	Failed	Jump Detected, Aerospace fight	1.25 aero
4	Failed	Jump Detected, Aerospace fight	1.0 aero
6	Failed	Jump Detected, Aerospace fight	.75 aero
7	Failed	Jump Detected, Aerospace fight	.5 aero
8	Failed	Jump Detected, Raiders escape	N/A
9	Success	Raiders Successfully Land	1.5
10	Success	Raiders Successfully Land	1.25
11	Success	Raiders Successfully Land	1.0
12	Success	Raiders Successfully Land	1.0
13	Success	Raiders Successfully Land	0.75
14+	Success	Raiders Successfully Land	0.5

*Modifiers indicate the maximum size/PV of the defending force. The defender is limited by their actual force on hand and may choose to field less.

RAID INSERTION AND SUCCESS MODIFIERS

Situation	Modifier
Force Experience **	
Wet Behind the Ears	–3 / +3
Really Green	–2 / +1
Green	–1 / +1
Regular	0
Veteran	+1 / –1
Elite	+2 / –2
Heroic	+3 / –3
Legendary	+3 / –3
Mission Modifiers	
Periphery	+1 / 0
Raiding force is composed of all Light Elements	+1
Suicide Mission†	+2
Insertion Modifiers	
Attacker has active Commerce Raid	+1
Successful System Recon Raid last turn	+2
Successful Pirate Point Jump	+4
Defender has active Patrol Mission	–2
Defender has 200+ aerospace in system	–2

*The number before the slash is the modifier for the attacker's experience conducting the raid, the number after the slash is the modifier based on the defender' experience.

**For defender force, determine the average force quality of all forces on the world.

†Only valid for Disruption and Industrial Raids. The raiding force is destroyed and its parent unit suffers a 1 level drop in morale (see Morale, p. 366)

If the Insertion results indicates an aerospace battle, resolution may be accomplished via simple resolution, the *Abstract Combat System*, or detailed combat.

Simple resolution uses the Raid Success Table, with results being applied to the attacker's aerospace PV. If the aerospace force takes 75 percent or more damage, the ground force is lost.

Abstract Combat System resolution uses the Star-System Radar Map (see p. 306) to play out the Insertion. If the Transport Unit reaches the Central Zone, the raiders land on the world and play moves to the Mission step. The defender may deploy all aerospace assets in the system per the Initiative Phase detailed in *ACS* rules (see p. 312).

Detailed combat uses *Total Warfare*, *Alpha Strike*, or *BattleForce* to resolve the battle. A Breakthrough scenario is recommended. The size

RAID RESULTS TABLES

1D6 Roll	Recon Raid Result
Less than 1	Raiders are able to determine the number of defending Combat Units on world, but no additional information.
1	Raiders are able to determine the number and types of defending Combat Units on the world, but not the numbers of each type.
2	Raiders are able to determine how many of each type of defending Combat Units are on the world.
3	As result 2. Raiders also determine the name of any BattleMech formations and the experience of all Combat Units.
4	As result 3. Raiders also determine the weight class of each Combat Unit.
5	As result 4. Raiders also determine the current damage (if any) percentage for each Combat Unit.
6	As result 5. The raiding force also intercepted command communications that reveal the combat forces in one randomly selected adjacent hex.
7	As result 5. The raiding force also intercepted command communications that reveal the combat forces in two randomly selected adjacent hexes.
8 or More	As result 5. The raiding forces intercepted intelligence on all combat forces in the hexes surrounding the target hex.

1D6 Roll	Supply / Equipment Raid Result
Less than 1	Treat as a Raid Success result 2 and add +3 (for a final modifier of +0) to Salvage Roll.
1	Treat as a Raid Success result 3 and add +3 to Salvage Roll.
2	Treat as a Raid Success result 4 and add +5 to Salvage Roll.
3	Treat as Raid Success result 4 and add +3 to Salvage Roll. On factory worlds, Raiders steal RP equal to 25 percent (rounding up) of one month's of the world's RP. On non-factory worlds, Raiders steal RP equal to the In Combat Supply cost of all defending forces on world.
4	As result 3, save that on factory worlds Raiders steal 50 percent of the world's RP, and on non-factory worlds, Raiders steal RP equal to the In Combat Supply cost of all defending forces on world (minimum of 4 RP).
5	Treat as Raid Success result 4 and add +5 (total) to Salvage Roll). On factory worlds, Raiders steal 75 percent of the world's RP. On non-factory worlds, Raiders steal a minimum of 6 RP**.
6	As result 5. On factory worlds, Raiders steal 100 percent of the world's RP. On non-factory worlds, Raiders steal a minimum of 8 RP**.
7	As result 6. On factory worlds, Raiders steal two turns worth of the world's RP. On non-factory worlds, Raiders steal RP equal to twice the In Combat Supply cost of all defending forces on world (minimum of 10 RP**).
8 or More	As result 6. Minimum of 20 RP**.

* Any RP stolen must be accounted for in the Faction's budget the following turn.

**Minimum applies even if no defending forces are present. If a minor world and no defenders are present, RP stolen is 4.

1D6 Roll	Disruption / Industrial Raid Result*
Less than 1	Planet does not generate any income for 2 turns.
1	Planet does not generate any income for 3 turns.
2	As result 2. Raiders also do 2 RP worth of damage to the planet's industrial base. Subtract this from the Faction's budget in the next turn.
3	As result 3, but Raiders do 4 RP of damage.
4	As result 4. If planet has factories, one factory is offline for 2 turns. If no factories are present, the planet may not train, repair or resupply combat forces for 2 turns. Offline factories may not produce new equipment.
5	As result 5, with a duration of 3 turns.
6	As result 6, but factories are offline for 3 turns. If there is only one factory on the world, it is offline for 4 turns.
7	As result 7, but all factories must spend 15 RP each for repairs before they can go back online. Non-factory worlds must spend 5 RP before they may train, repair or resupply combat forces.
8 or More	As result 8, but with a cost of 20 RP each for factories and 7 RP each for non-factory worlds.

*Any offline factory may be brought online sooner by spending RP equal to five times the number of turns the player wishes to reduce the offline status. This cost applies for each factory. For example, a player wishing to reduce the offline time of one factory from 5 turns to 3 turns would spend 10 RP.

of the defender's aerospace is determined by the result of the Insertion roll.

Mission: Resolving a raid can be done in one of two ways: Simple Resolution and detailed combat (*Total Warfare* or *Alpha Strike* play).

Simple resolution is done by rolling 2D6 on the Raid Success Table and applying the applicable modifiers to the result.

Detailed combat resolution allows players to use the *Alpha Strike* Reconnaissance Scenario (see p. 166**,** *ASC*) or Recon Raid (see p. 50, *SO*) to play out the raid.

For Supply and Equipment raids, the raiding force must have 'Mechs capable of carrying cargo (see *External Cargo*, p. 29, *ASC*) or combat vehicles with cargo/infantry bays. The raiding force must spend one turn next to or inside one of the objectives and must not move. For Disruption and Industrial raids, the player must destroy the buildings with the hidden objective after successfully scanning it.

The defending force is determined by the results of the Insertion step.

Victory points are used to determine the success of a detailed combat-resolved raid. Recon, Equipment and Supply raids use normal Victory Point calculations. Disruption and Industrial Raids earn 200 Victory Points for each objective destroyed, and no points are earned for a successful retreat. Final Victory Points are the total of objective VP and kill-scoring VP (see p. 159, *ASC*). After the scenario is played out, consult the Victory Point column in the Planetary Raid Success table to determine any modifiers to the Raid Result table.

Results: When the Raid is complete, if the raid is a success (simple resolution) or has earned 500 or more Victory Points (detailed combat resolution), the winning player rolls on the appropriate type Raid Results table and applies the modifier from the Raid Success Table.

At the end of a raid, conduct salvage normally per the salvage rules (see p. 364).

Battle

A battle is a large-scale engagement in which planetary conquest is not the goal. Instead, the objective is the destruction of the opposing Faction's forces, major naval assets, or infrastructure.

Battles fall into three types:

- Naval Engagements: Target an opposing Faction's aerospace assets.
- Headhunting: Targets an opposing Faction's ground assets.
- Infrastructure Destruction: Targets an opposing Faction's Industrial, Logistical or Economic capability.

The Faction conducting a battle notes the type of Battle in the Military Action section of its Order Sheet and lists what forces will be involved (all must have been issued the Attack order) as well as the intended target hex.

All battles can be resolved either using the *Abstract Combat System* or one of the detailed combat systems (*TW*, *AS*, *BF*, or *SBF*).

Naval Engagements: The goal of this type of battle is to degrade an opposing Faction's naval power, often to allow a subsequent invasion to proceed more easily. The naval battles preceding the SLDF's Liberation of Terra and ComStar's Case White represent two extremes of the success of these tactics.

Naval Engagements may only be composed of aerospace forces (including their generic transport units). No aerospace forces may enter the atmosphere during a Naval Engagement.

Resolution via any of the detailed combat systems uses the normal rules for that combat system. The defending force may not retreat from the combat zone for 1D6 turns. Add 3 additional Turns for a successful Pirate Point (see *Movement*, p. 358).

Headhunting: The goal of headhunting is to degrade an opposing Faction's military. Most often, this is either an attempt to take out a specific command, such as the destruction of the Death Commandos in the Fourth Succession War, or to denude a certain world of forces and make it ripe for later conquest, as was done several times by the Word of Blake during the Jihad.

The hit-and-run nature of the mission means combat forces conducting a Headhunting attack are limited in their composition and the supplies they can take with them. Combat forces engaging in a Headhunting attack are considered to be unsupplied the subsequent turn.

The following are the limits on the combat forces that may engage in Headhunting

- No Uncoordinated Attack penalties (see p. 362).
- No Super Heavy units may be used.
- Combat Vehicles are limited in weight class to Light and Medium.
- Battle Armor forces may not be more than one-quarter of the total PV of the combined force.
- No Clan solhama units or any command designated as militia (see *Field Manual* and *Field Manual Updates*) may be used.
- Artillery may not be used.
- Conventional Infantry may not be used.

Resolution via the *ACS* uses the normal rules for the combat starting with the arrival of the attack force via JumpShip. An attacker conducting a Headhunting mission using *ACS* has several optional bonuses available to them.

- Initiative Bonus: The attacker may add a +1 modifier to their initiative roll for every +1 modifier they accept to their Combat Rolls for all their Formations (in the same *ACS* Turn).
- Movement Bonus: Any Command may increase its MP by 1 at the cost of a +4 modifier to its Combat Rolls (in the same *ACS* Turn).
- Combat Bonus: For every 3 Combat Units devoted to a Recon Formation, the Faction's Combat Commands receive a –2 to their Combat Rolls (in the same Turn).
- Damage Bonus: Any Formation may sacrifice 5 percent Armor Value (round up) to automatically inflict twice that Armor Value in damage on an opponent's Formation. This can be done up to five times, for a maximum damage received of 25 percent.

Resolution via any of the detailed combat systems uses the normal rules for that combat system. The attacking force must first successfully land on the target world. A Headhunting force uses the Raiding Insertion rules (see p. 359), with any results of less than 2 applying one-quarter the total force's PV in damage instead of the listed result.

If the attacking force successfully lands, use the same rules as Naval Engagement (see above) for when the defending force may retreat.

Infrastructure Destruction: This battle type is a scaled-up form of Disruption or Industrial Raids, where the objective is to do massive damage to a Faction's ability to wage war or survive economically. ComStar's fake Death Commando attack on New Avalon is an example of this kind of mission.

Infrastructure Destruction follows the same rules as Headhunting with the following changes and additions.

- Damage Bonus is replaced by Infrastructure Damage: Any Formation located in a hex with infrastructure (Capital or Factory) may do 5 percent of the infrastructure's starting Armor Value at the cost of a +2 modifier to its Combat Rolls. This modifier may be taken two times for a total of 10 percent

damage and +4 to Combat Rolls. The formation may still engage in combat with an enemy formation in the same turn.

- If using detailed combat systems, place one building for every four Elements (in *TW* or *AS*, equivalent to 4 BattleMechs or other units; in *BF*, equivalent to 4 lances or 16 'Mechs; in *SBF* equivalent to 4 companies or 48 'Mechs). If the target is a factory use a 35 CF (Capital Scale) Castle Brian.

Damage Results: The impact of an attack on a Faction's infrastructure depends on the nature of the target, the total damage done and whether *ACS* or detailed combat was used.

In *ACS*, divide the ending Armor Value by the starting Armor Value to determine what percentage of damage the factory suffered. In detailed combat, divide the total remaining CF by the starting CF to find the percentage damage suffered.

- If the target sustained 10 percent or less damage there is no effect.
- If the target suffered 11 percent to 25 percent damage, the world produces twenty-five percent less RP the next Game Turn.
- If it suffered 26 percent to 50 percent damage, its output is reduced by 50 for the next Game Turn.
- If it sustained 51 to 75 percent damage, the world generates no RP the next Game Turn.
- If the factory suffered 76 percent to 100 percent damage, the world generates no RP for the next 2 Game Turns.

Invasion

The final diplomatic tool available to a Faction is all-out war with the intent of capturing and holding an opposing Faction's worlds. Invasion missions are straightforward, using all available forces in an attempt to destroy or drive the opposing Faction's forces from the world and take control of it.

Invasions are often very large operations, pulling in forces from all over the Faction and beyond. While there is no limit to the size of an invasion force, their large size can lead to coordination and communication issues. Consult the Uncoordinated Rules (see below) for the possible impact of large invasion forces.

All forces involved in an invasion must have been assigned the Attack order (see p. 355) and the Military Phase section of the Faction Orders sheet must clearly list all forces involved and the invasion target.

Invasion Resolution: The invasion may be played out using any of the *BattleTech* combat systems. Because invasions are usually regimental or larger affairs, the *Abstract Combat System* (see p. 304) is the preferred combat system for resolution.

Duels

The simplest and least wasteful forms of combat, duels are fought between two specific opponents. Most likely the duel will be between two BattleMechs, but they can be fought by as few combatants as two soldiers and as many as one Combat Team. Duels are typically resolved using either *Total Warfare* or *Alpha Strike*. A duel can have any stakes to which both players agree, from bragging rights to the control of an entire nation.

A player wishing to conduct a duel may issue a challenge to an opposing player at the start of any turn or upon arriving at a star system. If the opposing player accepts the duel, and play then proceeds to combat resolution using the agreed upon combat system.

Note: Neither player is required to uphold the results of a duel. However, there could be serious consequences for the player who breaks the compact of a duel. Either player may choose to "leak" the results of the duel to the rest of the players.

