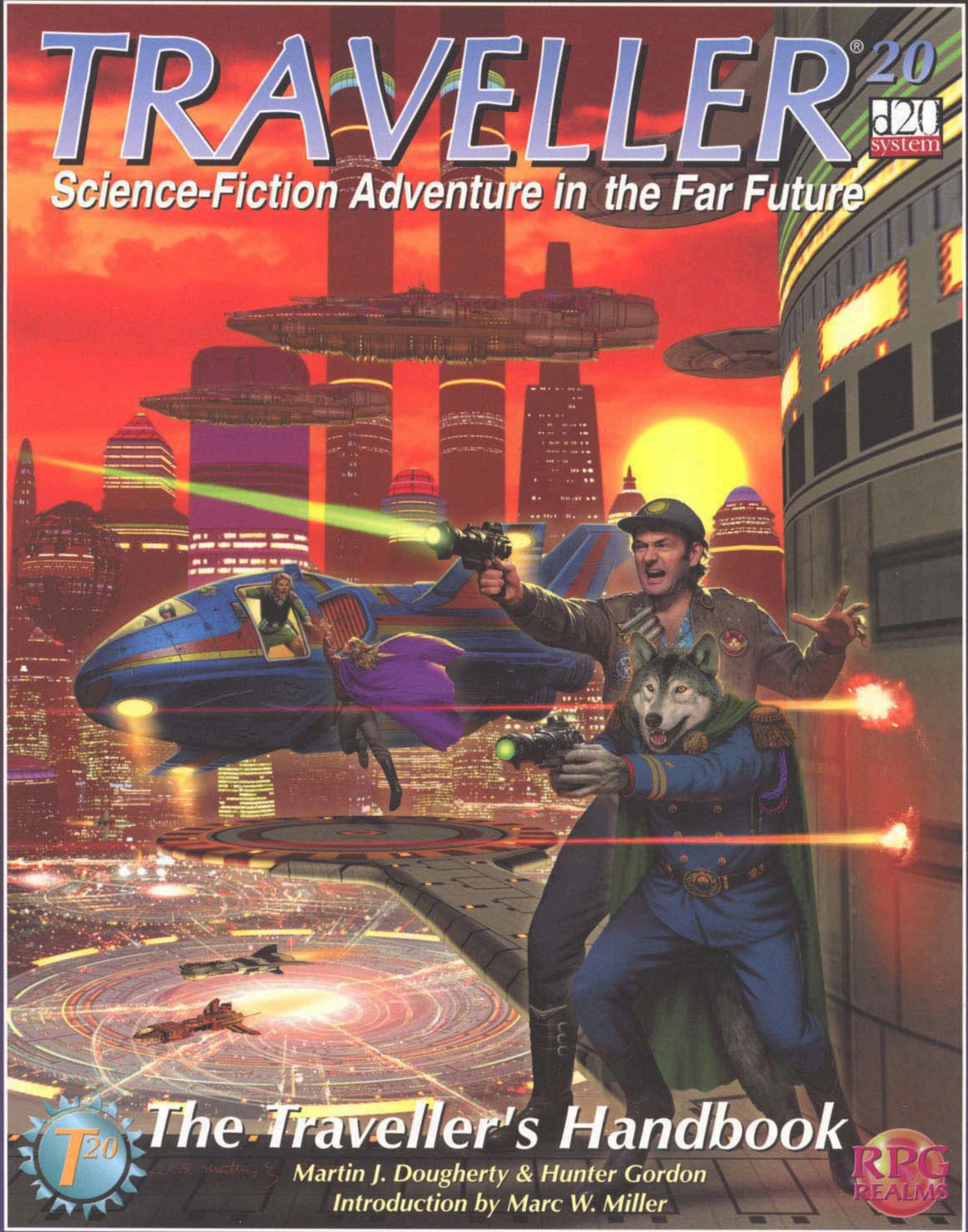
QLI-T200001

TRAVELLER® 20

d20 system

Science-Fiction Adventure in the Far Future



The Traveller's Handbook

Martin J. Dougherty & Hunter Gordon
Introduction by Marc W. Miller

T20

RPG REALMS

TRAVELLER T20



RPG REALMS

TRAVELLER20 – The Traveller's Handbook

Traveller for the d20 System

Science Fiction Adventure in the Far Future

BASED ON THE AWARD-WINNING TRAVELLER GAME SYSTEM AND UNIVERSE BY MARC W. MILLER

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Dedicated to the Memory Of
Rhonda Sue Gordon
Robert "Bob" Jones, Jr.

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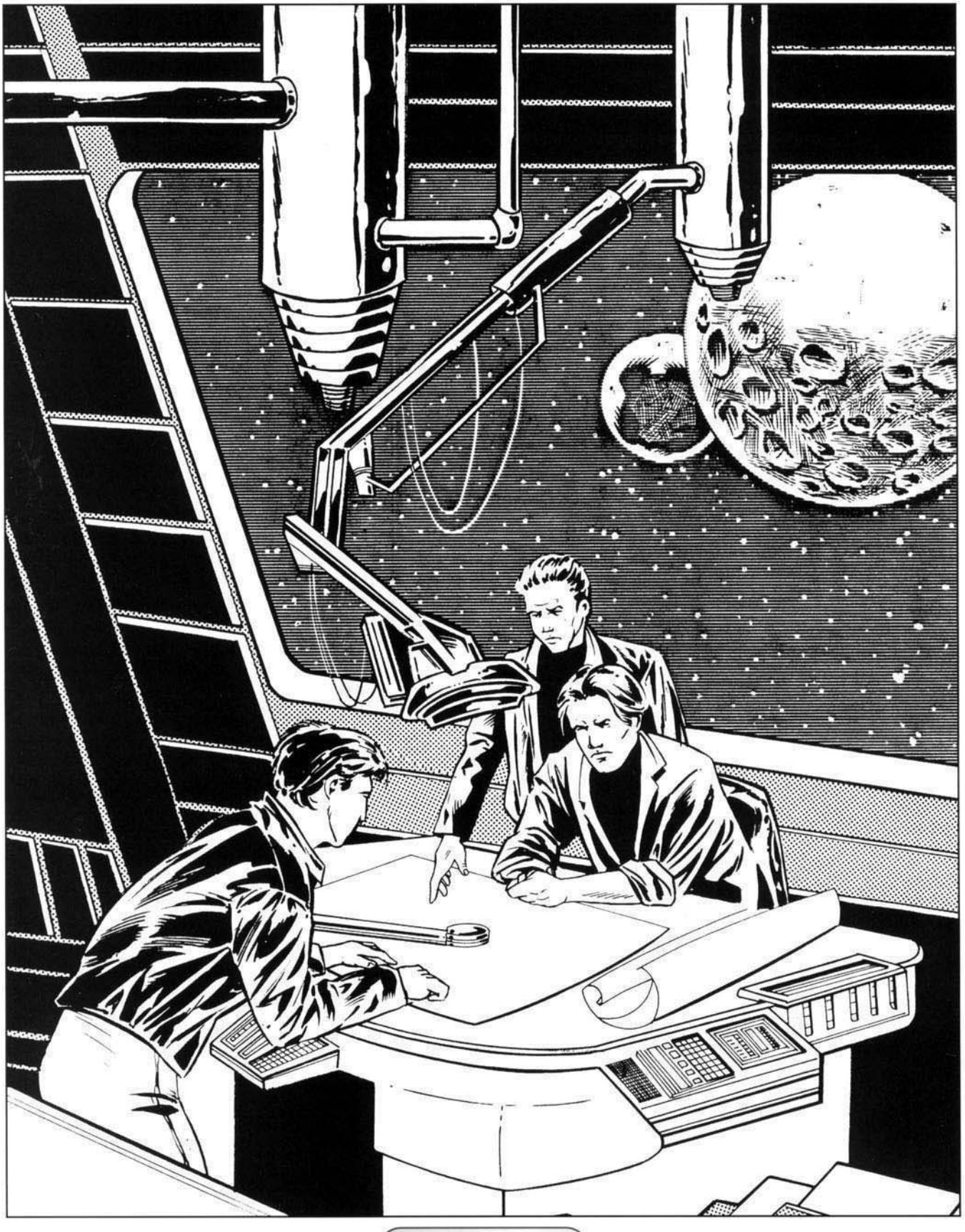


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KISHIMAA DOWNPORT— OR BUST!

When Dr. Sobraashii's archeological research team found the Rule Of Man-era ruins they'd been seeking for the past year, the whole camp erupted into an impromptu party. Everyone drank too much, including Tallei Haalein the research assistant. When the party finally died down, Tallei the civilian stumbled over her friend Duek's boots in the tiny prefab they shared, then fell into her bunk and was instantly and deeply asleep.