COMBAT RESOLUTION

The *Inner Sphere at War* system does not have specific rules for combat resolution. Instead the Orders and Military Actions sub-phases outline how to resolve combat using the various supported *BattleTech* combat systems. *ISW* is specifically designed to support combat resolution using the *Abstract Combat System* (see p. 304). When the rules do not specifically call out a combat system, players should assume the rules are referencing the *ACS* system.

Capturing Worlds

Control of a world can change in a number of ways. The most common is military conquest, with revolution a distant second. Other events are primarily driven by diplomacy and negations, such as alliances and surrender.

Military Conquest: A Faction that has the only active military on a world gains control of that world and starts collecting Resource Points once the world has been pacified (see pacification below). Active

UNCOORDINATED ATTACKS

Attacks on a world may be considered uncoordinated if the forces participating originated on more than one planet, or if the total forces involved exceed a certain threshold.

Origin Worlds: The exact number of worlds that may participate in a single attack is determined by the Experience Rating of the Combat Command. Consult the Force Experience Table (see p. 367) and find the most experienced Command's experience and then refer to the Uncoordinated Value column. The number before the slash is the maximum number of worlds an attack can originate from. The second number is the maximum number of Combat Commands that can participate in an attack. If either number is exceeded, it will impact the attacker's combat ability. If using *Total Warfare, Alpha Strike*, *BattleForce* or *Strategic BattleForce*, the attacker suffers a –1 initiative modifier for each additional world or Combat Command beyond the limit (use whichever penalty is worse). In *Strategic BattleForce*, the attacker also applies a –1 to-hit modifier whenever two or more Combat Commands attack the same target in a turn. When using the *Abstract Combat System*, each world or Combat Command (whichever exceeds its limit by more) beyond this limit applies a –1 combat modifier to all actions (Initiative, Combat, Engagement, etc.) applies to the Attacker's dice rolls. Origin world modifiers apply for the first 10 turns of *a TW, AS or BF* game, the first 2 turns of an *SBF* game and the first Ground turn of an *ACS* game.

Four forces attack a world, two from Planet A and two from Planet B. Two of the units are Green while the remainder are Regular. As such, the unit has an Uncoordinated Value of 2, meaning units can attack from 2 worlds without penalty. Had the units attacked from three worlds (or from two worlds with the highest experience level Green rather than Regular), a –2 penalty would apply to the attack.

military is defined as an active Combat Command of at least one battalion, Level III or Trinary (minimum of 80 PV). The active Combat Command may also belong to an allied Faction. A hostile Combat Command that has executed the Gone to Ground order (see p. 357) does not count as an active as long as the total force of the gone to ground Combat Command is less than twice that of the conquering active Command.

If more than one side has active military forces of at least 200 PV on a world, the last force to have undisputed possession is considered the owner and may claim control. For example, on Turn 10 the Jade Falcons invade Barcelona. In Turn 11, both the Falcons and Lyrans still have combat forces of over 200 PV present, so world control still belongs to the Lyrans. See *Pacification and Integration* below for the impact of a world under invasion.

A mixed regiment of House Steiner goes to ground after an unsuccessful defense of Barcelona from the Jade Falcons. The Steiner forces total 100 PV. The Falcons must keep at least a Trinary of 50 PV or more on the world in order to claim control.

Contested Worlds

A world under invasion is not able to maintain its normal level of productivity. Disruption of space, air and ground travel, lack of steady supply lines, impressment of civilian services and equipment all contribute to a disruption of the day-to-day operations of the planet.

- Resource Production: Standard Worlds produce no RP when the world is contested. Regional and National Capitals produce only one-half their normal RP when contested. Industrial worlds generate one-half RP from their factories so long as those factories are still active (see below).
- Factories: Industrial Worlds continue to generate Resource Points and produce Commands so long as their Factories remain operational. A factory is rendered inoperative if it is captured by a hostile force. To capture a factory, a hostile force must be in sole control of the hex the factory is located in on the Planetary Combat Map (see *Abstract Combat System*, p. 306) for two full *ACS* Turns. During any Turn in which two or more Factions are contesting the hex, the world produces ten percent less of its normal RP (in addition to only producing half due to the world being contested). The controlling Faction may attempt to disable or destroy a factory to prevent it from falling into enemy hands. See the rules for Factories under *Pacification and Integration* (see below)

Pacification and Integration: Controlling a world does not mean it instantly becomes a productive member of the new Faction. While the populace may not be in outright revolt, they are likely not ready to roll out the red carpets. It takes time for a captured world's economy to integrate with that of its new owners. Factory production, supply production and fortifications are also impacted by conquest.

Pacification requires a number of Game Turns. The exact amount depends on several factors, including type of world and Faction advantages/disadvantages. The times listed for pacification must be uninterrupted Game Turns. If, at any time during pacification, an attacking force equal to at least one-third the combat force defending and pacifying the world (minimum of two battalions, Level IIIs or Trinaries) lands there, the pacification clock resets to zero. The attacking force must stay on world at least one full Turn (or four *ACS* turns) to interrupt the pacification.

PACIFICATION TIME TABLE

World Type	Turns
National capital (e.g. Luthien)	6
Regional capital (e.g. Robinson)	6
Hyper Industrial world (e.g. Terra)	5
Major industrial world (e.g. Hesperus)	5
Minor industrial world (e.g. New Earth)	4
Border worlds* (e.g. Kittery)	2
Interior world (e.g. Lancaster)	3

*Worlds within two Interstellar Hexes of the nation's borders

Factories: When a Faction takes control of a world containing factories, undamaged factories are not immediately available to the new controlling Faction. If a factory is undamaged, it will be available to produce new Commands once the world is pacified and in an additional 1D6 minus 2 (minimum of 1) Game Turns.

During the conquest of a world, factories often become damaged. As soon as a world changes ownership, roll 2D6. On a result of 2, the factory has been damaged. It costs 200 RP to repair a damaged factory. The owner of a world can deliberately order a factory fully or partly destroyed, provided an appropriate order is given prior to the world's capture by an opposed Faction. At any point in the game, a Faction may place orders on their order sheet to have one of their own factories damaged or destroyed. These actions will automatically be carried out on the following turn unless the Faction countermands them in writing in their next Orders Sheet. A Faction may also attempt to damage or destroy factories when actively defending a world (or retreating from it). This action is not guaranteed. The controlling player must roll 2D6 for each factory line they are attempting to disable. The target number is 6 to damage and 8 to destroy a factory.

Note: Even if the defender issued orders to damage or destroy a factory, the attacker must still check for random damage of factories not already damaged.

Fortifications: Fortifications follow the same rules as Factories with the following additions.

If the defending Faction has Gone to Ground in a Capital–5 or Brian–5 fortification, this fortification is not available to conquering Faction. The conquering Faction will still be in control of the world (with subsequent delays in Pacification).

Target numbers to attempt to damage and destroy are 4 and 6 respectively. Damaging a Fortification lowers it by one level.

Interstellar Hex Control

Control of an interstellar hex is determined by two factors, planet control and original hex owner.

Any Faction which controls all worlds in an Interstellar Hex controls that hex. It is counted as part of the Faction and travel or into it is treated as travel in the controlling Faction.

If two or more Factions control worlds in the hex, then the Faction which controls the most worlds in the hex is considered the owner of the hex. In the event of a tie, the original owner (the Faction which controlled the hex at the start of game play) controls the hex.

END PHASE

When armies clash, there are always consequences. Whether simply the expenditure of ammunition or the complete annihilation of a combat force, these consequences must be tracked and a player's combat forces updated to reflect the results of combat. At the end of every Turn, review each of the following rules and apply the appropriate modifiers to any combat forces that have seen combat. In addition, any Combat Command below full strength may conduct repairs using the *Repair* rules (see p. 364).

DAMAGE

At the end of any Turn in which a Combat Command has seen combat, the Command must adjust its damage and armor values to reflect any damage it may have received. Commands that know they will be engaged in combat in the next Turn follow the rules for combat system they are using (see *ACS* Damage Phase, p. 317 or *SBF* Apply Damage, p. 241).

SALVAGE

To the victor go the spoils—an adage that is very real when it comes to the aftermath of combat. The detritus of a *BattleTech* field of battle can often provide a unit with enough equipment to fully repair itself, and even expand.

Salvage is represented as Armor Points in *ISW* game play. These Armor Points can be used to repair a Combat Command (see p. 364), at a cost of 1 salvaged Armor Point per Armor Point of damage repaired. Alternatively, they may be converted to Resource Points at a rate of 80 Armor Points per 1 RP.

Total salvage available is calculated by first determining the number of Armor Points lost by all combatants in a system during a Game Turn. A roll is then made on the *Salvage Recovered* Table, and all appropriate modifiers are applied, to determine the final salvage available to be recovered.

While salvage may be available, it may not always be fully recoverable by the Faction who won the battle.

If the winning Faction was conducting a Raid, they must roll 2D6 on the Salvage Recovered table (see below) and apply the appropriate modifiers from *Salvage Modifiers* table to determine how much salvage they can carry away. Regardless of the result of the roll, the maximum salvage a raiding unit can carry is equal to one-half their Armor Points at the start of the raid. To determine what salvage is left, the owner of the world rolls on the *Salvage Claimed* table to determine what they can scavenge from the remaining equipment. Salvage remaining after this roll is considered lost, either from the opposing force scuttling it or from natural occurrences such as weather, damage during reclamation and theft.

If the winning faction was conducting a Battle, they must roll 2D6 on the Salvage Recovered table as with a Raid. There is no limit to the amount of salvage the winning Faction may carry away. The winner of a battle may attempt to destroy all remaining salvage. To do so, they automatically reduce the salvage they claim by 20 percent (rounding up). This grants them a 2D6 roll. On a result of 7 or more, all remaining salvage is destroyed. On a result of 5-6, one-half of the remaining salvage is destroyed. Any result under 5 means all remaining salvage is still available. The opposing faction then rolls for the remaining salvage as with a Raid. The maximum salvage the losing faction can claim is whatever percentage remains after the winning faction has claimed their salvage.

If the winning Faction was conducting an Invasion, use the same rules as for winning a battle above.

If the planet owner was victorious, they must still roll on the Salvage Recovered table. If the combat conducted was a duel, the winner of the duel rolls on the Salvage Recovered adding any modifiers as appropriate. Any remaining salvage is lost.

SALVAGE RECOVERED TABLE

2D6 Results	Salvage Claimed
Less than 2	0 percent
2	5 percent
3	10 percent
4	15 percent
5	20 percent
6	25 percent
7	30 percent
8	35 percent
9	40 percent
10	45 percent
11	50 percent
12	55 percent
13	60 percent
14	65 percent
15+	70 percent

Salvage Modifiers	Modifier
Conducting a Raid	–3*
Battle- Withdrew from World in same Turn	–2
Winner has already salvaged	–5**
Were Victorious	+1
In control of World	+2
Have a Point Value of 4,000+ on world	+2
Have a Point Value of 2,000+ on world	+1
Have a Point Value of less than 1,000 on world	–1
Opposing force outnumbers 3 to 1 or more	–3
Opposing force outnumbers 2 to 1	–2
Opposing force is equal of greater	–1
Opposing force is 3/4 or less PV	+1

*No other modifiers may be applied
**Cannot be combined with "In Control of World"

REPAIR

There are three methods through which a Combat Command may be repaired. The first method is by absorbing other friendly units of the same type ('Mech, Armor, Aerospace, Infantry). This absorption cannot repair a unit past its starting Point Value or change its technology level.

The second method is to use salvaged Armor Points. Salvaged Armor Points are used on a one-for-one basis to repair a unit back to its starting PV.

The third method is to spend RP to generate Armor Points. 1 RP buys 80 Armor Points that can be used to repair any Command.

A Combat Command may be repaired providing it has salvage or RP available with which to conduct repairs. The repair cost for a Command is equal to the Armor Points it has lost.

Commands that have been destroyed may not be repaired. Repairs are performed by issuing the Repair order (see p. 355). A Command with "No Supply" (see p. 351) multiples its repair cost (in Armor Points or RP) by 1.5.

A Combat Command may repair up to 25 percent its total Armor value each Turn, without impacting the Command's experience rating. See *Experience* (see p. 367) for the effect of repairs over 25 percent on the experience rating of the force.

Repairing a Command up to 90 percent its total Armor value removes all critical hits.

RETREAT

Combat Commands may be forced to retreat as the result of combat (see *ACS Morale*, p. 317) overwhelming force (see *Surrender* below) or voluntarily. In any circumstance, the impact of the retreat can be far-reaching.

Desertion

A force that retreats must make an immediate roll for desertion (see p. 366).

Morale Loss

A Command that retreats from a world may be forced to lower its Morale Rating. When a Command retreats from a world, roll 1D6. If the result is higher than the current Morale Rating, Morale worsens by 1 (for example, from Normal to Low). If the world was originally an enemy-controlled world, subtract 1 from the roll.

SURRENDER

Combat Commands may voluntarily surrender to their opponents (see *ACS Morale*, p. 318).

Commands may also be forced into surrender or retreat when faced with overwhelming numbers. Consult the Overwhelming Force table to determine when a Command will automatically retreat or surrender. A Command will first attempt to retreat. If that is not possible, then they will surrender.

A victorious force has two options when dealing with surrendering forces: they may offer the honors of war or they may inter the surrendering force.

If the honors of war are offered, the players may negotiate a ransom. A force bound by the honors of war may not take any offensive action, but neither may its equipment be seized. Such a force must vacate the world upon which they were defeated (or any enemy-held worlds they may find themselves on) as soon as possible and may not undertake military action against the Faction that defeated them for 2 Turns.

An interned force is considered destroyed for the purposes of game play and is considered salvage (see p. 364).

FATIGUE

The more a force fights without taking a break, the less effective it is in combat. To reflect this, each Combat Command tracks Fatigue Points that increase or decrease as it acts and rests. The greater a Command's Fatigue Points, the less effective the force becomes and the higher the chance that its morale may suffer

Combat Commands accumulate fatigue in a number of ways, through primarily through combat. Fatigue may also be generated through special actions such as Assault Movement and supply shortages. Fatigue affects combat in *Abstract Combat System* play (see *ACS Fatigue*, p. 317). Fatigue can also affect a Combat Command outside of combat; see the Fatigue Rating Table and Effects of Fatigue below to determine these results.

OVERWHELMING FORCE TABLE

Average Experience Rating*	Overwhelming Force (PV)
Wet Behind the Ears	3x
Really Green	3x
Green	4x
Regular	5x
Veteran	8x
Elite	10x
Heroic	N/A
Legendary	N/A

*Average all Combat Commands on world using their Unit Skill Rating (see Average Unit Skill, p. 367) on world to determine Experience level.

Note: Mercenaries that are part of a combined force will use their Experience rating to determine Overwhelming Force, not the Average Experience Rating.

Situational Modifiers	Modifier to Average Experience
Abilities and Flaws	
Faction has Fanatical Defense	+1
Faction has Superior Doctrine	+1
Faction has Flawed Doctrine	–1
Faction has Unsteady Flaw	–1
Force Allegiance	
House / Periphery	0
Mercenary	–1

ACS: Fatigue Points in *Inner Sphere at War* are at the Command level, representing the average of Fatigue Points across Combat Units at the *Abstract Combat System* level. If converting Fatigue to the *ACS* level, take the Command FP and apply those to all the constituent Combat Units. When converting back to the *ISW* level, take the average FP of all the remaining Combat Units and apply them to the parent Command.

When a Command accrues FP in *ISW* but has Combat Units engaged at the *ACS* level, apply the FP to all the individual Combat Units during the End Phase (see p. 317) on the eighth *ACS* Turn (the final *ACS* turn of the current *ISW* Turn. See *Turn Length*, p. 306).

Reducing Fatigue

A Combat Command that does not engage in any movement or combat in a Game Turn will reduce its Fatigue by 1 point at the end of the Turn. Forces can reduce their Fatigue Points faster by resting (see *Rest* order, p. 355). Units may also reduce their Fatigue Points by spending RP at the end of the Turn. Each RP consumed removes one Fatigue Point. No more than 2 Fatigue Points may be removed from a unit in this manner in each Game Turn.

Effects of Fatigue

Compare a Combat Command's fatigue level to the *Fatigue Rating Table*. Non-Combat Modifiers impact any rolls made by a Combat Command during *ISW* game play, such as *Morale* (see p. 366**).** Morale Check indicates whether this unit must make a non-combat Morale check at the end of each Game Turn during which its fatigue is at a given level. For the effects of Fatigue at the *ACS* level, see p. 317.

FATIGUE RATING TABLE

Fatigue Points	Non-Combat Modifier	Morale Check
0	+1	None
1–4	+0	None
5–8	+0	None
9–12	–1	Yes
13–16	–2	Yes
17+	–3	Yes

MORALE

Inner Sphere at War uses the Morale (Outside of Game Play) rules (see p. 39, *SO*) to track Morale, except as noted below.

Desertion Checks:

- Morale Check Cycle is one Game Turn (one month).
- Desertion checks are only made for units within two Interstellar Map Hexes of a hostile border.
- Desertion checks in *ISW* occur at the Formation level (Regiment/Wing/Battery).
- Non-combat personnel are not tracked at the *ISW* game scale.
- If a Combat Command is in battle and has more than one-quarter of its force desert, the entire Command instead attempts to retreat off world.

Mutiny Checks:

- Mutiny checks are only made for units within two Interstellar Map Hexes of a hostile border.
- Mutiny checks in *ISW* occur at the Formation level (Regiment/Wing/Battery).
- If a Combat Command is in battle and has more than one-quarter of its force mutiny, that percentage of the Command instead surrenders.

Changing Morale:

- A Scenario is the equivalent to a single Turn of combat.
- Combat Victory and Combat Loss do not apply.
- Conquest or Defense of a planet counts as a Linked Scenario.
- Supplies follow *ISW* rules for morale and supply (see below).
- Desertion and Mutiny modifiers only apply if 20 percent of more of the Command is affected.
- A Combat Command that retreats off a world may lose Morale (see *Retreat*, p. 365).
- A Combat Command that uses the Gone to Ground order may lose Morale (see *Gone to Ground*, p. 357).

Morale Effects During Combat

The Morale Rating of a Combat Command directly impacts its morale in game play. If using *Strategic BattleForce* (see p. 230) or the *Abstract Combat System* (see p. 304) the following rules are in effect. If using the optional Morale rules in *Alpha Strike* Companion (see *ACS*, p. 32) or *Total Warfare*, refer to Morale Effects During Game Play (see p. 49, *SO*).

For each Morale Rating worse than Normal, apply a +1 modifier to any Morale Check roll. For each Morale Rating better than Normal, apply a –1 modifier to any Morale Check. For example, a force with a Very High Morale Rating would apply a –2 modifier to a during game play Morale Check, while a force with a Broken Morale Rating would apply a +3 to a during game play Morale Check.

ISW MORALE RATINGS TABLE

Morale Rating	Non-Combat Modifiers	Desertion Check	Mutiny Check
1 Unbreakable	+2	0	0
2 Very High	+1	0	0
3 High	+1	0	0
4 Normal	+0	2	0
5 Low	–1	4	3
6 Shaken (Very Low)	–1	4	3
7 Broken	–2	7	6

Situational Modifiers	TN Modifier
Force Experience	
Wet Behind the Ears	+2
Really Green	+1
Green	+0
Regular	+0
Veteran	–1
Elite	–1
Heroic	–2
Legendary	–2
Force Loyalty	
Fanatical	–1
Reliable	+0
Questionable	+1
Force Allegiance	
Mercenary	+1
Force Type	
'Mech	–1
ProtoMech	–1
Vehicle / Conventional Aerospace	+0
Infantry	+1
Battle Armor	+0
Aerospace Fighter	–1
Medical (see p. 169, SO)	–1
Technical Personnel (see p. 168, SO)	+1
Other Non-Combat Staff	+2
Small Craft	+1
DropShip (Military)	+0
DropShip (Civilian)	+1
JumpShip (Military	+1
Space Station	+0
Other	
Command Retreated from occupied world	+1
Command Retreated from Faction's world	+2
Command has suffered desertion	+1
Command has suffered mutineers	+3

Combat Modifiers affect combat roles made in *ACS* or *SBF* game play. In *SBF* play, the modifier adjusts the Skill Rating. In *ACS* play, the modifier if factored into Evade and Combat Modifier tables.

Morale Effects in ISW Game Play

Non-Combat modifiers can be used to modify any roll that impacts the Combat Command.

Morale and Supply

When a Command is under "No Supply" for two Turns in a row, (see Supply and RP Deficit, p. 351), it must roll 1D6 at the end of the Turn. A result of 6 (or more) lowers its Moral Rating by 1. For every subsequent Turn that it is under "No Supply," add +1 to the roll result.

EXPERIENCE

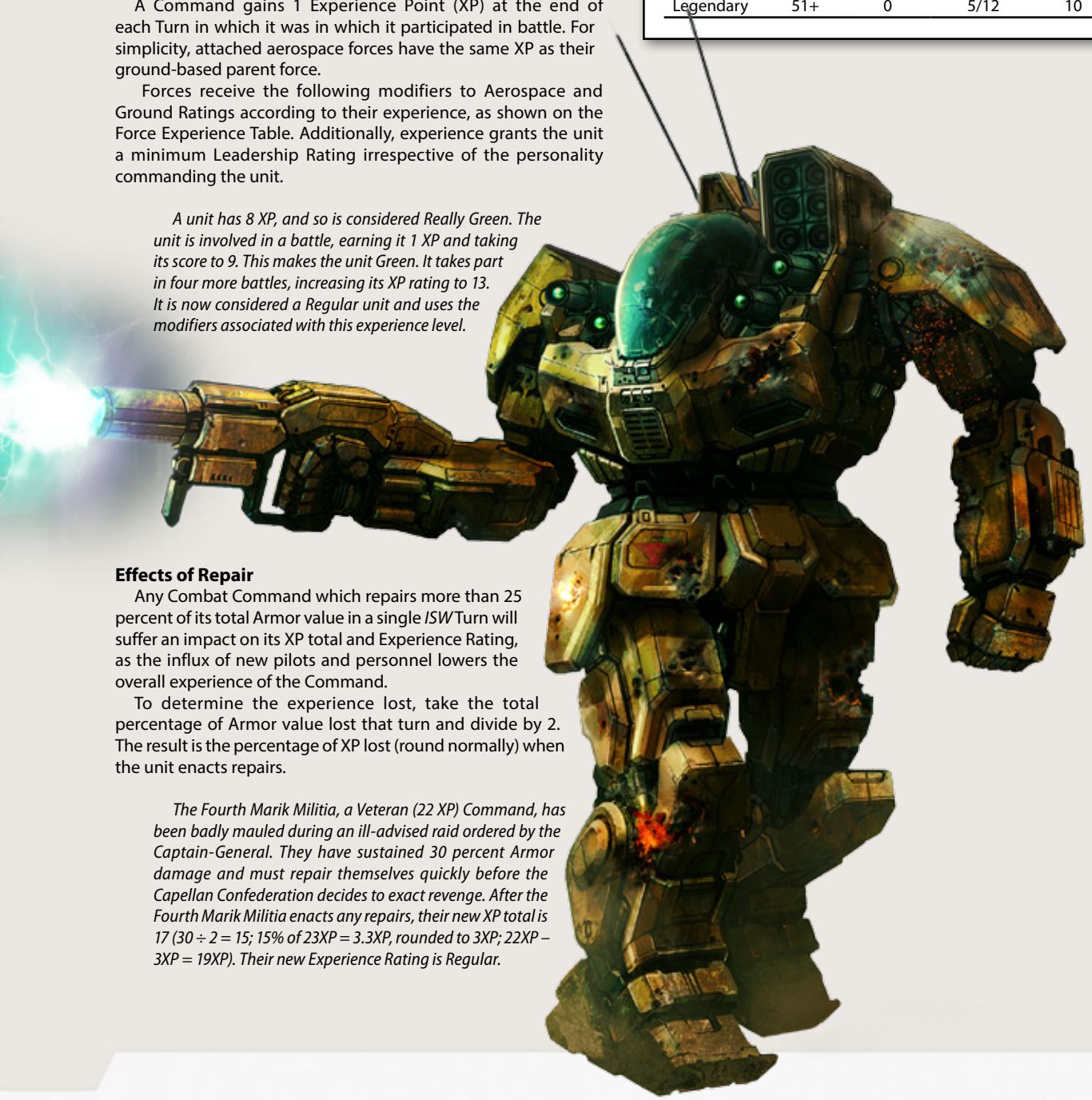
A Command gains 1 Experience Point (XP) at the end of each Turn in which it was in which it participated in battle. For simplicity, attached aerospace forces have the same XP as their ground-based parent force.

Forces receive the following modifiers to Aerospace and Ground Ratings according to their experience, as shown on the Force Experience Table. Additionally, experience grants the unit a minimum Leadership Rating irrespective of the personality commanding the unit.

A unit has 8 XP, and so is considered Really Green. The unit is involved in a battle, earning it 1 XP and taking its score to 9. This makes the unit Green. It takes part in four more battles, increasing its XP rating to 13. It is now considered a Regular unit and uses the modifiers associated with this experience level.

FORCE EXPERIENCE TABLE

Rating	Experience Points (XP)	Average Unit Skill	Uncoordinated Value	Leadership Rating
Wet Behind the Ears	0–4	7	1/1	0
Really Green	5–8	6	1/1	0
Green	9–12	5	1/2	1
Regular	13–20	4	2/3	2
Veteran	21–30	3	3/6	4
Elite	31–40	2	4/8	6
Heroic	41–50	1	4/10	8
Legendary	51+	0	5/12	10



Effects of Repair

Any Combat Command which repairs more than 25 percent of its total Armor value in a single *ISW* Turn will suffer an impact on its XP total and Experience Rating, as the influx of new pilots and personnel lowers the overall experience of the Command.

To determine the experience lost, take the total percentage of Armor value lost that turn and divide by 2. The result is the percentage of XP lost (round normally) when the unit enacts repairs.

The Fourth Marik Militia, a Veteran (22 XP) Command, has been badly mauled during an ill-advised raid ordered by the Captain-General. They have sustained 30 percent Armor damage and must repair themselves quickly before the Capellan Confederation decides to exact revenge. After the Fourth Marik Militia enacts any repairs, their new XP total is 17 (30 ÷ 2 = 15; 15% of 23XP = 3.3XP, rounded to 3XP; 22XP – 3XP = 19XP). Their new Experience Rating is Regular.

GARRISONS

All worlds have some form of defenses, even if no forces are stationed there. These forces will attempt to defend the world from attacks. They will only use defensive combat orders in combat. If there is a Combat Command stationed on the world, the garrison will only field a force up to 50 percent of the values listed below. Garrison Aerospace will not operate beyond the Inner Zone of the *ACS* Star-System Radar Map (see p. 306).

FIXED GARRISONS

All standard worlds have a garrison of 250 ground PV and 50 aerospace PV. Regional Capitals have 500 and 100 and National Capitals have 1000 and 200.

Fixed Garrisons automatically regain 5 percent of their strength per turn unless destroyed. Provided no enemy troops are on the world, destroyed garrisons can be reconstituted at 50 percent of their full strength by a planet's controller. This costs 3 RP and the force can make repairs at the normal rate.

Fixed Garrisons are always used when using Fixed Military, Fixed Economy or Basic Economy game detail.

BASIC GARRISONS

Consult the Basic Garrison Table to determine the garrison of a given world. A world that fits two or more of the world types selects the highest value type as its base and adds 50% for each additional world type. For example, Terra is both a National Capital and a Hyper Industrial World. It has a garrison of 2000 ground PV and 600 aerospace PV (Hyper Industrial has 1500 and 500 and 50% of a National Capital is 500 and 100).

Basic Garrisons are used with Detailed Military and Economy rules.

DETAILED GARRISONS

Detailed Garrisons are not determined until a world is attacked. Once a world has had its detailed garrison the controlling faction records the garrison and this remains the garrison for this world for the reminder of the game. If it is damaged, it will repair back to this originally determined level.

When any faction attacks a world, roll 1D6 and apply the modifiers shown on the Random Garrisons Table. Cross-reference the final roll result to determine the number of infantry regiments, armor battalions, and 'Mech battalions that are on-world. Determine the weight class of armor and 'Mech units, or the type of infantry regiments, randomly. Except on provincial capitals and other important worlds, garrisons are typically A and B rated forces (as appropriate to the era).