But when shots rang out in the compound three hours later, the civilian was gone and Lance-Corporal Haalein, Imperial Army Rifle Instructor and all-round hard case, was back.

She woke to find that she was already rolling from her narrow bunk in the prefab living unit. Twelve years of soldiering in the Emperor's name had left certain useful instincts behind. Like the one that got her moving before it woke her up.

Her Army-issue reflexes slipped feet into boots, ballistic vest over t-shirt, and draped her overjacket on top of that. By the time her mind had realized it was awake and started to demand coffee she had scooped up her rifle and magazine bandolier. She opened the door a crack to eyeball the situation.

Chilly night air seeped into the bunkroom as Tallei peered out the door into the snow-dusted compound. Subconsciously she tracked Duek's position behind her as the female Vargr stumbled out of her bunk and began rummaging among discarded clothing on the floor. Duek Roghz was a civilian, a fellow research technician with no battlefield survival instincts. A good friend, but a liability at a time like this.

At no point did Tallei doubt that they were in mortal danger; that someone was coming here to kill both of them; that she was the only chance for survival for them both. Nor was there any doubt that she could deal with the situation, get them both to safety, and save their employer too. There wasn't any room for thoughts like those and besides, they were groundless. Tallei could, and would.

Shots, shouting and the sound of Contragrav lifters came from outside. The locals didn't have Contragrav, so most likely someone in the compound was starting an air/raft for a swift getaway. Good for them, so long as they left at least one of the 'rafts behind for Tallei.

Leadfooted steps - two sets - thundered up to the doorway, labored breaths sounding harsh and loud in the night air. Tallei crouched, ready. The door was hammered open and a figure hurled itself inside. Tallei tripped it, in case it wasn't who she expected, then stood to face the pursuer. He was a young man, dressed in dark gray camo-fatigues and a steel helmet. The carbine in his hands was tipped with a wicked bayonet.

Not even seeing Tallei in the darkness, the soldier raised his bayonet to plunge down at his victim. Tallei hit him with her rifle. The high-impact plastic stock made a dull thump as it slammed into unsuspecting ribs. The soldier doubled up and dropped his weapon. Tallei kicked him as he went down, glanced behind to check the figure she'd tripped really was her employer, and dragged the local soldier upright by the throat.

"We've just become unwelcome, I take it?" Duek said as she fumbled into her clothes - unlike Tallei, the Vargr didn't sleep mostly dressed and ready for anything from an earthquake to a planetary invasion. After pulling her jacket she helped her employer up from the floor.

Between gasps, Dr. Gavin Saint-Etienne Sobraashaii said, "Yeah. One of the local nations just turned nasty. We've got to get out; make for the Downport. Zuri got a distress call off, but the Marine contingent can't spare anyone for a rescue." He dragged himself up to his full five feet five inches and straightened his quilted cold-weather jerkin, checking his instruments remained unbroken. His tone was sarcastic as he went on, "they have a situation."

"They told us to pull out last week," Duek said, buckling a webbing belt containing a semi-automatic pistol around her waist. She cocked her head, ears twitching. "I hear two air/rafts warming up. I suspect we'd better make a run for one of them."

"Yup," Tallei agreed. "But first...." She banged her captive's head against the door frame, then snarled, "How many, which nation, and you live!"

"Aw... Awlech... just a strike team... couple of trucks...." The soldier stammered, naming one of Kishimaa's many small nations. Until a week ago, Awlech had been a district of the relatively stable Lowland Alliance. Now, apparently, the breakaway state was flexing its muscles by driving the offworlders out. A grand and pointless gesture that would ultimately cost its leaders dear. But for now....

"Awlech?" Gavin said. "Now, I'd have put money on the Republic of Drallei, or...."

"Boss!" Tallei snapped. "Stop theorizing and grab my ready bag. I bet you lost your sidearm...."

"It's in my quarters.... I was just out looking over the ruins again!" Gavin said defensively.

"Whatever. Listen. As of now, you are no longer an archeologist. You are a refugee, and I am your only chance to stay alive. So it's do as told and mouth shut, get it?"

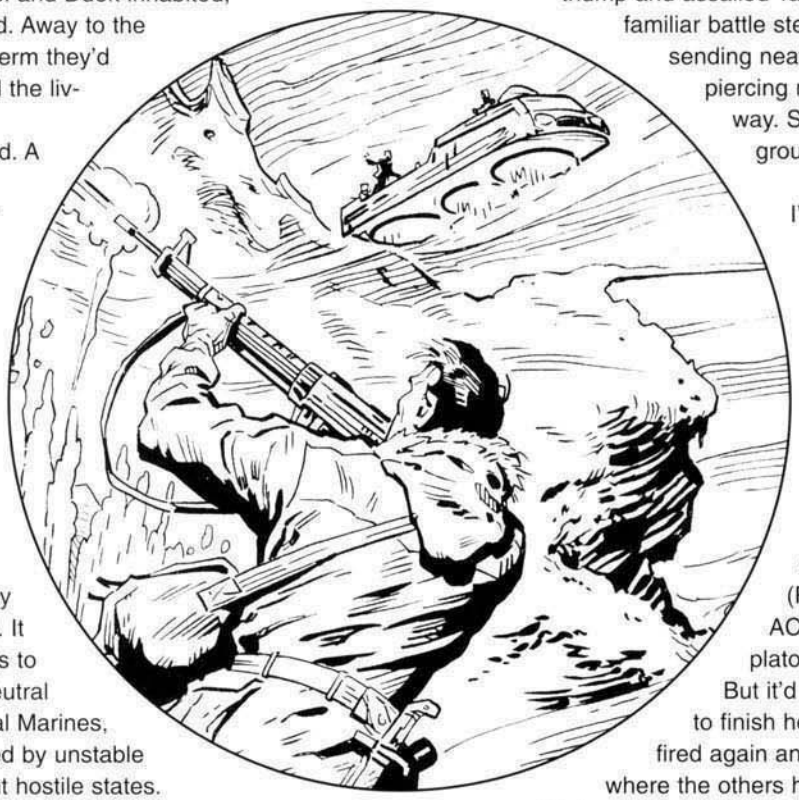
Gavin nodded nervously, and Tallei turned back to her captive as an air/raft hummed low overhead. "Right. Is this a hostage snatch or something nastier?" She demanded.

"S...snatch," the soldier said. Tallei kneed him in the crotch, hard. He groaned and slid down the door frame.

"Why'd you do that?" Gavin demanded.

"Don't need him chasing us. And besides, he was lying," Tallei replied grimly. "Now grab his weapon and be ready to run. If you get tired, or someone gets in the way, just remember that they're planning to shoot anyone they capture."

The three of them edged out of the prefab and into the chaos of the dig site. Figures ran about the compound, firing and looting. One of the clusters of prefab quarters modules - the one with the main sample storage area - was already alight. Someone was shooting from the other, and soldiers in the compound were firing back. So far the third cluster, the one Tallei and Duek inhabited, was relatively undisturbed. Away to the right, close to the earth berm they'd built when they bulldozed the living area flat, one of the air/rafts was still grounded. A couple of figures fired handguns from the other as it slowly rose on its lifters.



Tallei led her companions towards the grounded air/raft. If they could reach it or one of the others came back, it might be possible to pick up some of the other survivors - assuming there were any. If not, well, they were pretty much stuffed. It was several hundred kliks to the Downport and the Neutral Area enforced by Imperial Marines, through territory controlled by unstable and sometimes downright hostile states. And the cavalry wasn't coming to save them.

A new dusting of snow began to fall as the three flitted through the darkness. Behind them, someone threw a grenade into their prefab. Tallei wondered in a detached way if her captive had managed to get out. Not that it mattered all that much.

The shooting, which had been dying down, suddenly increased in intensity. Bullets zipped past as several local soldiers spotted them and opened fire. Gavin dove to the ground; Duek swerved away to the right and dashed behind a prefab. Tallei went prone, her rifle tracking around even before she stopped skidding.

The locals were shooting low-tech bolt-action carbines; the very best their technological base could produce. Slow to load and inaccurate - but deadly - they gave away the firer's position with a huge muzzle flash and a cloud of smoke.

Not so Tallei's weapon. That was an Imperial Army-issue 9mm ECT Advanced Combat Rifle fitted with electronic sighting aids and designed to maximize the effectiveness of the individual trooper. Such weapons weren't easy to come by - Tallei's was a gift from the army for 12 years' exemplary service; a faithful companion wherever she might go. And Tallei hadn't just been a lift trooper armed with an ACR, she'd been a marksmanship instructor.

It showed as the ACR came into play. Electrochemically-excited propellant made a dull, ripping thump and assailed Tallei's nostrils with its familiar battle stench. The rifle twitched, sending neat bursts of 9mm armor-piercing rounds on their deadly way. Soldiers tumbled to the ground.

"Gav! Run for the 'raft! I'll cover!" Tallei barked, her rifle searching out new targets. The heads-up goggles would make the task so much easier, but they were in her grab bag, and Gavin was carrying that. Still, Lance-Corporal Haalein, late of the 2716th Lift Infantry (Retired) armed with an ACR was a match for a platoon of low-tech troopers. But it'd only take one lucky shot to finish her, all the same. Tallei fired again and again, and wondered where the others had got to. If that air/raft didn't get here soon...

Lifters whined overhead. An air/raft slewed sideways, drifting half out of control as its inexpert pilot tried to bring it in close. Gavin leaned out, offering a hand. Tallei timed its erratic approach, winced as a carbine round starred the windshield, and sprang up, leaping for the 'raft side. Her right arm heaved the rifle aboard, her left missed its grip on the open-topped vehicle's side. The pilot floored it, accelerating away and lifting at the same time, dragging Tallei's boots along the ground. Then Gavin reached down, grabbed the first thing he laid hands on - a handful of the butt of her trousers, but nobody was standing on ceremony - and heaved. Tallei's left arm found purchase, and suddenly she was in the 'raft, tangled up with Gavin and her grab bag, but safe and accelerating away from the dig site.

"Hey, thanks Duek...." Tallei said, then paused. The pilot wasn't Duek. It was Garh'ahl, the only other Vargr among the dig team. Garh'ahl's snout was shorter, and black rather than tawny, graying with age. And he was snarling in pain as he hunched over the controls.

"Medic!" Tallei snapped reflexively, seeing the spreading stain on the pilot's shoulder. He'd been hit before he got into the 'raft, Tallei realized. Amazing that he'd managed so much, but he was clearly losing his fight for consciousness. As Gavin fumbled for the air/raft's medkit, Tallei realized they were headed straight for the perimeter berm. She vaulted over the front seats and lunged for the emergency autopilot handle, flipped up the cover, and slammed it home.

The 'raft was a Ling Standard Products Venture-600, a rugged model designed for frontier use. Its terrain-following safety systems, overridden during the hurried takeoff, were designed to save the crew, no matter what.

They tried.

The 'raft's headlong acceleration suddenly slowed, power surging to the lifters instead. The vehicle lunged skywards, straining to clear the berm. Bullets cracked and whined from the rear bodywork and lift plates. The bow cleared the berm, but the 'raft's rear end clipped it and flipped high. Tallei grabbed Garh'ahl and wedged herself against the dash as Gavin clung to the rear seat.

The 'raft's automatics cut lift, trying to prevent the craft from flipping over. It began to level out, but only at the cost of height. Gavin's voice shouted, "Brace for..." and then the grav vehicle was plowing a furrow in the half-frozen earth. Lifter plates buckled and sheared away, automatic systems killing the power to prevent a catastrophic discharge. After a tooth-loosening slide, the craft came to rest. It was brutally obvious that it would never fly again.

Tallei scanned back the way they'd come through her rifle sights. Nobody was pursuing them out over the berm, but there were lights approaching out of the darkness. A vehicle. It sounded like a combustion-engine jeep. The occupants weren't likely to be friendly.

Gavin worked feverishly, trying to pack the bullet wound in Garh'ahl's shoulder. The old Vargr had lost consciousness; maybe he was already dead. But Gavin tried anyway, talking into his wrist comm. as he struggled in the bloody darkness to save an old friend's life.

"This is Dr. Sobraashaii... Anyone, please answer," he said over and over. The comm. had a short range, and the air/raft's booster was likely smashed, but there was a chance that someone might hear. Perhaps whoever had got out in the other 'rafts might turn back. Perhaps Duek might be out there somewhere. Perhaps....

The jeep was closing fast, and someone aboard it had spotted them. Shots rang out. Tallei's rifle answered. Behind her Gavin hunched down and kept working on the wounded Vargr. She'd have to grab him and make a run into the darkness. Not that their chances were good, of course. Any minute now, unless she could knock out the crew and grab that jeep, she'd have to pry him away from his friend. He'd fight, he'd hate her, but she'd do it. Being alive and hurting was better than the alternative. That was something else the Army had taught her.

But she'd give Gavin every chance first; she'd let him try to save his friend. She'd do what the Army did; the service for which they'd let her keep the rifle. She'd defend Imperial citizens from foes within and without.

Until they killed her.

Light flared within the compound. Another vehicle was approaching, hurtling up the berm. Tallei tracked her aim point to where the headlight pattern suggested it would appear, then noted the sound it made. Electric drive train, fusion powered! She grinned and went back to shooting at the jeep, which skidded to a stop.

The vehicle crested the berm. As Tallei had suspected, it was the Portalab, a converted All-Terrain-Vehicle with its own fusion plant. The front six of the eight huge studded balloon tires left the ground as the heavy vehicle crested the berm. For a second it hung suspended in the air, drive train howling protest, sparks from rifle shots flickering along the hull. Then the front wheels plunged to earth, balloon tires bulging and spurting their gel filling where bullets had holed them. They'd seal in seconds, Tallei knew. Rifles wouldn't hurt an ATV.

The ATV shed a scattering of tools and equipment cases as it bounced, almost leaving the ground a second time. Then the wheels bit the hard earth, showering snow and dirt as the vehicle swerved left.

Towards the jeep.

Two soldiers leaped down and fled into the night as the ATV crunched over their vehicle. Then it was racing towards the crashed air-raft, skidding to a stop with the wide hull doors open and inviting. Tallei grabbed Garh'ahl's corpse - no, he was moving slightly - and scrambled aboard, gently lowering the Vargr scientist to the floor amid a heap of scientific equipment that'd poured out of sprung lockers or fallen from broken mountings.

Gavin stood up in the air/raft wreck and began throwing everything he could find aboard the ATV. A survival kit came arcing up. Tallei caught it and threw it inside. A Dens-Pak Cold Weather Clothing set followed. Tallei began to call to Gavin, to tell him to get aboard. They had survival gear in the ATV. But as Gavin turned back to the wreck, one of the local soldiers lunged out of the darkness and grabbed him. Another rushed up, carbine raised.

Tallei reached for her rifle, knowing she'd be too late. A shot rang out, the round passing over Tallei's shoulder to ricochet around in the ATV for a frighteningly long time. She hosed half a magazine at the soldier as he worked the bolt of his carbine, more or less cutting him in half.

The other assailant had lost his weapon - Tallei guessed it was crushed in the jeep wreckage - and was trying to grapple Gavin to the ground where he could be pummeled at leisure.

But Gavin was having nothing of it. His right hand, gripping something dark and hopefully solid, swung out in a wide clumsy blow that connected with the soldier's head. There was a crunch, and the trooper staggered away. Gavin took whatever he'd used as a club in both hands and bashed the soldier over the head with it several more times. He fell groaning to the ground. Tallei left him be as Gavin jumped into the ATV. He dropped the remains of his hand computer to the deck as Tallei slammed the hatch.

"Barbarians!" snarled Gavin. "All my notes were on that handcomp!"

Tallei shrugged. Alive with a broken handcomp was better than dead. "Wait till you see what Duek's done to the lab..." she muttered, then moved to Garh'ahl's side and reached for the large medkit. Most casualties that reached an aid station lived, she knew. This old Vargr must be supremely tough to have held on this long. He'd make it if she had anything to do about it.

Gavin looked around at the wreckage of his portable lab and muttered something about barbarians again. Then he helped Tallei clear the wreckage, set up a drip, and minister to Garh'ahl. The ATV raced on into the night, occasionally skidding, tilting alarmingly or even bouncing into the air as Duek kept the throttle on the floor and tried to make sense of the thermal imaging and radar displays.

After a while, Gavin and Tallei came forward to the driving compartment. Duek didn't take her eyes off the displays but nodded a weary greeting.

"Didn't know you could drive an ATV," Tallei said.

"Neither did I," Duek replied. "But it was learn quick or stay permanently. What happened?"

"I heard a rumor about war crimes and mass graves a while back," Gavin said. "I discounted it at the time, but I wonder if one of the local factions has something to hide. Perhaps they thought we might find something..."

"So they decided to murder a bunch of people in case we discovered they'd murdered a bunch of people..." Duek said.

"People do stuff that seems to make sense at the time," Tallei put in. "Not that it matters why, really. Once the Marines at the Downport deal with their situation they'll show the locals why you don't murder Imperial citizens. Meantime, we have to reach the port if we want to stay alive."