The DCMS stage a deep raid into the Lyran Commonwealth, striking at Donegal. There are no regular troops on-world, so Pascal must generate a garrison force. The game is set in 3025, so the base modifier for determining garrison forces is 0. The world is a regional capital, adding a +2 modifier, and a Major Industrial World adding another +2, but isn't within an Interstellar Hex of a border. The final modifier is +4. Pascal rolls 1D6 and gets a 3, increased to 7 by the modifier. Cross-referencing this with the Random Garrisons table indicates that the defenders are 4 infantry regiments, 3 armor regiments and a single battalion of 'Mechs.

BASIC GARRISONS TABLE

World Type	Ground Point Value	Aerospace Point Value
National capital (e.g. Luthien)	1000	200
Regional capital (e.g. Robinson)	500	100
Hyper Industrial world (e.g. Terra)	1500	500
Major industrial world (e.g. Hesperus)	1000	250
Minor industrial world (e.g. New Earth)	500	100
Other world (e.g. Lancaster)	250	50
World is in Clan Homeworlds	0	0
World is a Clan Occupation Zone world	150	50

RANDOM GARRISONS TABLE

Modified Roll	Infantry Regiments	Armor Battalions	'Mech Battalions
2 or less	2	1	0
3	2	2	0
4	3	2	0
5	3	3	0
6	4	3	1
7	4	3	1
8	5	4	2
9	6	5	2
10 or more	7	6	3

World Modifiers	TN Modifier
Within 1 Interstellar Hex of pre-war border	+1
National Capital	+4
Regional Capital	+2
Hyper Industrial	+4
Major Industrial	+2
Minor Industrial	+1
Clan-controlled	–1

Era Modifiers	TN Modifier
Age of War	+2
Star League	–2
First or Second Succession Wars	+2
Third or Fourth Succession Wars	+0
Post-Fourth Succession War	+1

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BATTLETECH™

LAND-AIR BATTLEMECH RECORD SHEET

LAM DATA

Type: _____

Tonnage: _____ Tech Base: Clan ☐ Inner Sphere ☐

Movement Points:

BattleMech Mode	AirMech Mode	Fighter Mode
Walking: _____	Cruising: _____	Safe Thrust: _____
Running: _____	Flank: _____	Max Thrust: _____
Jumping: _____		

Weapons & Equipment Inventory (hexes)

Qty	Type	Loc	Ht	Dmg	Min	Sht	Med	Lng	Aero

Cost: _____ BV: _____

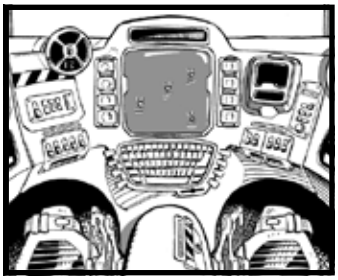
WARRIOR DATA

Name: _____

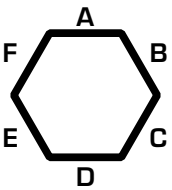
BattleMech Gunnery Skill: ___ Piloting Skill: ___

Aerospace Gunnery Skill: ___ Piloting Skill: ___

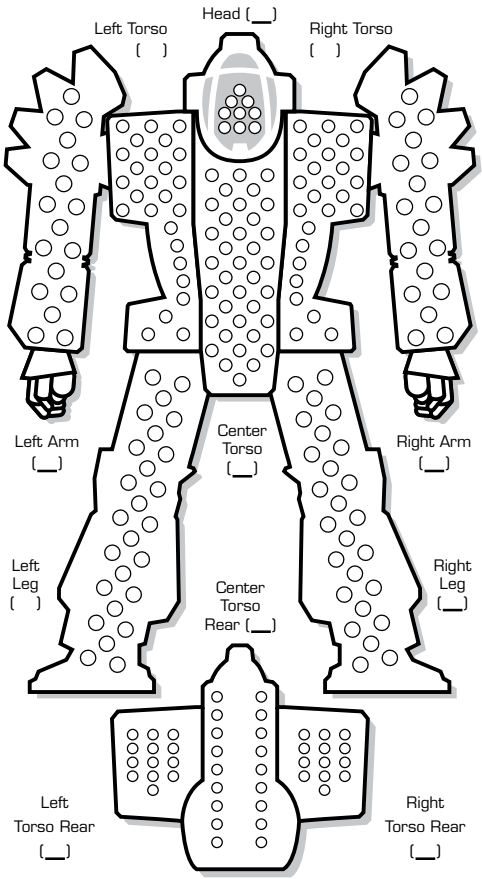
Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead



Advanced Movement Compass



ARMOR DIAGRAM



CRITICAL HIT TABLE

Left Arm

1-3
1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. _____
6. _____

4-6
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Left Torso

1-3
1. Landing Gear
2. Avionics
3. _____
4. _____
5. _____
6. _____

4-6
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Left Leg

1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

Head

1. Life Support
2. Sensors
3. Cockpit
4. Avionics
5. Sensors
6. Life Support

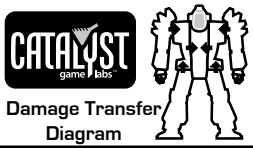
Center Torso

1-3
1. Fusion Engine
2. Fusion Engine
3. Fusion Engine
4. Gyro
5. Gyro
6. Gyro

4-6
1. Gyro
2. Fusion Engine
3. Fusion Engine
4. Fusion Engine
5. Landing Gear
6. _____

Avionics ○○○
Engine Hits ○○○
Gyro Hits ○○
Sensor Hits ○○
Landing Gear ○
Life Support ○

Structural Integrity
○○○○○○○○○○
○○○○○○○○○○



Damage Transfer Diagram

Right Arm

1-3
1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. _____
6. _____

4-6
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Right Torso

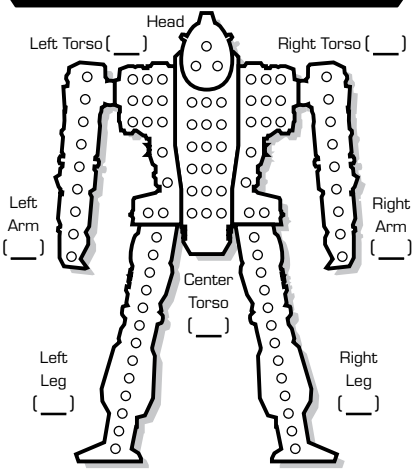
1-3
1. Landing Gear
2. Avionics
3. _____
4. _____
5. _____
6. _____

4-6
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Right Leg

1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

INTERNAL STRUCTURE DIAGRAM



HEAT DATA

Heat Level*	Effects
30	Shutdown
28	Ammo Exp. avoid on 8+
26	Shutdown, avoid on 10+
25	–5 Movement Points /Rand. Movement 10+
24	+4 Modifier to Fire
23	Ammo Exp. avoid on 6+
22	Shutdown, avoid on 8+
20	–4 Movement Points /Rand . Movement 8+
19	Ammo Exp. avoid on 4+
18	Shutdown, avoid on 6+
17	+3 Modifier to Fire
15	–3 Movement Points /Rand. Movement 7+
14	Shutdown, avoid on 4+
13	+2 Modifier to Fire
10	–2 Movement Points /Rand. Movement 6+
8	+1 Modifier to Fire
5	–1 Movement Points /Rand. Movement 5+

Heat Sinks: ___ (___)

(AirMech +3)

○○○
○○○
○○○
○○○
○○○
○○○
○○○
○○○

Single ☐
Double ☐

Heat Scale

Overflow

30* 29 28* 27 26* 25* 24* 23* 22* 21 20* 19* 18* 17* 16 15* 14* 13* 12 11 10* 9 8* 7 6 5* 4 3 2 1 0

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BATTLETECH™

QUADVEE RECORD SHEET

'MECH DATA

Type: _____

Tonnage: _____ Clan ☐ Inner Sphere ☐

Movement Points:

BattleMech Mode: Walking: _____ Running: _____ Jumping: _____

Vehicle Mode: Cruising: _____ Flank: _____

Weapons & Equipment Inventory (hexes)

Qty	Type	Loc	Ht	Dmg	Min	Sht	Med	Lng
__	_____	__	__	_____	__	__	__	__
__	_____	__	__	_____	__	__	__	__
__	_____	__	__	_____	__	__	__	__
__	_____	__	__	_____	__	__	__	__
__	_____	__	__	_____	__	__	__	__
__	_____	__	__	_____	__	__	__	__
__	_____	__	__	_____	__	__	__	__
__	_____	__	__	_____	__	__	__	__
__	_____	__	__	_____	__	__	__	__
__	_____	__	__	_____	__	__	__	__

Cost: _____ BV: _____

WARRIOR DATA

Pilot: _____

Gunnery Skill: ___ Piloting Skill: ___

Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead

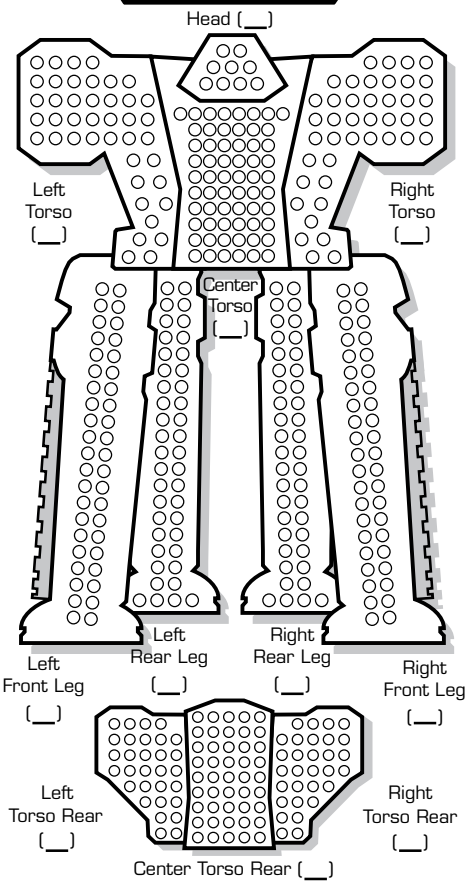
Gunner: _____

Gunnery Skill: ___ Piloting Skill: ___

Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead



ARMOR DIAGRAM



CRITICAL HIT TABLE

Head
1. Life Support
2. Sensors
3. Cockpit (Pilot)
4. Cockpit (Gunner)
5. Sensors
6. Life Support

Left Front Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. Conversion Gear
6. Tracks

Center Torso

1-3
1. Engine
2. Engine
3. Engine
4. Gyro
5. Gyro
6. Gyro

4-6
1. Gyro
2. Engine
3. Engine
4. Engine
5. _____
6. _____

Right Front Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. Conversion Gear
6. Tracks

Left Torso

1-3
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

4-6
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

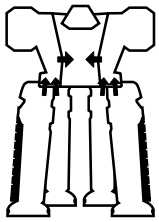
Engine Hits ○ ○ ○
Gyro Hits ○ ○
Sensor Hits ○ ○
Life Support ○

Right Torso

1-3
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

4-6
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

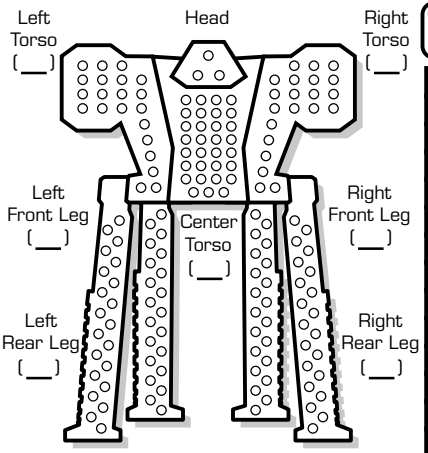
Left Rear Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. Conversion Gear
6. Tracks



Damage Transfer Diagram

Right Rear Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. Conversion Gear
6. Tracks

INTERNAL STRUCTURE DIAGRAM



HEAT DATA

Heat Sinks: ____ (___)

Heat Level*	Effects	
30	Shutdown	
28	Ammo Exp. avoid on 8+	○○○
26	Shutdown, avoid on 10+	○○○
25	–5 Movement Points	○○○
24	+4 Modifier to Fire	○○○
23	Ammo Exp. avoid on 6+	○○○
22	Shutdown, avoid on 8+	○○○
20	–4 Movement Points	○○○
19	Ammo Exp. avoid on 4+	○○○
18	Shutdown, avoid on 6+	○○○
17	+3 Modifier to Fire	○○○
15	–3 Movement Points	○○○
14	Shutdown, avoid on 4+	○○○
13	+2 Modifier to Fire	
10	–2 Movement Points	Single ☐
8	+1 Modifier to Fire	Double ☐
5	–1 Movement Points	

Heat Scale

Overflow
30*
29
28*
27
26*
25*
24*
23*
22*
21
20*
19*
18*
17*
16
15*
14*
13*
12
11
10*
9
8*
7
6
5*
4
3
2
1
0

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BATTLETECH

SUPERHEAVY 'MECH RECORD SHEET

'MECH DATA

Type: _____

Movement Points:
Walking: _____
Running: _____
Jumping: _____

Tonnage: _____

Tech Base:
Clan ☐
Inner Sphere ☐

Weapons & Equipment Inventory (hexes)

Qty	Type	Loc	Ht	Dmg	Min	Sht	Med	Lng
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—
—	_____	—	—	_____	—	—	—	—

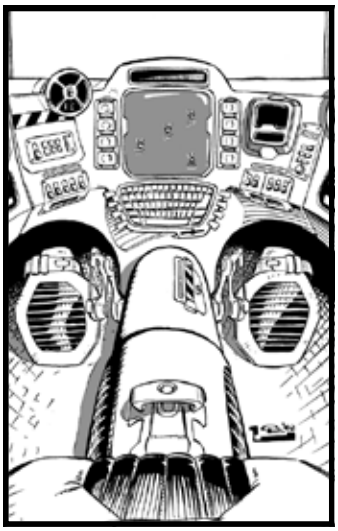
Cost: _____ BV: _____

WARRIOR DATA

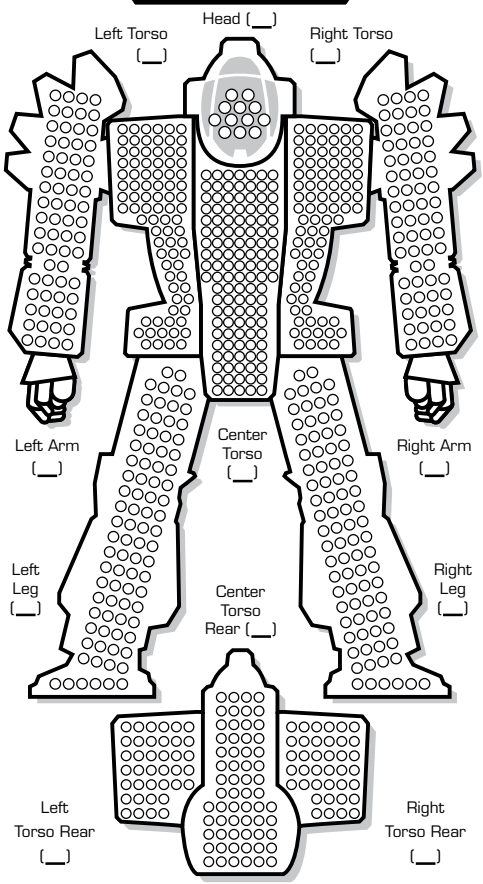
Name: _____

Gunnery Skill: ___ Piloting Skill: ___

Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead



ARMOR DIAGRAM



CRITICAL HIT TABLE

Left Arm

1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. _____
6. _____

Left Torso

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Left Leg

1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

Head

1. Life Support
2. Sensors
3. Superheavy Cockpit
4. _____
5. Sensors
6. Life Support

Center Torso

1. Engine
2. Engine
3. Engine
4. Gyro
5. Gyro
6. _____

Right Arm

1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. _____
6. _____

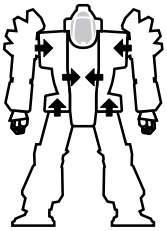
Right Torso

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Right Leg

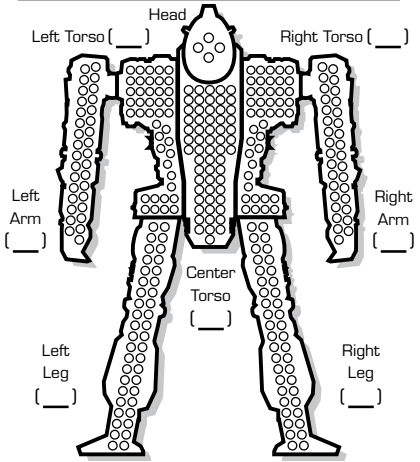
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

Engine Hits ○ ○ ○
Gyro Hits ○ ○
Sensor Hits ○ ○
Life Support ○



Damage Transfer Diagram

INTERNAL STRUCTURE DIAGRAM



Heat Scale

Overflow
30*
29
28*
27
26*
25*
24*
23*
22*
21
20*
19*
18*
17*
16
15*
14*
13*
12
11
10*
9
8*
7
6
5*
4
3
2
1
0

HEAT DATA

Heat Level*	Effects	Heat Sinks: ____ (___)
30	Shutdown	
28	Ammo Exp. avoid on 8+	○ ○ ○
26	Shutdown, avoid on 10+	○ ○ ○
25	–5 Movement Points	○ ○ ○
24	+4 Modifier to Fire	○ ○ ○
23	Ammo Exp. avoid on 6+	○ ○ ○
22	Shutdown, avoid on 8+	○ ○ ○
20	–4 Movement Points	○ ○ ○
19	Ammo Exp. avoid on 4+	○ ○ ○
18	Shutdown, avoid on 6+	○ ○ ○
17	+3 Modifier to Fire	○ ○ ○
15	–3 Movement Points	○ ○ ○
14	Shutdown, avoid on 4+	○ ○ ○
13	+2 Modifier to Fire	
10	–2 Movement Points	Single ☐
8	+1 Modifier to Fire	Double ☐
5	–1 Movement Points	

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BATTLETECH

SUPERHEAVY FOUR-LEGGED 'MECH RECORD SHEET

'MECH DATA

Type: _____

Movement Points:
Walking: _____
Running: _____
Jumping: _____

Tonnage: _____

Tech Base:
Clan ☐
Inner Sphere ☐

Weapons & Equipment Inventory (hexes)

Qty	Type	Loc	Ht	Dmg	Min	Sht	Med	Lng

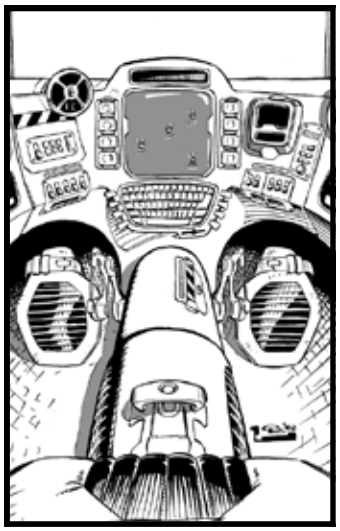
Cost: _____ BV: _____

WARRIOR DATA

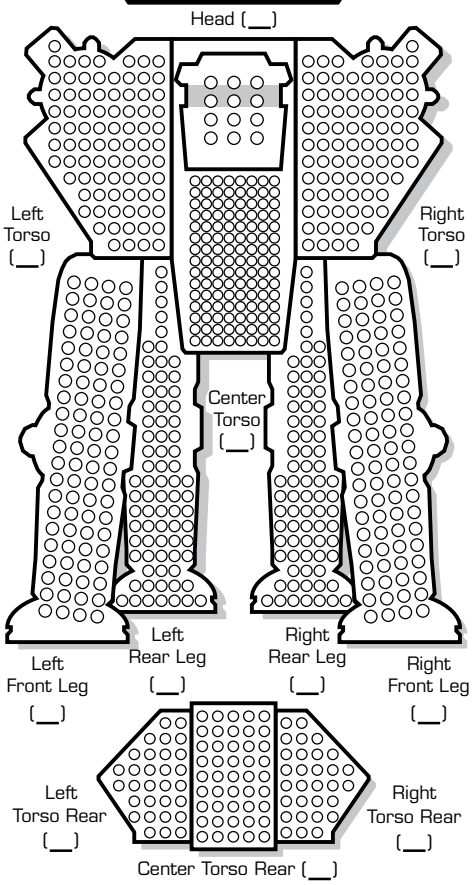
Name: _____

Gunnery Skill: ___ Piloting Skill: ___

Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead



ARMOR DIAGRAM



CRITICAL HIT TABLE

Head
1. Life Support
2. Sensors
3. Superheavy Cockpit
4. _____
5. Sensors
6. Life Support

Left Front Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

Center Torso
1-3
1. Engine
2. Engine
3. Engine
4. Gyro
5. Gyro
6. _____

4-6
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Right Front Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

Left Torso
1-3
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

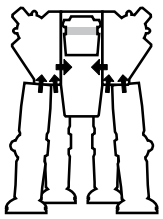
4-6
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Right Torso
1-3
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

4-6
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Engine Hits ○ ○ ○
Gyro Hits ○ ○
Sensor Hits ○ ○
Life Support ○

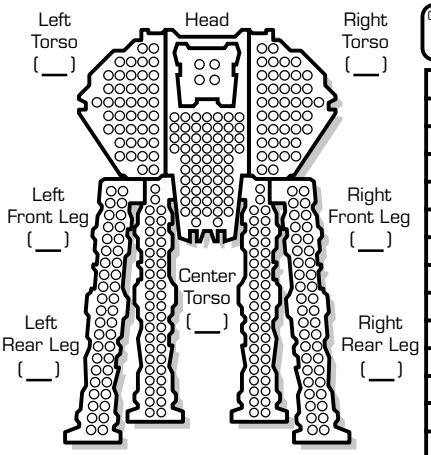
Left Rear Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____



Damage Transfer Diagram

Right Rear Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

INTERNAL STRUCTURE DIAGRAM



Heat Scale

Overflow
30*
29
28*
27
26*
25*
24*
23*
22*
21
20*
19*
18*
17*
16
15*
14*
13*
12
11
10*
9
8*
7
6
5*
4
3
2
1
0

HEAT DATA

Heat Level*	Effects	Heat Sinks: ___ (___)
30	Shutdown	
28	Ammo Exp. avoid on 8+	○ ○ ○
26	Shutdown, avoid on 10+	○ ○ ○
25	–5 Movement Points	○ ○ ○
24	+4 Modifier to Fire	○ ○ ○
23	Ammo Exp. avoid on 6+	○ ○ ○
22	Shutdown, avoid on 8+	○ ○ ○
20	–4 Movement Points	○ ○ ○
19	Ammo Exp. avoid on 4+	○ ○ ○
18	Shutdown, avoid on 6+	○ ○ ○
17	+3 Modifier to Fire	○ ○ ○
15	–3 Movement Points	○ ○ ○
14	Shutdown, avoid on 4+	○ ○ ○
13	+2 Modifier to Fire	
10	–2 Movement Points	Single ☐
8	+1 Modifier to Fire	
5	–1 Movement Points	Double ☐

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BATTLETECH™

SUPERHEAVY THREE-LEGGED 'MECH RECORD SHEET

'MECH DATA

Type: _____

Movement Points:
Walking: _____
Running: _____
Jumping: _____

Tonnage: _____

Tech Base:
Clan ☐
Inner Sphere ☐

Weapons & Equipment Inventory (hexes)

Qty	Type	Loc	Ht	Dmg	Min	Sht	Med	Lng

Cost: _____ BV: _____

WARRIOR DATA

Pilot: _____
Gunnery Skill: ___ Piloting Skill: ___

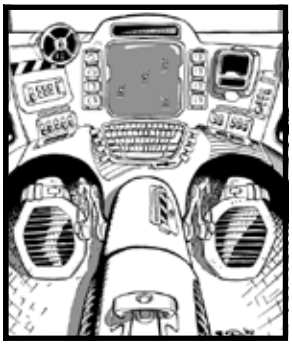
Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead

Gunner: _____
Gunnery Skill: ___ Piloting Skill: ___

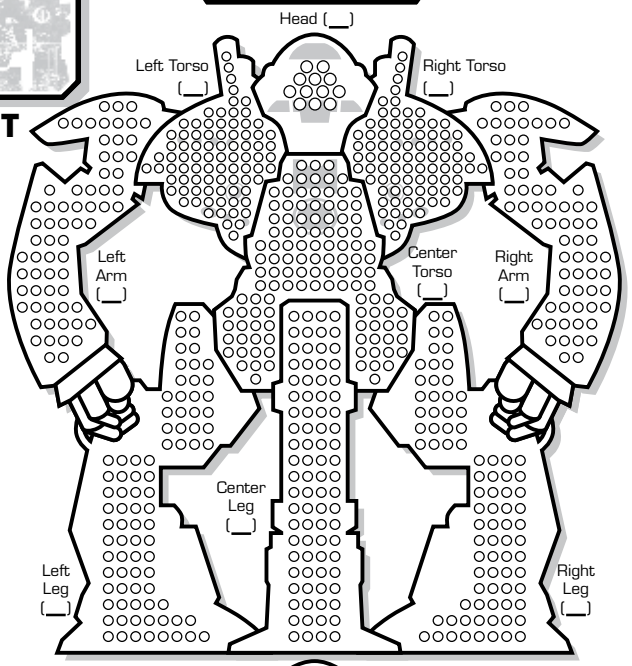
Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead

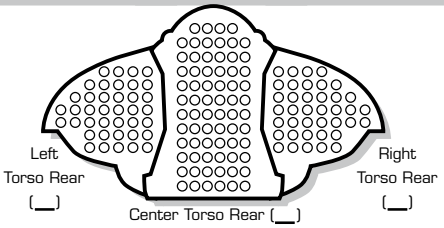
Tech: _____
Gunnery Skill: ___ Piloting Skill: ___

Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead



ARMOR DIAGRAM





CRITICAL HIT TABLE

Left Arm

1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. _____
6. _____

Head

1. Life Support
2. Sensors
3. Superheavy Tripod Cockpit
4. _____
5. Sensors
6. Life Support

Right Arm

1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. _____
6. _____

Center Torso

1. Engine
2. Engine
3. Engine
4. Gyro
5. Gyro
6. _____

Left Torso

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

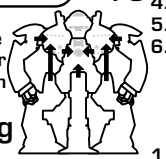
Right Torso

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Engine Hits ○ ○ ○
Gyro Hits ○ ○
Sensor Hits ○ ○
Life Support ○

CATALYST game labs

Damage Transfer Diagram



Left Leg

1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

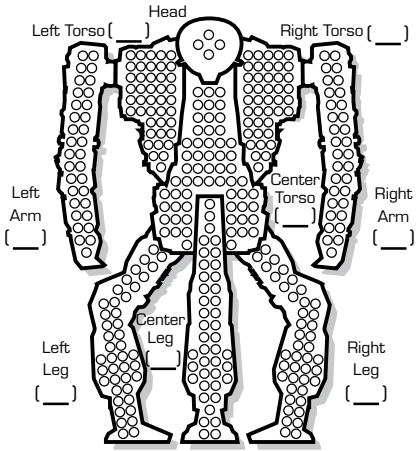
Center Leg

1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

Right Leg

1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. _____
6. _____

INTERNAL STRUCTURE DIAGRAM



Heat Scale

Overflow

30* 29 28* 27 26* 25* 24* 23* 22* 21 20* 19* 18* 17* 16 15* 14* 13* 12 11 10* 9 8* 7 6 5* 4 3 2 1 0

HEAT DATA

Heat Level*	Effects	Heat Sinks: ____ (___)
30	Shutdown	
28	Ammo Exp. avoid on 8+	○○○
26	Shutdown, avoid on 10+	○○○
25	–5 Movement Points	○○○
24	+4 Modifier to Fire	○○○
23	Ammo Exp. avoid on 6+	○○○
22	Shutdown, avoid on 8+	○○○
20	–4 Movement Points	○○○
19	Ammo Exp. avoid on 4+	○○○
18	Shutdown, avoid on 6+	○○○
17	+3 Modifier to Fire	○○○
15	–3 Movement Points	○○○
14	Shutdown, avoid on 4+	○○○
13	+2 Modifier to Fire	
10	–2 Movement Points	Single ☐
8	+1 Modifier to Fire	Double ☐
5	–1 Movement Points	

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BATTLETECH™

THREE-LEGGED 'MECH RECORD SHEET

'MECH DATA

Type: _____

Movement Points: Tonnage: _____

Walking: _____ Tech Base:

Running: _____ Clan ☐

Jumping: _____ Inner Sphere ☐

Weapons & Equipment Inventory (hexes)