"Quite," Gavin replied. There really wasn't much else to say.

For a long while there was silence in the ATV cab. They slowed their breakneck pace and took turns to spell Duek at the controls. Garh'ahl clung grimly to life in the lab area, and slowly the dawn crept upon them. With it came a new problem.

"Oh, but you people have got to be kidding!" Tallei said. Gavin was at the controls, wrestling the ATV through a frozen-up watercourse. Unable to make sense of the radar display, he'd called Tallei over.

"This is bad?" Duek said from somewhere behind.

"Aircraft incoming," Tallei replied.

"Air/raft?" Duek said.

"Aircraft. Moving at less than a hundred and fifty kph. I'd guess local biplanes."

"You're kidding!" Duek said. When Tallei shook her head the Vargr lapsed into her native dialect for some choice expletives to add.

"Armed biplanes would represent the pinnacle of local technology," Gavin offered. "These people must really want us dead. Can the ATV survive their attack?"

"No," Tallei replied. "The hull will resist smallarms indefinitely, but they could chew us up with concentrated machine-gun fire. But it's worse than that. We're getting a satellite feed from the Port; it seems that their little situation is an all-out war between several of the local states. And we're in the middle."

"Ideas?" Gavin said.

"Keep running," Duek suggested.

"Outstanding," Tallei replied, staring at the terrain map. Unlike the others, she could read the military symbols displayed on it. Assuming the recon satellite they were getting the feed from was remotely accurate, then there was a major war going on ahead. That would explain the Marines' 'situation' and their inability to send help to a dig team they'd advised to pull out a week before.

"Aircraft closing," Gavin said needlessly.

"Yeah.... Look, boss, we can't go through a war zone. Come right and we'll take a shortcut," Tallei suggested.

"I'm reading this display right, am I not?" Gavin said.

Yup, that's a river," Tallei confirmed. "The A in ATV stands for 'All', remember?"

"Hmm... the autodrive pegs it as uncrossable... too much current, steep banks, waterfalls..." Gavin replied.

"Just do it, boss. We'll find a way."

"Okay.... What about the biplanes?"

"Just drive!" Tallei snapped, putting her boot on the back of Gavin's chair and throwing open the roof hatch. Bitter dawn air flooded into the speeding ATV, taking away everyone's breath. Tallei jammed herself into the hatchway and changed magazines in her rifle. One full, one partial, and that was it. And shooting at an aircraft from a moving vehicle. She should know better. Tallei laughed bitterly and brought the rifle up to her shoulder. .

The ATV lurched sharply to the right, hurtling out of the frozen streambed and across the tundra, crashing

through bushes and bouncing over rocks. Some kind of grazing animal fled in terror from this insane, speeding beast with its whining drive and scrabbling wheels.

Machine-guns thundered, chewing up the tundra as the first biplane made a pass. Tallei hunched down, trying to tell herself that the pilot had as much chance of hitting her as she had of bringing the plane down with a rifle. But all the same... she shoved the fear into that armored vault where she kept it during combat. When this was all over she'd bring the terror out, examine it carefully, and maybe have a little breakdown all to herself... but that was for later. For now there was rifle, target, aimoff, recoil and a very, very unstable firing platform.

Tallei sent burst after burst at the second biplane as it began its run. Ironically, the low signature of her rifle was working against her. The pilot probably didn't even realize he was being shot at; he wouldn't be rattled by what he was oblivious to.

Heavy-caliber-slugs rang and sparked from the aft end of the ATV, scattering most of the remaining tools and equipment. The right-rearmost tire shredded in a fountain of gel. Tallei slid out of the hatch as the ATV slewed crazily to the right, tilting violently. The rifle skidded overboard. Tallei started to go after it, sliding across the ATV roof.

Duek lunged from the hatch, grabbing at her friend's boot. Her claws sank into the tough pseudohide, stopping the skid long enough for Tallei to twist around and grab a tool rail. Duek hauled, and together they tumbled back into the driving compartment.

Gavin battled with the controls as the hull rang and thudded to the impact of more heavy bullets. Spallation - fragments of hull metal detached by the impact - blazed across the crew area, amazingly missing the unconscious Vargr strapped to the emergency bunk on the port side. The ATV skidded again as Gavin flinched from the impact of Duek's flailing boot. The scientist hunkered down, weaving the ATV through boulders and between lines of tracer.

The ATV clipped a boulder, lurching crazily. A tire snagged, tearing. Tallei and Duek clutched at the back of the seats, unable to do anything but cling on. Gavin was shouting at the communications panel, but neither of his companions could hear what he was saying.

The ATV straightened up, beginning a headlong rush for the river. The far shore was considered Imperial territory; if they could just get there, then maybe the locals would break off their attack. It wasn't likely, but it was just about possible. Shooting up a dig site in the middle of a war was one thing; attacking Imperial citizens on Imperial territory was an act of war and few low-tech nations wanted to take on the entire Imperium.

It wasn't much but it was a chance, and the only one they had.

The ATV's drive whine rose to a shriek as it streaked for the riverside, trailing shredded balloon tires and debris as Gavin abandoned evasion in favor of straight-line speed. Tallei got up off the floor and looked out the windshield. "We're crabbing right!" she hissed urgently in Gavin's ear.

"No, we're not!" he replied with a strangely manic grin.

"Yes, we.... Oh, but you are kidding!"

Gavin just nodded. He wasn't following the streambed into the river, he was aiming to the right where the ground rose; where a six-meter cliff jutted above the water.

"We're real slow in the water!" Gavin said. "I want to cross as quick as possible!"

"It floats! It doesn't fly!" Tallei all but yelled in his ear, but Gavin kept the hammer down, racing for the line as the biplanes closed in for a new attack pass. Tallei and Duek threw themselves into the front seats, slapping the crash harnesses closed as the ATV left the clifftop under full throttle.

The ATV hit the water nose first and plunged under, turning over on its side. The nose drove into soft silt on the riverbed, icy water pouring in through bullet holes and the open hatch. The craft rolled right over, then bobbed to the surface, floating lopsidedly. With two tires gone on one side, the vehicle had lost much of its buoyancy, and the pumps were only just keeping pace with the leaks.

Gavin ignored the water lapping around the base of his seat and engaged the water jets, apparently unconcerned that the vehicle's electrical systems might electrocute him. The ATV moved slowly forward, struggling against the rapid current.

And astern, the biplanes closed in again.

Gavin didn't look up from the controls, trying to drive the ATV onward by sheer will. Duek's ears went flat.
"That's it," she said softly. "We're..."
Tallei shook her head, holding out her right hand.

Duek pulled the autopistol from her belt and handed it over. It was their sole remaining weapon, a pitiful thing against what was coming. Tallei took it and began climbing out of the hatch.

"What's she hope to do with that?" Gavin's voice said from below.

"She's going to do what the Army does..." Duek replied, and up above them Tallei grinned.

The bank was still a hundred meters away; the planes were closing from astern. Tallei chambered a round and wedged herself in the hatch ring. She brought the pistol up in a two-handed grip. Yes, this was what the Army did. It protected Imperial citizens to the very end. Tallei had mustered out two years ago, but the rifle they'd let her keep was more than a weapon. It was a symbol of trust and a reminder that she had a duty to those who couldn't protect themselves. The weapon was gone, lost, but the duty remained. Nobody was going to get to her friends except over this soldier's dead body. And right to the end she'd be

trying to win the fight. Machinegun bullets stitched the water astern as Tallei took aim and ever so gently squeezed the trigger.

The biplane vanished.

Tallei blinked, uncomprehending, as the second plane stood on its wingtip, trying to escape. A ripping snarl came from behind Tallei as the plane and its pilot were instantly turned to matchwood and meatpaste. Something hurtled overhead, swinging back to hover beside them. A Marine Support Sled, an armored Air/raft topped by a turret mounting a VRF Gauss Gun with a truly awesome rate of fire. Not much of a combat vehicle for the modern battlefield, but more than a match for anything on this miserable planet.

Tallei slid back inside the ATV, splashing into the remaining water.

"Marines on the radio," Gavin said. "They're offering to send a G-carrier out for us."

Tallei caught his undertone, and agreed with the sentiment. "Tell them no. We could use a grav ambulance for Garh'ahl, but we're coming in under our own power."

Duek barked something, then translated, "Could use some dry socks though!"

Tallei glanced around at the half-wrecked ATV. "Thank them for the offer, but we got this far ourselves. Let's finish this."

Gavin nodded, speaking into the commset. "The Downport is secure, and the Marines are sending a G-carrier to take Garh'ahl in," he said. "But I've told them what we want to do."