Qty	Type	Loc	Ht	Dmg	Min	Sht	Med	Lng

Cost: _____ BV: _____

WARRIOR DATA

Pilot: _____

Gunnery Skill: ___ Piloting Skill: ___

Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead

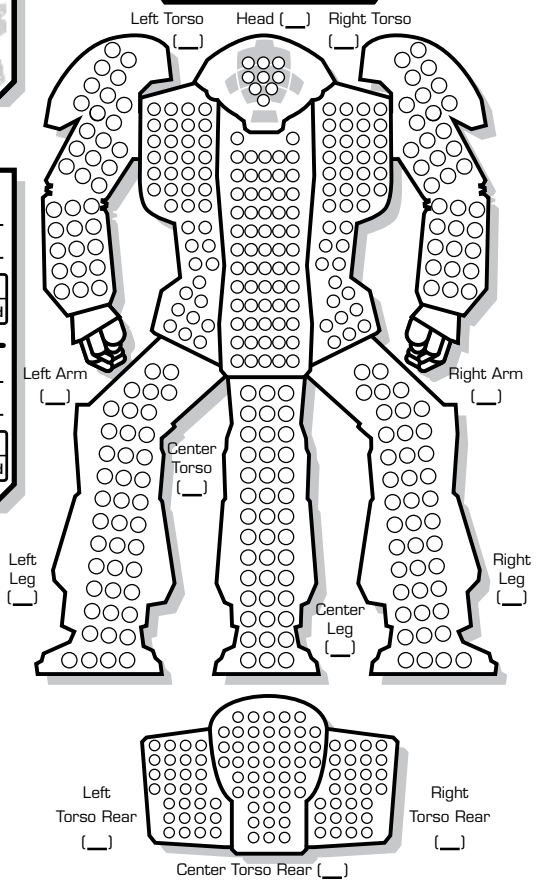
Gunner: _____

Gunnery Skill: ___ Piloting Skill: ___

Hits Taken	1	2	3	4	5	6
Consciousness#	3	5	7	10	11	Dead



ARMOR DIAGRAM



CRITICAL HIT TABLE

Left Arm

1-3	1. Shoulder
	2. Upper Arm Actuator
	3. Lower Arm Actuator
	4. Hand Actuator
	5. _____
	6. _____
4-6	1. _____
	2. _____
	3. _____
	4. _____
	5. _____
	6. _____

Head

1.	Life Support
2.	Sensors
3.	Tripod Cockpit
4.	_____
5.	Sensors
6.	Life Support

Right Arm

1-3	1. Shoulder
	2. Upper Arm Actuator
	3. Lower Arm Actuator
	4. Hand Actuator
	5. _____
	6. _____
4-6	1. _____
	2. _____
	3. _____
	4. _____
	5. _____
	6. _____

Center Torso

1-3	1. Engine
	2. Engine
	3. Engine
	4. Gyro
	5. Gyro
	6. Gyro
4-6	1. Gyro
	2. Engine
	3. Engine
	4. Engine
	5. _____
	6. _____

Left Torso

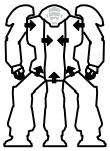
1-3	1. _____
	2. _____
	3. _____
	4. _____
	5. _____
	6. _____
4-6	1. _____
	2. _____
	3. _____
	4. _____
	5. _____
	6. _____

Right Torso

1-3	1. _____
	2. _____
	3. _____
	4. _____
	5. _____
	6. _____
4-6	1. _____
	2. _____
	3. _____
	4. _____
	5. _____
	6. _____

Engine Hits ○ ○ ○
Gyro Hits ○ ○
Sensor Hits ○ ○
Life Support ○

CATALYST game labs Damage Transfer Diagram



Left Leg

1.	Hip
2.	Upper Leg Actuator
3.	Lower Leg Actuator
4.	Foot Actuator
5.	_____
6.	_____

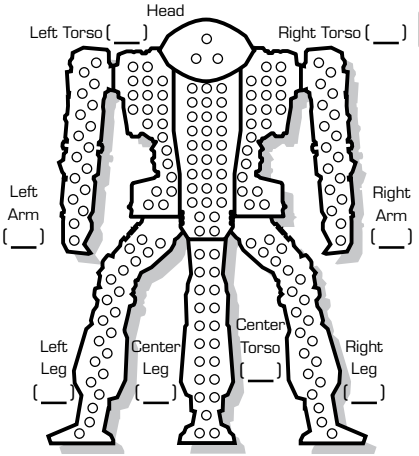
Center Leg

1.	Hip
2.	Upper Leg Actuator
3.	Lower Leg Actuator
4.	Foot Actuator
5.	_____
6.	_____

Right Leg

1.	Hip
2.	Upper Leg Actuator
3.	Lower Leg Actuator
4.	Foot Actuator
5.	_____
6.	_____

INTERNAL STRUCTURE DIAGRAM



HEAT DATA

Heat Level*	Effects
30	Shutdown
28	Ammo Exp. avoid on 8+
26	Shutdown, avoid on 10+
25	–5 Movement Points
24	+4 Modifier to Fire
23	Ammo Exp. avoid on 6+
22	Shutdown, avoid on 8+
20	–4 Movement Points
19	Ammo Exp. avoid on 4+
18	Shutdown, avoid on 6+
17	+3 Modifier to Fire
15	–3 Movement Points
14	Shutdown, avoid on 4+
13	+2 Modifier to Fire
10	–2 Movement Points
8	+1 Modifier to Fire
5	–1 Movement Points

Heat Sinks: ___ (___)

○ ○ ○
○ ○ ○
○ ○ ○
○ ○ ○
○ ○ ○
○ ○ ○
○ ○ ○
○ ○ ○
○ ○ ○
○ ○ ○

Single ☐
Double ☐

Heat Scale

Overflow
30*
29
28*
27
26*
25*
24*
23*
22*
21
20*
19*
18*
17*
16
15*
14*
13*
12
11
10*
9
8*
7
6
5*
4
3
2
1
0

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BATTLETECH

STRATEGIC BATTLEFORCE FORMATION RECORD SHEET

CATALYST game labs

FORMATION:

	Type	Size	Move	JUMP	Transport Move	TMM	Tactics	Morale	Skill	PV	Formation Specials

UNITS:	Type	Size	Move	JUMP	Trans Move	TMM	Arm	S	M	L	E	Skill	PV	Unit Specials

Notes: _____

Unit One: _____

Alpha Strike Elements:	Type	Size	Move	Arm	Str	S	M	L	E	OV	Skill	PV	Element Specials

Unit Two: _____

Alpha Strike Elements:	Type	Size	Move	Arm	Str	S	M	L	E	OV	Skill	PV	Element Specials

Unit Three: _____

Alpha Strike Elements:	Type	Size	Move	Arm	Str	S	M	L	E	OV	Skill	PV	Element Specials

Unit Four: _____

Alpha Strike Elements:	Type	Size	Move	Arm	Str	S	M	L	E	OV	Skill	PV	Element Specials

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BATTLETECH

ABSTRACT COMBAT SYSTEM
COMBAT UNIT RECORD SHEET

CATALYST game labs

COMBAT UNIT:

Combat Unit Specials

_____ Morale Check Triggers: ___ ___ ___ _____
75% Armor 50% Armor 25% Armor

Type	Size	Move	Transport MP	TMM	ARM	S	M	L	E	Tactics	Morale	Skill	PV
___	___	___	___	___	___	___	___	___	___	___	___	___	___

No Supply? ☐☐☐☐☐

COMBAT TEAMS:	Type	Size	Move	Jump	Trans Move	TMM	ARM	S	M	L	E	Skill	PV	Combat Team Specials
1: _____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
2: _____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
3: _____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
4: _____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____

COMBAT TEAM 1

Units:	Type	Size	Move	Jump	Trans Move	TMM	ARM	S	M	L	E	Skill	PV	Unit Specials
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____

COMBAT TEAM 2

Units:	Type	Size	Move	Jump	Trans Move	TMM	ARM	S	M	L	E	Skill	PV	Unit Specials
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____

COMBAT TEAM 3

Units:	Type	Size	Move	Jump	Trans Move	TMM	ARM	S	M	L	E	Skill	PV	Unit Specials
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____

COMBAT TEAM 4

Units:	Type	Size	Move	Jump	Trans Move	TMM	ARM	S	M	L	E	Skill	PV	Unit Specials
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____
_____	___	___	___	___	___	___	___	___	___	___	___	___	___	_____

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BATTLETECH

ABSTRACT COMBAT SYSTEM
FORMATION TRACKING RECORD SHEET

CATALYST game labs

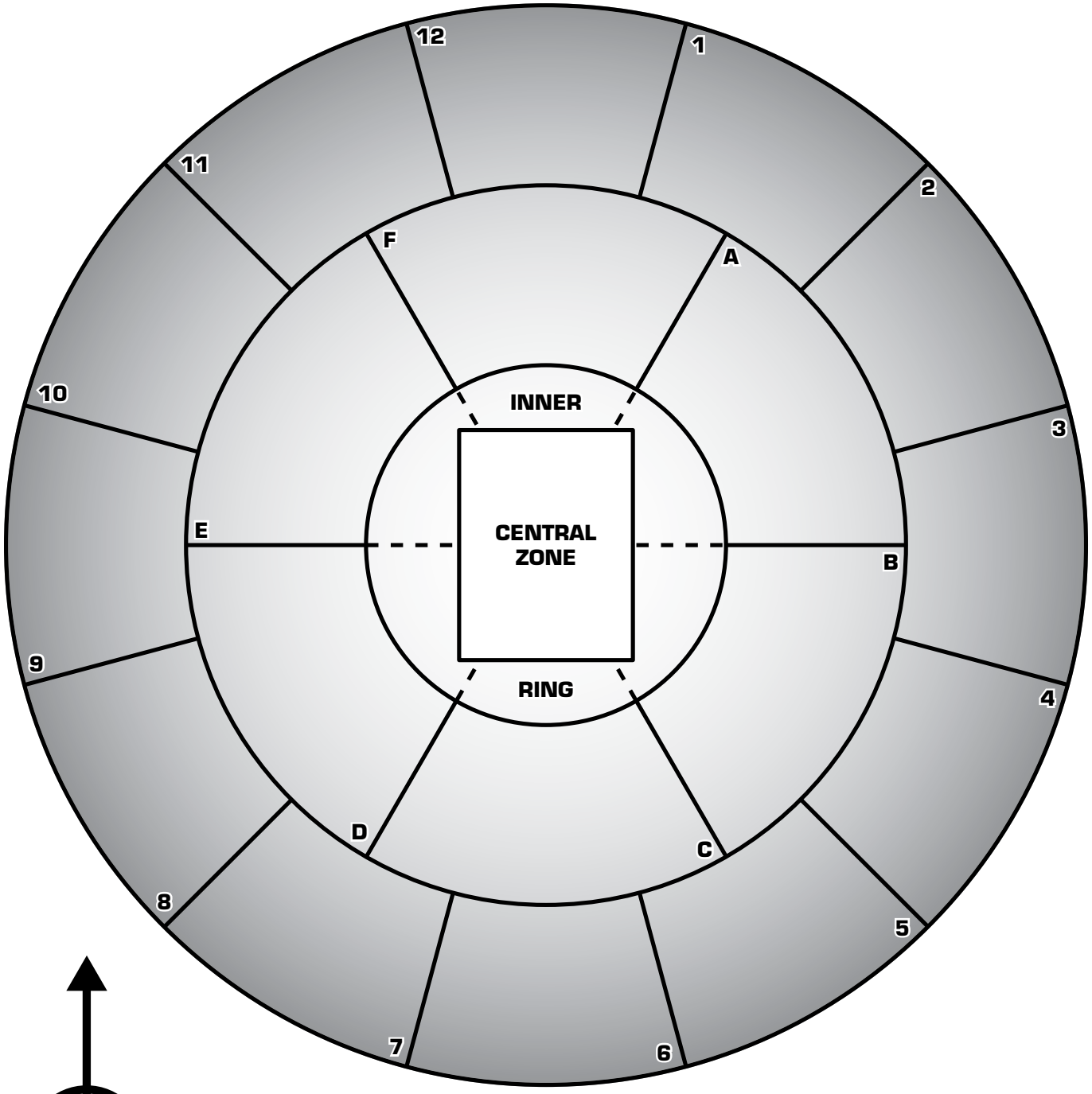
ID:
Formation Name: _____
Type: ____ Move: ____ Tactics: ____ Morale: ____ Skill: ____
COMBAT UNITS
_____ _____
_____ _____
_____ _____
_____ _____

ID:
Formation Name: _____
Type: ____ Move: ____ Tactics: ____ Morale: ____ Skill: ____
COMBAT UNITS
_____ _____
_____ _____
_____ _____
_____ _____

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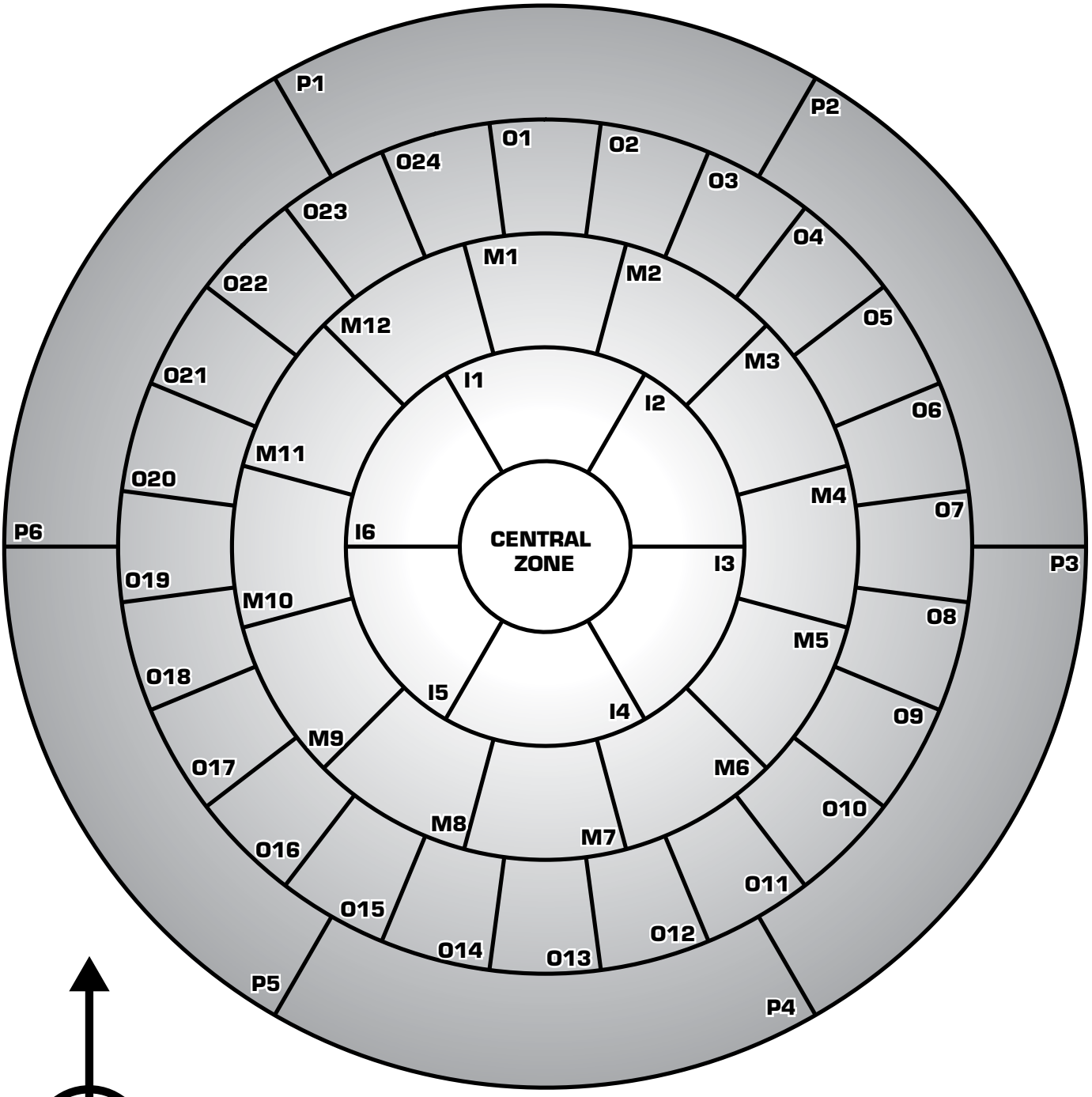
ATMOSPHERIC RADAR MAP



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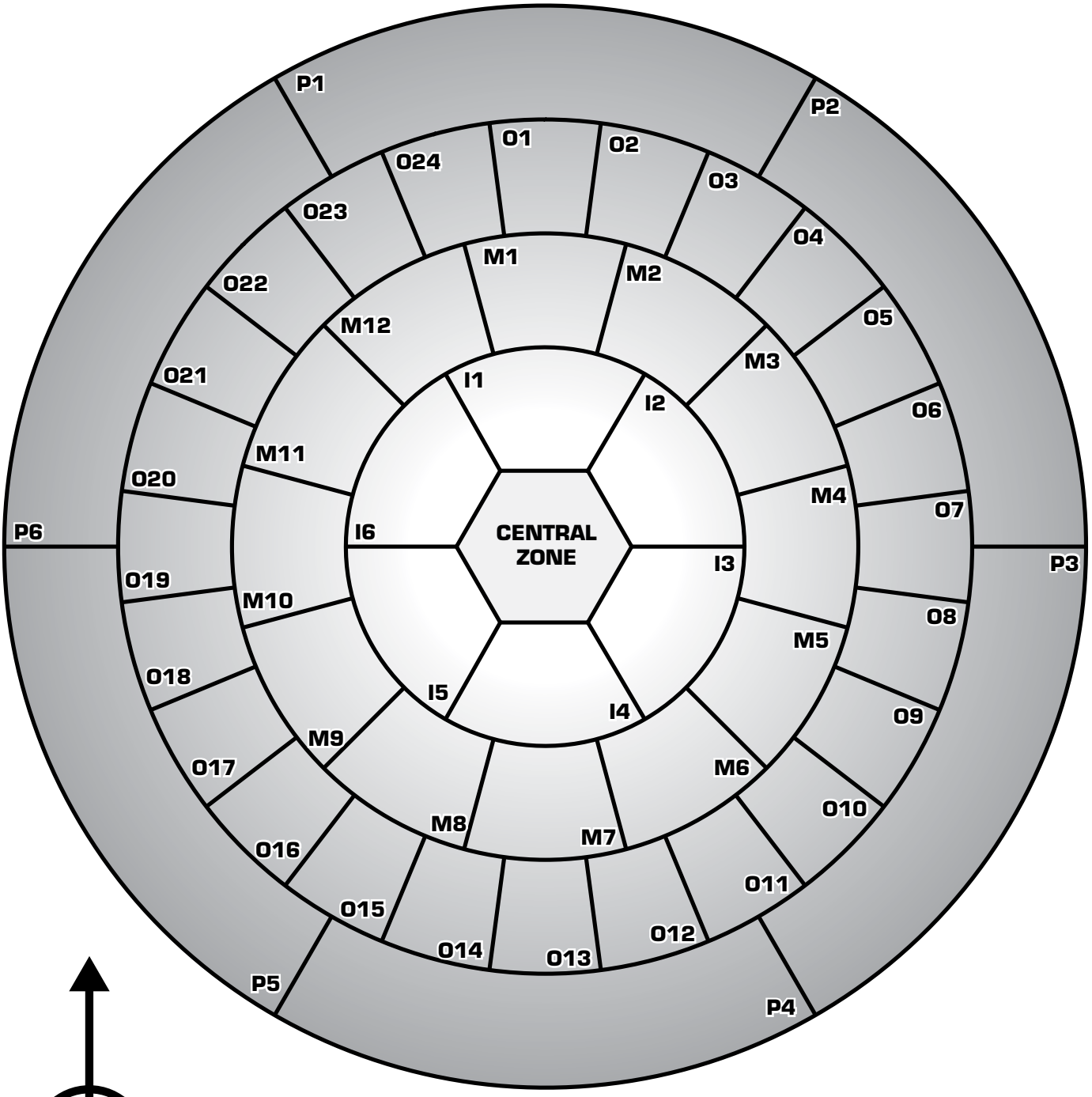
CAPITAL RADAR MAP



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BATTLETECH™

STAR SYSTEM RADAR MAP



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ADVANCED ARMOR TABLE

Advanced Armor Type	Points per Ton	BM	IM*	Space CV	Space SV*	Space CF	Space AF	Construction Notes
Anti-Penetrative Ablation	12	6	6	1	1	1	1	Fighter Slots: 1 (aft)
Ballistic-Reinforced	12	10	10	1	1	2	2	Fighter Slots: 1 (per wing)
Heat-Dissipating	10	6	6	N/A	N/A	N/A	N/A	None
Impact-Resistant	14	10	10	N/A	N/A	N/A	N/A	None

*Support Vehicles must have the Armored Chassis Mod and a Minimum Chassis Tech rating of D to install Advanced Armor; IndustrialMechs may only mount these armor types under Experimental Mixed-Tech rules.

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PATCHWORK ARMOR ADDENDUM

Armor Type	Slots per Location*	Tons per Point
Anti-Penetrative Ablation	1 / 1	0.0833
Ballistic-Reinforced	2 / 1	0.0833
Heat-Dissipating	1 / N/A	0.1000
Impact Resistant	2 / N/A	0.0714

*Number left of slash applies to 'Mechs and support vehicles; number right of slash applies to fighters and combat vehicles.

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CENTURION WEAPON SYSTEM RANGE TABLE

Target is…	Range (Min/Sht/Med/Long)
Susceptible to CWS	0/6/12/18
Resistant to CWS	0/1/2/3

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TSEMP EFFECTS TABLE

Target Unit	No Effect (2D6 roll)*	Interference (2D6 roll)*	Shutdown (2D6 roll)*
BattleMech	2-6	7-8	9+
IndustrialMech	2-5	6-7	8+
ProtoMech	2-5	6-8	9+
Battle Armor**	2-5	6-7	8+
Combat Vehicles	2-5	6-7	8+
Support Vehicles	2-4	5-6	7+
Aerospace Fighter/Small Craft	2-6	7-8	9+
Conventional Fighter	2-5	6-7	8+
Target Mass: 100+ tons	–2 to roll	–2 to roll	–2 to roll
Target Mass: 200+ tons	N/A	N/A	N/A
Mobile Structure	N/A	N/A	N/A
Conventional Infantry	N/A	N/A	N/A

*Apply a –2 to the roll result if the target is powered by a Steam engine (–1 for ICE engines)
**For simplicity, a TSEMP attack against battle armor affects the entire squad equally

P. 89

RADICAL HEAT SINK FAILURE TABLE

Number of Turns Used*	Avoid Failure On
0	2
1	3
2	5
3	7
4	10
5	11
6+	Auto-Fail

*Consecutive turns only; each turn not used reduces the failure avoidance check by 1 level (to a minimum roll of 2).

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EMERGENCY COOLANT SYSTEM FAILURE TABLE

Number of Turns Used*	Avoid Failure On
1	3+
2	5+
3	7+
4	10+
5	Auto-Fail

*Consecutive turns only; each turn not used reduces the failure avoidance check by 1 level (to a minimum roll of 3).

P. 100

EXPANDED PROTOMECH TORSO WEAPON CRITICAL HIT TABLE

1D6 Roll	Weapon Critical Hits: Standard (Biped)	Standard (Quad)	Ultra (Biped)*	Ultra (Quad)
1	Torso Weapon A	Torso Weapon A	Torso Weapon A	Torso Weapon A
2	Torso Weapon A	Torso Weapon B	Torso Weapon A	Torso Weapon B
3	Torso Weapon B	Torso Weapon C	Torso Weapon B	Torso Weapon C
4	Torso Weapon B	Torso Weapon D	Torso Weapon B	Torso Weapon D
5	No Effect	No Effect	Torso Weapon C	Torso Weapon E
6	No Effect	No Effect	Torso Weapon C	Torso Weapon F

*Includes Glider ProtoMechs.

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EXAPANDED PROTOMECH JUMP JET WEIGHT TABLE

ProtoMech Weight	Jump Jet Weight
2 to 5 tons	50 kg/Jumping MP
6 to 9 tons	100 kg/Jumping MP
10 to 15 tons	150 kg/Jumping MP

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LAM SKILL TABLE

Configuration and Movement Mode	Piloting	Gunnery
Aerospace Fighter	Aerospace	Aerospace
AirMech Expending BattleMech MP	BattleMech	BattleMech
AirMech Expending AirMech MP	Aerospace	BattleMech
BattleMech	BattleMech	BattleMech

P. 112

AIRMECH ATTACKER MODIFIERS TABLE

Attacker Movement Mode	Modifier
Walking	+1
Running	+2
AirMech Cruise	+3
AirMech Flank	+4

P. 110

LAM CRITICAL HIT TABLE

Critical Hit	BattleMech Mode	AirMech Mode	Fighter Mode
Avionics			
First hit	No Effect	+1 Piloting Modifier	+1 Piloting Modifier
Second hit	No Effect	+2 Piloting Modifier	+2 Piloting Modifier
Third hit	No Effect	+5 Piloting Modifier	+5 Piloting Modifier
Cockpit	Pilot Killed	Pilot Killed	Pilot Killed
Engine			
First hit	+5 Heat per turn	+5 Heat per turn	+2 Heat per turn
Second hit	+10 Heat per turn	+10 Heat per turn	+4 Heat per turn
Third hit††	Engine Destroyed	Engine Destroyed	Engine Destroyed
Jump Jets	–1 Jump MP (each hit)	–1 AirMech Cruise MP* (each hit)	–1 Safe Thrust* (each hit)
Landing Gear			
First hit	No Effect	No Effect	+1 Piloting to Land
Second hit	No Effect	No Effect	+2 Piloting to Land
Third hit	No Effect	No Effect	+5 Piloting to Land
Gyro			
First hit	+3 Piloting Modifier	+3 Piloting Modifier	+3 Piloting Modifier
Second hit	Gyro Destroyed‡	Gyro Destroyed‡	+6 Piloting Modifier
Sensors			
First hit	+2 To-Hit	+2 To-Hit	+2 To-Hit
Second hit	Weapon attacks impossible, regardless of current movement mode		
Arm Actuators			
Shoulder	+4 To-Hit†	+4 To-Hit†	+4 To-Hit†
Upper Arm	+1 To-Hit†	+1 To-Hit†	+1 To-Hit†
Lower Arm	+1 To-Hit†	+1 To-Hit†	+1 To-Hit†
Hand	+1 to Punch	+1 to Punch	No Effect
Leg Actuators			
Hip	Half Walk MP* +2 Piloting Modifier	+2 Piloting to Land	No Effect
Upper Leg	–1 Walk MP**, +1 Piloting Modifier	+1 Piloting to Land	No Effect
Lower Leg	–1 Walk MP* , +1 Piloting Modifier	+1 Piloting to Land	No Effect
Foot	–1 Walk MP*, +1 Piloting Modifier	+1 Piloting to Land	No Effect
Other Equipment	Per normal rules	Per normal rules	Per normal rules

*Recalculate AirMech Flank and Maximum Thrust MPs normally (x 1.5). Always round up.
**Recalculate Run MP normally (x 1.5). Always round up.
†Affects weapons in that arm only
††The third engine hit destroys the engine and the LAM shuts down, which may result in a no-thrust landing attempt (see *TW*, p. 86).
‡In BattleMech and AirMech Modes, the LAM will automatically fall and may not stand
Gyro Note: The first critical hit to the gyro disables the LAM's ability to convert between modes, regardless of the current movement mode. (If the LAM has a heavy-duty gyro, treat the first hit as a +1 Piloting Skill modifier instead, and the LAM may still convert between modes. The effects for the first hit on this table, including the loss of conversion capability, will thus occur with the second hit against such gyros. A third hit to a heavy-duty gyro destroys the gyro.)
Actuators Note: Critical hits to any arm actuator other than the hand will disable the LAM's ability to convert to or from BattleMech mode. Critical hits to any leg actuator other than the foot will disable the LAM's ability to convert to or from Fighter mode.

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LAM FIGHTER HIT LOCATION TABLE

Die Roll	Nose	Aft	Side	Above/ Below
2	Center Torso	Center Torso§	Head	Right Torso
3	Right Torso	Right Torso§	Arm‡	Arm†
4	Right Arm	Right Torso§	Center Torso	Arm†
5	Right Arm	Right Arm	Center Torso	Leg†
6	Right Torso	Right Leg	Torso‡	Right Torso
7	Center Torso*	Leg†*	Arm‡	Center Torso
8	Left Torso	Left Leg	Torso‡	Left Torso
9	Left Arm	Left Arm	Leg‡*	Leg†
10	Left Arm	Left Torso§	Leg‡	Arm†
11	Left torso	Left Torso§	Arm‡	Arm†
12	Center Torso	Center Torso§	Leg‡	Left Torso

*Control roll required if the damage exceeds the LAM's Damage Threshold
†Roll 1D6: 1-3 Right, 4-6 Left.
§Roll 1D6: 1-4 Apply Damage to Front Torso, 5-6 Apply Damage to Rear Torso
‡Hits the corresponding arm, leg, or torso, e.g. attack from left side hits left arm, left torso, or left leg.