The ATV hit the far bank, tires scrabbling in the half-frozen silt of the riverbed. The drive whined as they cleared the water and the Marine support sled raced off.

"Right then," Gavin said "Kishimaa Downport or bust."

The ATV bounced and jolted onwards. Tallei looked around at what was left of it.

"Make that and bust!" she said. "Kishimaa Downport - AND bust!"

FOOTNOTES

While some worlds of the Imperium are safe, well-policed, neatly-organized paragons of high-technology civilization, others are lawless frontiers where smart travellers go armed and are prepared for self-defense. Danger takes many forms, from hostile locals to pirates, robbers and other criminals. Flora and fauna, and even the environment, can threaten the safety of those making their living out on the frontiers. For this reason, many Imperial citizens who travel away from home own a personal weapon or two, and ex-military personnel (like Tallei) are sought out as travelling companions.

Traveller characters are rarely beginners fresh from the farm (though there is no reason why not!). Most are mature adults with a history or a career behind them and a bank of useful skills. A Traveller party might include one or two very inexperienced characters, one who is quite old (but with many, many skills) and several of moderate experience and age. Everyone will have some useful role to play, if they are smart enough to find it.

Most cultures in the Traveller universe are effectively "blind" to concepts like gender and even species. Thus males and females can hold any position they are capable of handling - it is the person that is important, not some arbitrary label like "Man", "Woman" or "Non-human".

Many alien species are fully integrated within Imperial society, and stand out only as much as someone with blonde or black hair, or who insists on wearing only black clothing, stands out in modern-day Terran society. For example, the Vargr (bipeds descended from canines rather than apes) are particularly common in some regions of the Imperium and people are as used to seeing them as humans.

Sometimes prejudice is encountered, but this tends to be in isolated communities or where the locals have had bad experiences with a particular species in the past. For the most part, individuals are seen as "a person who is a male member of the Vargr species" or "a person who is a female human", or even "A person who is an unclassifiable member of some species I've never heard of".

First and foremost in the Imperium, individuals are people. Labels serve to identify individuals, not to classify or stereotype them.

Thus any of the characters could have been the ex-military "Warrior", or the "Scholar", or, like Duek, the generalist "Traveller". Imperial society does not limit individuals based upon what they are. People are judged on what they can do, and what they actually do; not on what species, creed, "race", gender or religious sect they may belong to.

One of the main features of the Traveller universe is the mix of technologies. Quite often, characters may find themselves travelling by steam train or dirigible to a Starport where they will take passage on a starship. The weapons and equipment they carry may represent a technological level far beyond the reach of the world government.

The richness of culture does not end with technology. It is possible to go from an urbanized, industrial high-tech world to a rural agrarian setting - which may use oxen or grav-tractors to till the soil - in a short trip aboard a starship. Airless rockballs, waterworlds, icy wastes and lush jungle planets have all been settled by humans and aliens, and these settings have left their mark upon local society. It is this great variety of settings that makes it possible to run any sort of adventure in the Traveller universe; to go anywhere and to do anything.

In the rest of this book, you'll see how that's possible.

INTRODUCTION

by Marc W. Miller

WHAT IS TRAVELLER?

Most people never travel beyond their own region; they live their lives close to home, pursuing honorable goals, raising families, creating and sustaining the framework of society and economy that drives civilization. But adventure comes to those who travel, move, and act. Adventurers are travellers and this game system centers on the potential for epic adventure that travel presents.

***Traveller* is about travel.**

Players want to know about the universe in ways that extend beyond their daily lives... they want to know about other worlds and other cultures, about space travel and alien beings, about technology and how it will be used. Traveller emphasizes the effects of science in a fictional setting that is realistic enough to be the future.

***Traveller* is about the human condition.**

As players encounter alien races, exotic cultures, strange worlds, and the unknowns of time and space, they see the results through their own human eyes. If an alien culture is so random or so illogical or so incomprehensible that players cannot understand it then, in this game system, it serves no useful purpose.

On the other hand, well-thought-out alien cultures stimulate both thought and understanding. Encounters with a war-like alien race makes us think through or examine our own perceptions of violence and its place in society. A world where music is prohibited forces us to examine the value of that art to society and to ourselves. Everything in Traveller is ultimately understood through its effects on the human condition and seen through the lens of human understanding.

***Traveller* is about consequences.**

All actions have potential consequences beyond their immediate result. A random act of kindness sets in motion the possibility of consequences at some point distant in both space and time; negative acts potentially produce negative consequences. The fact that acts have consequences strongly influences (or should strongly influence) the decisions every role-player makes.

***Traveller* is about danger**

Travel without danger is mere tourism. It is only when there is an element (however small) of hazard or peril that travel becomes adventure.

***Traveller* is about risk and reward.**

Gains that come purely by chance are no more than lottery prizes; true rewards come only when the players take risks (albeit calculated risks) in order to achieve their goals.

And so, *Traveller* is about goals.

Some people want to build empires; others are content to follow their leaders. Some individuals care about money, others about power, still others care about knowledge. Players can set their own goals and pursue them at their own pace. The adventure is not in achieving goals, it is in the process of getting there.

Marc W. Miller is the creator of the award winning Traveller science-fiction universe.



INTRODUCTION

T20 is a conversion of the *Traveller* Science-Fiction RPG to the d20 System. *Traveller* was first published in 1977, and has gone through many incarnations since then. With each new edition, the background became deeper and richer.

While various *Traveller* products use other rules systems, the background, library data and setting are all compatible with T20. Conversion to these rules is quick and easy, since most *Traveller* products are rules-light. Similarly, ideas and even whole scenarios can be "borrowed" from other games, movies or novels without difficulty. *Traveller* is not a thing of rules; it is a setting and a Space-Opera-meets-Hard-SF style of gaming.

And it's fun.

Welcome to **T20.**

WHAT YOU NEED TO PLAY

Please note that this rulebook is not a standalone game system. It requires that you already possess a copy of a roleplaying game core book published by Wizards of the Coast® and that you be familiar with those basic rules, particularly character creation, skills, feats, and combat. ***T20*** *assumes this familiarity and thus only includes rules already existing in the core rulebook that have changed or are useful enough to warrant inclusion here.*

In order to play **T20** you will need at least the following items:

- A roleplaying game core book published by Wizards of the Coast® , which tells you how to create and play characters under the basic d20 System and how to apply the effects of experience gained by your character during the course of play.
- This copy of the **Traveller's Handbook,** which details the changes and enhancements to the basic d20 rules that are used in T20, along with the new rules for starships, worlds and adventuring in a science-fiction universe!
- One or more of each of the following types of dice: four-sided (d4), six-sided (d6), eight-sided (d8), ten-sided (d10), twelve-sided (d12), and twenty-sided (d20).
- Pencil (or pen) and paper for keeping notes about your character and the adventure. Graph paper is also recommended for making maps of places your character has visited.
- If you enjoy playing online, or are interested in playing *Traveller* online, you should also have a copy of *GRIP: Traveller. GRIP (Generic Roleplaying for Internet Players)* will allow a Referee and up to eight players to get together via the Internet or a local area network (LAN) and play Traveller (or any other RPG) no matter where they are located physically in the world. Visit http://www.RPGRealms.com for more information.

T20 - TRAVELLER FOR THE D20 SYSTEM

Traveller is a hard-SF (Science-Fiction) roleplaying game. That is to say, the *Traveller* universe obeys consistent and realistic laws. A few physics-tweaks are necessary to allow characters to travel between worlds, but what they find on those alien worlds will be physically plausible.

Traveller also obeys the laws of social science. The people encountered in the game will behave in a believable manner. Even aliens will follow their own consistent rules of behavior, even if they are so alien as to be incomprehensible.

Far from limiting the imagination, this grounding in hard science promotes creativity by creating a sound foundation to work from and a core of "normality" to counterpoint the wonders of the universe. Nothing is weird for the sake of making it weird, but there is certainly plenty of strangeness to explore and encounter.

The *Traveller* universe is a strange and mysterious place, but it is not frivolously so. A mysterious artifact or an alien society will have a reason for being as it is. Finding that reason may be a challenge, but who said exploring the universe was going to be easy?

Since *Traveller* first appeared in the mid-1970s, several editions have been published. Each had slightly (or radically) different rules. Each was set in a different era of the *Traveller* universe. These different systems allowed players to experience the classic SF RPG in different ways, and yet to a large degree they were all compatible. In fact, it is quite possible to mix-n-match components from all the different *Traveller* editions. We know this from experience. Our gaming table is littered with *Traveller* stuff from the past 25 years: our favorite rules, a setting book from a different *Traveller* line, deck plans and an adventure from yet another.