P. 112

LAM FIGHTER FIRING ARCS TABLE

BattleMech Location	Fighter Firing Arc
Head	Nose
Center Torso	Nose
Center Torso (Rear)	Aft
Left Torso	Left Wing
Left Torso (Rear)	Left Wing (Aft)
Right Torso	Right Wing
Right Torso (Rear)	Right Wing (Aft)
Left Arm	Left Wing
Right Arm	Right Wing
Left Leg	Aft
Right Leg	Aft

P. 111

LAM BOMB BAY ORDNANCE TABLE

Bomb Type	Description
Air-to-Air Arrow	20-point air-to-air missile (see p. 357, *TO*)
Anti-Ship Missile	30-point anti-ship missile (see p. 358, *TO*)
Anti-ship EW Missile	Capital-scale electronic-warfare missile (see p. 358, *TO*)
Arrow IV Missile	20-point air-to-ground missile, homing or unguided (see pp. 358-359, *TO*)
Cluster	5-point-per-hex air-to-ground cluster bomb (see pp. 249-250, *TW*)
Fuel	Provides 40 additional fuel points
High Explosive	10-point standard air-to-ground bomb (see pp. 249-250, *TW*)
Inferno	Incendiary air-to-ground bomb, generates 10 heat or damage (see p. 359, *TO*)
Laser Guided	10-point TAG-guidable air-to-ground bomb (see pp. 249-250, *TW*)
Light Air-to-Air Missile	6-point air-to-air missile (see p. 359, *TO*)
Rocket Launcher	Provides single-shot Rocket Launcher 10 to unit
TAG	Provides TAG weapon to unit (see p. 250, *TW*)
Thunder	Delivers 20-point standard minefield to target area (see p. 360, *TO*)
Thunder Active	Delivers 20-point active minefield to target area (see p. 360, *TO*)
Thunder Vibrabomb	Delivers 20-point vibrabomb minefield to target area (see p. 360, *TO*)
Torpedo	10-point air-to-water bomb (see p. 360, *TO*)

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LAM BOMB BAY CRITICAL HIT TABLE

Bomb Type	Critical Hit Effect
Air-to-Air Arrow	Explodes for 20 points of damage
Anti-Ship Missile	Explodes for 30 points of damage
Anti-ship EW Missile	Explodes for 5 points of damage
Arrow IV Missile	Explodes for 20 points of damage
Cluster	Explodes for 5 points of damage
Fuel	Explodes on 2D6 roll 10+; 1 point of damage per point of fuel remaining
High Explosive	Explodes for 10 points of damage
Inferno	LAM adds 10 heat points in the current turn
Laser Guided	Explodes for 10 points of damage
Light Air-to-Air Missile	Explodes for 6 points of damage
Rocket Launcher	Explodes for 10 points of damage
TAG	Destroys TAG
Thunder	Explodes for 20 points of damage
Thunder Active	Explodes for 20 points of damage
Thunder Vibrabomb	Explodes for 20 points of damage
Torpedo	Explodes for 10 points of damage

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FUEL-AIR MUNITIONS TABLE

Fuel-Air Munition Type*	Damage Type	Damage Values (Radius)
Fuel-Air Bomb (Small)	AE	20/10/5 (Radius: 2)
Fuel-Air Bomb (Large)	AE	30/20/10/5 (Radius: 3)
Fuel-Air Missile (Arrow IV)*	AE	20/10/5 (Radius: 2)
Fuel-Air Shell (Thumper, Thumper Cannon)	AE	10/5 (Radius: 1)
Fuel-Air Shell (Sniper, Sniper Cannon)	AE	20/10/5 (Radius: 2)
Fuel-Air Shell (Long Tom, Long Tom Cannon)	AE	30/20/10/5 (Radius: 3)

*All values are identical for Clan and Inner Sphere versions

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PROTOTYPE DATES FOR BASIC WEAPONS TABLE

Weapon System	Prototype	Production
Machine Gun	N/A*	Pre-Spaceflight*
Flamer (Standard)	N/A*	Early Spaceflight*
Flamer (Vehicle)	N/A*	Pre-Spaceflight*
LRMs (All)	2295	2300
SRMs (All)	2365	2370
Torpedo Launchers (LRT/SRT)	2370	2380
Autocannon/2	2290	2300
Autocannon/5	2240	2250
Autocannon/10	2443	2460
Autocannon/20	2490	2500
Small Laser	2290	2300
Medium Laser	2290	2300
Large Laser	2306	2310
PPC	2439	2460
Thumper Artillery	N/A*	Pre-Spaceflight*
Sniper Artillery	N/A*	Pre-Spaceflight*
Long Tom Artillery	2445	2500

*These items were perfected to modern standards prior to interstellar space travel and thus have no Prototype phase.

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DIFFERENT LEVELS TABLES (SUPERHEAVY 'MECHS)

Target is:	Allowed Physical Attack (Hit Location Table Used)
Standing Superheavy 'Mech 1 level higher	Charge, Punch, Club, Physical Weapon (All on Kick Table)
Standing Superheavy 'Mech 1 level lower	Charge, Punch, Kick, Club, Physical Weapon (Use Default Tables)
Standing Superheavy 'Mech 2 levels lower	Charge, Kick, Club, Physical Weapon (All on Punch Table)
Prone Superheavy 'Mech 1 level higher	Punch, Club, Physical Weapon (Use Default Tables)
Prone Superheavy 'Mech 1 level lower	Charge, Punch, Kick, Club, Physical Weapon (Use Default Tables)
Prone Superheavy 'Mech 2 levels lower	None

GENERAL WMD ACQUISITION TABLE

Weapon Type	Base TN	C-bills (Warhead)	C-bills (Launcher)
Nuclear Weapons			
Custom Tactical	14 + (1 per 5 Kt Yield)*	1,000,000 x Kt Yield*	As Launcher
Custom Strategic	16 + (1 per 5 Mt Yield)*	10,000,000 x Mt Yield*	As Launcher
Type Ia "Davy Crockett-I"	15	500,000	1,000,000
Type Ib "Davy Crockett-M"	15	500,000	As Launcher
Type II "Alamo"	16	1,000,000	As Launcher
Type III "Santa Ana"	18	15,000,000	250,000
Type IV "Peacemaker"	19	40,000,000	500,000
Elias	14	10,000	N/A
AMW**	17	100,000,000	As Launcher
Chemical Weapons			
Class I (Non-Lethal)†	4	1,000 (per ton)	As Launcher
Class II	9	10,000 (per ton)	As Launcher
Class III	14	250,000 (per ton)	As Launcher
Class IV	16	1,000,000	As Launcher
Class V	18	5,000,000	As Launcher
Biological Weapons			
Class IV	16	5,000,000	As Launcher
Class V	18	50,000,000	As Launcher

*Round up; Nuclear yield values are in Kilotons (Kt) or Megatons (Mt) as appropriate
**Unavailable before 2790
†Multiply the number of available weapons of this class by 2D6 after making the availability roll

GENERAL WMD ACQUISITION MODIFIER TABLE

Condition	Modifier
Force Ratings	
Experience: Elite	–2
Experience: Regular	+1
Experience: Green	+3
Loyalty: Fanatical	–2
Loyalty: Questionable	+4
Equipment: A-B	–1
Equipment: D-F	+2
Force Size	
Per full 'Mech regiment	–1 (max –3)
Unit smaller than a regiment	+1
Force Affiliation	
Original SLDF	–3
Taurian Concordat/Calderon Protectorate	–3
Other Periphery (Non-Taurian)	–2
Word of Blake	–2
Draconis Combine	–1
Federated Suns	–1

Condition	Modifier
ComStar	+0
Free Worlds League	+1
Capellan Confederation	+2
Lyran Commonwealth	+2
Clans (All)	+4
Minor Power	+1
Independent (Non-Affiliated) World	+2
Era of Play	
Before 2400	–1
2401-2411	+0
2412-2570	+2
2571-2765	–1
2766-2850	–2
2851-2865	+0
2866-3067	+2
3068-3085	–1
3086-3150	+2
Cost	
Per each additional 1x cost spent	–2 (Max –6)

WMD USE CONSEQUENCES TABLE

Margin	Suggested Consequence
MoS 1+	No consequences
MoS 0	Slap on the Wrist. (Force suffers –1 Initiative for next 2 scenarios)
MoF 1-3	Morale Loss (Force suffers –MoF to Initiative for MoF x D6 scenarios)
MoF 4-7	Charges and Reprimands (Force reduced 1 step in Loyalty and/or Equipment Ratings)*
MoF 8-9	Severe Punishments (Force reduced 1 step in Loyalty, Equipment, and Experience Ratings)*
MoF 10+	Disbandment (Force is stricken from the rolls; all officers imprisoned or executed.)

*To minimum ratings (Questionable for Loyalty, F for Equipment, Green for Experience)

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STANDARD NUCLEAR WEAPONRY TABLE

Weapon (Nuclear Yield)	Base Impact Damage (Standard)	Capital Damage (Crit Chance)	Blast Radius* (Ground/Air)	Damage Reduction (Ground/Air)	Secondary Radius* (Ground/Air)	Height (Blast/Secondary)	Crater Depth
Elias (0.05 Kiloton)	10	0 (N/A)	9 / N/A	1 / N/A	18 / N/A	5 / 6	0
Type Ia (0.5 Kiloton)	100	1 (11+)	20 / N/A	5 / N/A	40 / N/A	6 / 8	0
Type Ib (0.5 Kiloton)	100	1 (11+)	20 / N/A	5 / N/A	40 / N/A	6 / 8	0
Type II (5 Kilotons)	1,000	10 (10+)	43 / 58	23 / 18	85 / 114	8 / 9	1
Type III (50 Kilotons)	10,000	100 (9+)	92 / 123	109 / 81	184 / 246	9 / 10	3
Type IV (500 Kilotons)	100,000	1,000 (8+)	198 / 264	504 / 378	397 / 529	10 / 10	5
AMW (3,000 Kilotons)	600,000	6,000 (N/A)	361 / 481	1,664 / 1,278	721 / 961	Row 1‡ / Row 2‡	9

*In ground hexes (1 mapsheet = 17 ground hexes/1 Low-Altitude Map hex)
**Type Ib weapons are launched only by Long Tom or Arrow IV artillery units; use the base range as indicated by the launcher
†Range in aerospace game play (Type II uses Detailed Weapon Range as AC/10; Type III, Type IV, and AMW as indicated capital missile)
‡ Effects extend into Row 1 or 2 on the High Altitude Map, as indicated.

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SECONDARY NUCLEAR EFFECTS TABLE

Roll*	Results
2–4	Unit is Destroyed (crew/pilot/troopers all killed; engines shut down; all applicable unit types suffer 1D6 critical hits**)
5–6	Unarmored infantry outside buildings are killed; armored infantry/infantry within buildings suffer 50% casualties (round up); Conventional and support vehicles suffer two critical hits, plus one automatic Crew Killed critical hit; 'Mech and fighter units suffer two critical hits and must make a Shutdown Avoid Check at 10+ (Pilots of these machines suffer four hits).**
7–10	Unarmored infantry outside buildings suffer 50% casualties (round up); armored infantry and infantry within buildings suffer 25% casualties (round up); conventional and support vehicles suffer one critical hit, plus one automatic Crew Stunned critical hit; 'Mech and fighter units suffer one critical hit and must make a Shutdown Avoid Check at 6+ (Pilots of these machines suffer two hits).**
11+	Unit sustains no damage

*Add +2 to the roll for combat vehicles, 'Mechs, battle armor and aerospace craft, as well as an additional +2 for any unit within a hardened structure.
**Critical hits are resolved randomly, the locations determined for each by rolling on whichever side of the unit faces the Ground Zero Hex.

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ALTERNATIVE ENVIRONMENTS TABLE

Defending Unit is underwater and within the blast radius of…*	
(Nuclear Airburst)	Divide damage to submerged targets by their current depth x 10 (based on pre-blast depth levels)*
(Nuclear Ground Burst)	Divide Damage Degradation Rate by 2**
Nuclear Explosion is Subterranean…*	
(At/Within Max. Crater Depth)†	Use standard rules for ground-burst attack, centered over ground zero.
(Over 1x to 2x Max. Crater Depth)†	Treat blast as standard ground-burst attack, using only 10% of base damage at ground zero (damage degrades normally, centered over ground zero).
(Over 2x to 5x Max. Crater Depth)†	Treat area above the weapon's normal cratering area (radius of 2x crater depth, centered over ground zero) as a severe earthquake, imposing a +5 penalty on all rolls for the turn of detonation.
(Over 5x Max. Crater Depth)†	No effect.
Atmospheric Pressure‡	
Vacuum	Multiply Damage Degradation Rate by 10
Trace	Multiply Damage Degradation Rate by 3
Thin	Multiply Damage Degradation Rate by 1.5
Standard	Multiply Damage Degradation Rate by 1
High	Multiply Damage Degradation Rate by 0.67
Very High	Multiply Damage Degradation Rate by 0.5

*Units underwater and units subjected to the effect of subterranean explosions at deeper than 1x the weapon's maximum crater depth do not suffer secondary effects.
**Underwater units add 1 hex of distance from ground zero for each full 5 levels of depth. A "ground burst" is considered to be any nuclear attack that occurs at or near the water's surface.
†Crater depth for Type I weapons is considered 1.
‡Relative to Terran standard; round up fractions.

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BIOLOGICAL AND CHEMICAL WEAPONS TABLE

Weapon Class	Effects Resistance TN (Partial / Full)*	Non-Weapon TN Modifier	Time to Effect	Persistence	Contamination	Stacking Effect
Class I	4 / 8	–3	Immediate	1D6 + 2 turns	3D6 + 6 turns	N
Class II	2 / 5	–2	Immediate	1D6 days	3D6 + 6 turns	N
Class III	4 / 6	+0	1D6 turns	4D6 days	2D6 + 3 turns	N
Class IV (Chemical)	4 / 8	+1	1D6 + 2 turns	1D6 days	2D6 days	+1x (max. +6x)
Class IV (Biological)	5 / 9	+1	1D6 + 2 hours	1D6 days	1D6 x 8 hours	+1x (max. +6x)
Class V	2 / 6	+2	2D6 x 12 hours	2D6 days	4D6 months	+3x (max. +12x)

*Apply the following TN modifiers for unit Skill rating: Green +1, Regular +0, Veteran –1, Elite –2.