These rules allow *Traveller* to be played with the d20 System. They do not require knowledge of any previous *Traveller* rule set and will be supported by d20-specific supplements and adventures. Or you can plug them into any *Traveller* game, in any era. Everything in **T20** (other than the game mechanics) is cross-compatible with all official *Traveller* products.

One thing is important to note. *Traveller* is a high-technology setting, and this means that often a character's skills will be far more important than his or her level. Of course, those skills are gained by increasing levels, but it is important to understand that a high-level Academic with few appropriate skills will actually be less adept at his or her job than a lower-level but more specialized individual.

TRAVELLER GAMES

Traveller is suited to just about any style of play. Gritty and realistic to heroic and cinematic, the rules allow the Referee (*Traveller* has always referred to the GM, DM, Keeper, Project Director, Storyteller or whatever other

names you want to give this person - "Evil Sadist" is quite common - as the Referee, and **T20** follows this practice) sufficient flexibility to create a style of game suited to his or her players. There is no limit to the range of adventures that can be undertaken, but a few of the more common themes are listed here for reference:

Mercenary: One of the favorite *Traveller* themes has the characters as a team of well-armed mercenaries (or perhaps part of an organized military unit). Mercs act as proxies for world governments and megacorporations. They handle dubious tasks that the regular army cannot, for political reasons. They often get caught up in events beyond their control, where firepower may not be the answer. But when it IS the answer... these guys have it. And some to spare!

Free Trader: In the other classic *Traveller* game, the player-characters form part or all of the crew of a small merchant starship. With the big trade routes sewn up by the megacorp freighters, Free Traders (as these small starships are known) are forced to take whatever cargoes are on offer. A seemingly good deal can go sour in an instant, requiring fast talking or faster shooting. Free Traders often undertake other kinds of adventure, following up rumors that might lead to a big score... or a whole pile of trouble.

Exploration: Inside the frontiers and beyond them, there is still plenty to find out about the *Traveller* universe. As part of an exploration team, the characters get the chance to research some of it first-hand. That means interacting with strange aliens and stranger humans, investigating mysterious ruins and all the time trying not to get eaten by the local wildlife.

Intrigue: The corporations and world governments throughout charted space are constantly engaged in espionage, sabotage and intrigue. There is always work for a small team of experts-for-hire, especially if they don't mind getting their hands dirty. Or bloody.

Political: The grand events of the *Traveller* universe don't just unfold around characters. Sometimes they are driven by PC diplomats, nobles and military officers. From alien relations to arbitrating a corporate dispute, there is plenty for the well-connected character to get involved in. And political events can involve anyone... whether they like it or not.

Scientific: *Traveller* characters often explore ancient ruins or investigate strange biospheres for profit or in the name of science. Field research can be dangerous, especially on frontier worlds or in hazardous environments.

Adventuring: Most *Traveller* campaigns are a mix of the types mentioned above, and others too. Adventurers never know what will happen next. A routine port stopover can turn into Die Hard In A Vacc Suit. A simple cargo delivery may lead the characters to a mysterious alien vessel. A megacorporate official may decide the characters make a convenient scapegoat for his embezzlement of funds. The only certainty is that the unexpected can and indeed will happen - but not when you expect it!

THE TECHNOLOGY OF TRAVELLER

Certain concepts are integral to the *Traveller* setting. Most importantly, there is no means of faster-than-light communication other than sending a courier ship. With no FTL radio, communications are limited to the speed of the Jump drive, which is the only means of traveling between the stars. Any Jump takes a week or so, and most ships are limited to Jump 1 or 2, meaning that they can cross a parsec or two in a week. News travels slowly in the *Traveller* universe.

This creates a situation similar to Terra around 1850. Far-off colonies were weeks or months from advice or assistance, even if they could summon it. Cruising warships were the only representatives of government in some regions.

So it is in the universe of *Traveller.* Local leaders must make their own decisions. Higher authority can dictate general policy but it is the people on the scene who make the big decisions. Trustworthy, reliable, competent people are at a premium. Many freelance experts make a good living by being available where they are needed.

Worlds can have widely varying technology. A high-tech world with contragravity and fusion power may exist just parsecs from one relying upon steam power - or stone axes. There is no "prime directive" to prevent the sale of high technology to the savages - but what would they pay with? So Charted Space is a mix of industrial worlds and hardly-explored backwaters.

There are no "ray guns" in *Traveller.* The most common weapons are high-technology versions of modern firearms and blades. Laser, plasma and fusion weapons do exist, but they are grounded in real science rather than pure invention.

THE TRAVELLER SETTING

Traveller games can be run in any setting. The basic rules (ignoring any obviously irrelevant parts) could be used for a modern-day or post-apocalypse game, a crossover fantasy/high-technology game... even a Superhero game. There is no reason why your *Traveller* campaign should not feature spacegoing Orc pirates, zombie assault troops and interstellar dragon-riding mages (imagine filling in the insurance claim forms with "our starship then became involved in a fierce ship-to-dragon action in the Brogan system"!) or any other elements you deem suitable. These things do not appear in the "Official *Traveller* Universe", but don't let that stop you from creating the setting YOU want!

The *Traveller* rules can also (obviously) be used for any SF setting. You may decide (for example) to do away with some aspects of the technology such as Jump drive in

favor of your own invention or one lifted from your favorite movie. Or you could use the *Traveller* rules exactly as written but create your own setting from the ground up.

For those who do not have the time or inclination to immediately begin developing their own campaign universe, there is the official *Traveller* universe (sometimes referred to as the OTU). The OTU is one of the most fully realized science-fiction campaign settings ever created, having been developed over 25 years (and counting...). This rulebook assumes that games will be set in the OTU, or something that looks a lot like it. This gives us a handy source of examples, but it doesn't mean that you have to adopt all, or any, of the background concepts referred to.

THE OFFICIAL TRAVELLER UNIVERSE (OTU)

The Official *Traveller* Universe is set in a region known as Charted Space. Habitable worlds and intelligent life are common in this region - and much of that life is human. Major and minor alien races live within Charted Space, and here and there can be found remnants of older high-technology species. Charted Space has been inhabited for a long, long time. But there are still mysteries to uncover, new places to find and new dangers to face.

Most *Traveller* games are set in the Third Imperium, often just referred to as "the Imperium". The Imperium is a large region dominated by humans, but which grants full citizenship and rights to sentient aliens within its borders.

The Imperium is made up of thousands of member worlds, which agree to certain High Laws and pay a proportion of their income in tax, but which are otherwise free to tend to their own affairs. Friction, even to the point of open warfare, is tolerated amongst member worlds so long as the security of the Imperium is not threatened and trade is not disrupted.

With the exception of a few strategic worlds and areas of territory on most planets (for example, Starports are considered Imperial territory, but not local spaceports), the Imperium does not rule planets. Instead, it controls space and thereby all trade and movement of personnel.

So long as member worlds remain within their charter of membership, they are free to form any kind of government (or none at all!), and to pursue whatever goals seem appropriate. Trade is for the most part unrestricted, and citizens are free to move around as they please.

The vast majority of people live out their lives without ever leaving their homeworld. Others may study or work offworld for a time, or serve in the Imperial armed forces, before returning home.

Individuals who are not really tied to any one world are known (sometimes disparagingly) as "Travellers". Many Travellers are freelance scholars, engineers or specialists, who travel between the worlds and stations of the Imperium selling their skills and experience to the highest bidder.

Other Travellers include freelance troubleshooters, mercenaries, smugglers, merchants, spies, criminals and adventurers. What they all have in common is that they travel - hence the name - and that they have a way of finding adventure wherever they go.

A LITTLE HISTORY...

When the humans of Terra (now known as the Solomani) first ventured out into interstellar space, they encountered the Ziru Sirka, the Grand Empire of Stars. Now known as the First Imperium, the Ziru Sirka was ruled by another race of humans, the Vilani. Eventually it would come to light that many offshoot human races existed, seeded among the stars by the mysterious Ancients.

War flared up between the expansionist Terrans and the stagnant First Imperium. After decades of bloody conflict, the Ziru Sirka began to collapse from within. Deep in decay, the apparently stable First Imperium crumbled in an astonishingly short time.

The Terrans' mission to conquer the First Imperium became a crusade to save it, and for 400 years they almost succeeded. The Solomani created the Second Imperium out of the wreckage of the First, uniting both species of humans in what became known as the Rule of Man. Historians have another name for this period; they call it the Ramshackle Empire.

Unable to stop the decay of the old First Imperium, and having accelerated it by war and conquest, the Rule of Man slowly collapsed into what became known as the Long Night. The Long Night is rightly named: nearly 2000 years of darkness ensued. Star travel all but ceased. Worlds regressed or died if they could not support life without outside assistance.

Lights flickered here and there in the darkness. Pocket Empires sprang up and took the hope of dawn with them out into the wilderness. All of them failed, collapsing back to a tiny cluster or even a single world clinging to the remnants of its technology.

Finally, the lights came on again. The Sylean Federation somehow succeeded in defeating internal and external enemies to attain that critical mass needed for expansion. In time, the Sylean Federation became the Third Imperium, and brought civilization back to the stars. The current Imperial dating system is based on the founding of the Third Imperium in year 0. (This dating system uses the prefix IE, e.g. IE 782).

The Third Imperium is now a thousand years old. It has survived civil war, murdered Emperors, rebellions, border clashes and bloody conflict with human and alien states. The borders of the Imperium are more or less fixed, but expansion still takes place in some areas.

On the surface, it seems that the Imperium is enjoying a golden age of stability and peace. Yet peace is a fragile thing. It must be maintained by the vigilance and efforts of diplomats, covert agents and military personnel. However

UNIDIGIT/HEXADECIMAL

Traveller uses a number of shorthand codes, for example UWP (Universal World Profile) and USP (Universal Ship Profile) codes. These are presented as a string of digits, e.g. A-573278-B.

For obvious reasons, it is not possible to use numbers above 10 in such a code, so Traveller uses a system based on Hexadecimal notation. This means that numbers of 10 and above are replaced with letters. A is 10, F is 15, etc.

Most codes use a 1-15 (1-F) range, but sometimes a larger number is required. For this reason, the hexadecimal notation is extended through the alphabet, missing out potentially confusing digits such as letters I and O.

Thus numbers in the Unidigit system are represented as follows:

Base 10 Number	*Unidigit*	*Base 10 Number*	*Unidigit*	*Base 10 Number*	*Unidigit*
1	1	12	C	23	P
2	2	13	D	24	Q
3	3	14	E	25	R
4	4	15	F	26	S
5	5	16	G	27	T
6	6	17	H	28	U
7	7	18	J	29	V
8	8	19	K	30	W
9	9	20	L	31	X
10	A	21	M	32	Y
11	B	22	N	Reserved	Z

Note that Z is undefined, and can be used to represent any number as needed.

placid things may seem from the cities of the core worlds, there is always someone at the sharp end, struggling to prevent a war or defuse a crisis.

And sometimes, they fail.

DIRECTIONS IN CHARTED SPACE

North, south, east, west are insufficient terms for referring to directions within the galaxy. Instead, the following conventions have achieved widespread acceptance when referring to direction:

Toward the galactic core is Coreward; away from it, in the direction of the rim, is Rimward. In the direction in which the galaxy is rotating is Spinward, and the opposite direction is Trailing. In the OTU, these directions are widely used in describing Imperial features and businesses. For example, the Spinward Marches is a sector at the extreme Spinward fringe of the Imperium; Rimward Lines is an important interstellar transport company. The term Coreward is also used within the Imperium of the OTU to indicate the direction of Capital, the Imperial core. There is some potential for confusion if the term is accepted out of context.

THE TRAVELLER'S AID SOCIETY

The Traveller's Aid Society (TAS) exists to help and support those who travel as part of their occupation (as opposed to those who make the occasional trip for a holiday or similar reasons). TAS maintains a network of hostels and other facilities, which are available at a preferential rate to members. TAS facilities are renowned for their safety and security (though they are expensive for non-members.) TAS hostels are also good places to meet other travellers and share tales or conduct business. Many an adventure has begun with an encounter in the lounge of a Starport TAS hostel.

TAS also operates a news and advisory service, which is well known for its accuracy and impartiality (some would go so far as to say "arrogant nosiness"), and assigns "Travel Zone" ratings to worlds. Most worlds are unrated (or "Green"); this does not mean that they are totally safe, merely that no unusual or particularly dire threats exist. Amber zones are assigned to worlds where dangerous conditions (these can be natural, political, environmental etc) exist and caution is advised. Red Zones are not imposed by TAS, but are reported by them. Red Zones indicate worlds that are prohibited to unauthorized travellers. Visas are sometimes but not always available, but red zones are interdicted for a reason, so caution is necessary.

TAS membership is sometimes gained as a benefit upon mustering out of a service or career. It is also possible to purchase membership. This costs Cr 1,000,000 and runs a small risk of being "blackballed". Blackballed characters lose their fee and are denied entry, usually for life.

A character who is a member of TAS can use the facilities at a discounted rate, receives preferential treatment from the staff, and also has access to the members-only sections of TAS reports. This can give a TAS member a significant advantage over other travellers.

CHARACTERS

Just as ***Traveller*** lends itself to almost any style of adventuring, so almost any character can find a place in a Traveller group.

A burned-out Scout Service pilot on the edge of a breakdown...
A young medical student, working passage aboard a Free Trader to earn enough for the rest of her medical degree...
A tough ex-Marine searching for his missing brother...
A smooth-talking merchant captain, charming but deadly with her twin gauss pistols...
An unappreciated genius, ridiculed by the scientific community but determined to vindicate himself...
An Ex-Navy officer with a dark secret...
Or a professional adventurer, doing it for the thrill of it all.

Traveller characters are the heart and soul of the game. Any character you can conceive has a place in Traveller. Player-Characters (PCs) are individuals a little apart from the great mass of humaniti (a term that refers to the many human major and minor races) or whatever species they belong to. Travellers are skilled, resourceful individuals who are not afraid to face a little danger in the course of their endeavors. Each character brings unique skills and strengths to the group, depending upon their background and previous experience.

PCs are rarely first-level beginners, though there is no reason at all why a player should not choose to take on the role of a callow youth fresh from the agropod. More commonly, PCs have prior experience in education and/or a career, plus some life skills picked up along the way. 5th-7th level starting characters are not uncommon as a result of the previous experience system. Characters starting play can be very young, mature or even quite old if the player so desires. Such a highly experienced starting PC will have impressive skills, but may be a little frail.

Characters are shaped by certain factors. These are:

ABILITIES (PG. 20)

Traveller characters possess the normal d20 attributes, plus others that measure two important factors. These are:

Education: A measure of learning from formal and informal education and academic reading.

Social Standing: A measure of a character's place in society. SOC can have important connotations for a character.

RACE (PG. 21)

A character's species has a considerable effect upon his or her attributes. Most characters are humans of one sort or another, but a PC can belong to any intelligent species. Vargr are popular player-characters, and other non-human races may be chosen depending upon the region of space the game is set in. Example races are presented later in this section.

HOMEWORLD (PG. 30)

A character's homeworld is important in many ways. Physical conditions such as gravity, hydrographics or atmosphere can result in a character having special abilities or skills. Homeworld tech level is also important in determining what equipment a character knows how to operate. Some careers are only open to characters from a particular type of homeworld.

CLASS (PG. 34)

T20 uses nine main character classes. A character's class represents his or her main field of activity but does not preclude a broad range of skills. Note that a character's class may have nothing to do with her current employment. A character belonging to the Academic class does not necessarily work in a university: he may be a merchant ship's purser or even a military administration officer. A member of the Mercenary class need not be a bounty hunter or soldier. She may be a security guard or actually work as a finance clerk, but obsessively train for combat in her free time.

The core T20 character classes are:

Academic: Scholars, researchers and scientists, those with a thirst for knowledge but little or no aptitude for physical activity or combat.

Barbarian: Hardy individuals from a rustic, low-tech background. Barbarians are usually pretty fair fighters with low-tech weapons.

Belter: Spacegoing miners and prospectors with good low-g and space skills.

Mercenary: Characters specializing in combat of one sort or another. A mercenary is likely to have served in the military or an organized security force at some point in his or her career.

Merchant: Starfaring traders working for large corporations or as Free Traders.

Noble: Powerful, rich individuals from important families. Nobles are leaders and diplomats.

Professional: The businessman, technician, dockworker, and other common professions. Professionals are generally active individuals with little combat aptitude.

Rogue: People who go in harm's way and take risks, and may train a little for combat.

Traveller: Active, handy people who don't train specifically for combat but can handle themselves.


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PRIOR HISTORY (PG. 120)

A character's prior experience dictates his or her level, skills and feats.

Traveller characters gain prior experience by cycling through a series of "terms" served in various careers. Each term can have special results, determined randomly, and gives the character experience points as well as specific feats and skills. At the end of a period of service, characters roll for benefits gained upon "mustering out". Not all service is voluntary; characters who fail to enter a service may be drafted into another. Prior experience falls into the following categories:

Education: PCs often attend university or take courses to improve their skills and knowledge. Degrees and academic titles can be useful in their own right.

Military Service: Prior service in the Army, Marines or Navy may fit a character for a life of adventuring. Or she may be drafted during a period of crisis.

Non-Military Service: Many PCs come from the Merchant lines or Scout Service. Their skills include those required for starship crew, plus more general abilities.

Career: Many PCs have pursued or are still pursuing a civilian career. They may have been anything from a Belter (spacegoing prospector) to a freelance Xenobiologist.

Other: Some adventurers have a dark and shady past. Criminals, conmen and special agents fall into this category.

ABILITIES

The basics of generating your character's ability scores are as detailed under the standard d20 rules, but Traveller adds two additional abilities to your character: Education and Social Standing.

EDUCATION (EDU)

Education is a measure of a character's accumulated knowledge, both through life experience and/or formal education. Education can be an important attribute to all classes, since many skills depend upon education and general knowledge can be very useful to an adventurer. Note that EDU can represent general reading and a capacity to remember odd facts; the character need not be a university graduate to have a high EDU, though that it is the surest way to gain it.

You apply your character's Education modifier to:

- General knowledge checks, when attempting to recall information on a subject with no related formal Knowledge skill.
- All Knowledge skills of any type.

For quick reference, here are the standard Ability Score Modifiers:

ABILITY SCORE MODIFIERS

Score	*Modifier*
0-1	-5
2-3	-4
4-5	-3
6-7	-2
8-9	-1
10-11	+/-0
12-13	+1
14-15	+2
16-17	+3
18-19	+4
20-21	+5
22-23	+6
24-25	+7
26-27	+8
28-29	+9
30-31	+10

All creatures that can think and learn begin with 0 points of Education. A creature with no Education score is an animal, operating on simple instincts. It will automatically fail Education checks.

An education of 0 means that the character has absolutely no formal schooling or education.

EDUCATION SCORES

EDU	*Equivalent Education Level*
3	Elementary School
6	Middle School
10	High School
12	Bachelors Degree*
14	Masters Degree*
16	Doctorate Degree*

* For reference only, does not imply the character holds an actual degree.

Using Education: Education acts as sort of a general repository of knowledge for a character that may be called upon in certain situations where the character might know the answers to general knowledge questions. Education covers everything that the Knowledge skills do not, such as general history and sociology, along with basic math and sciences. In real-world terms, if the answer might be available to someone with a basic high school education

use Education to determine if the character knows or can remember it.

SOCIAL STANDING (SOC)

Social Standing denotes the social class and level of society from which a character (and his or her family) comes. A Social Standing of 16 or greater indicates a hereditary family title of nobility. Any creature living as part of a larger civilization will usually have at least 1 point of Social Standing. Anything with no Social Standing is fairly isolated from civilization, an animal, or an automaton. A social standing of 0 means that the character is from the lowest levels of society.

SOCIAL STANDING SCORES

SOC	*Title or Likely Social Level*
0	No contact with civilization
1	Felon wanted for particularly repulsive crimes
3	Very Poor or Criminal
5	Unskilled Laborer or Very Poor
7	Semi-Skilled or Poor
9	Skilled Worker
12	Educated Professional
14	Highly Respected Professional or Executive
15	Untitled member of Noble family, or close member of Noble household
16	Knight, Knightess, Dame
18	Baron, Baroness, Baronet
20	Marquis, Marquesa, Marchioness
22	Count, Countess
24	Duke, Duchess
26	Archduke, Archduchess
28	Crown Prince, Crown Princess
30	Emperor

Using SOC: SOC determines the level of society the character is used to operating at, and without special training the individual will lapse into the speech habits, slang, and general behavior associated with that group. This should be roleplayed; a poor laborer (SOC 6) will likely have no idea how to address a Knight, and will embarrass himself at court. Someone from a corporate executive (SOC 13) background will simply not be able to pass for a street gang member without specific coaching or experience (perhaps represented by Connections/Streetwise feat) in how to do it believably.

Generally, high SOC is useful in that officials tend to react better to high-status individuals (who may be perceived as powerful). High SOC also is required to gain access to the world of the nobility and important military and government officials, who simply "don't deal with the proles".

Some low-SOC people resent the higher-ups, while others are respectful or even obsequious. On the other hand, some high-SOC individuals are contemptuous of the "rabble" while others see themselves as serving the masses, and treat less privileged individuals with courtesy and respect. This depends upon the individual and local conditions, and the Referee may choose to modify reaction rolls when individuals with very different SOC scores meet.

Cost of Living: A character must spend a minimum of Cr100 per point of SOC per month to maintain the standard of living required for his or her social status. This will cover the character's basic expenses such as food, minimal clothing, and adequate shelter for the period. For each month a character is not able to monetarily maintain his Social Status, his effective SOC ability score is temporarily reduced by 1. If the next month a character is once again able to maintain the normal Social Status, their effective SOC ability score is returned to normal (no matter how low it had dropped). See Subsistence on a Long Term Basis (pg. 214) for more information.

RACES

There are a multitude of sophont species in the Traveller universe. Some are widespread, some confined to a single world. Not all of them are properly understood. In addition there are many groups of humans that display sufficient cultural or physical variation from the norm as to seem "alien". Some such "alien-humans" are genetically-modified harsh-world settlers sent out by the Solomani or other civilizations, while others have been shaped over many years by conditions on their adopted homeworld. And some defy explanation.

While the non-human races described in the Player's Handbook could conceivably be used as alien races within the Traveller universe, those races are not wholly designed nor suited for use in a Traveller campaign.

ALIEN LEVEL

Some alien races, particularly those whose ability scores are considerably above normal have a specific Alien Level. When these aliens acquire a character class, they follow the rules for multiclassing. The creature's character level equals the number of class levels it has, plus the number of alien levels for such beings. Thus a 1st level Ursa Rogue is a 2nd level character (1 class level + 1 alien level = 2 character levels) and begins play with 1000xp already accumulated. This will cause some alien PCs to advance more slowly than others, though this is usually offset by specific racial benefits.

HUMANITI

Humans are the most commonly encountered race in Charted Space. When Terran humans reached the stars, they encountered dozens of distinct Human races (and that's not counting minor variations among colonists after a mere few hundreds of years on non-Terra-like worlds), some having developed rather unique racial characteristics. How this came to be is the subject of many debates, but it does appear that all owe their original genetic heritage to the Humans of Terra.

Most humans are of mixed blood. Some "racial" characteristics have survived through the ages, and the whole range of human variation can be encountered. On some worlds, the gene pool of the original colonists was such that a particular skin color or other characteristic dominated. In other cases a cultural characteristic came to dominance, creating a society with the flavor of, say, a Southeast Asian nation on Terra but very diverse physical characteristics among the populace. Some groups of colonists were shaped by their environment, coming to resemble one of the races of old Terra through adaptation to similar conditions.

HUMAN SPECIES TRAITS

- Human base speed is 9 meters.
- Medium-size. Humans receive no special bonuses or penalties due to their size.
- 4 extra skill points at 1st level and 1 extra skill point at each additional level.
- 1 extra feat at 1st level.
- Automatic Languages: See Subrace information below.

HUMAN SUBRACES

VILANI HUMANS

Vilani are as mixed in physical characteristics as any other human group. Their culture is the remnant of an empire (the Ziru Sirka, or First Imperium) that once dominated thousands of worlds. The traditions of the Ziru Sirka remain a powerful force even today. Vilani society is built around guilds and Bureaus that run the various services needed to keep a society working; these too are holdovers from the First Imperium period.

Vilani view scientific and technological progress with disdain; stability is more important than progress. Pure-blooded members of the race tend to live very long lives. This trait is rapidly diluted by interbreeding. When selecting Vilani as their character's race, players should state whether the character is of mixed or full-blooded Vilani descent.

Status: Major Race
Homeworlds: Vland A967A9A-D
Languages: Galanglic and Vilani.

SOLOMANI HUMANS

Originally known as Terrans or Earthlings among themselves, these humans of Terra (Earth) eventually adopted the title of Solomani or the Men of Sol as the designation for their race. Solomani or humans belonging to a Solomani-influenced culture are more innovative and inquisitive than their Vilani cousins. Solomani are explorers and tinkerers. Solomani societies tend to be more violent and unstable than their Vilani equivalents.

Status: Major Race
Homeworlds: Terra (Earth) A867A49-D
Languages: Galanglic.

MIXED RACE HUMANS

The humans of Charted Space include some pure-blood Vilani and Solomani groups, but the majority are of mixed blood. Some regions are dominated by Solomani or Vilani cultural ideas (this has little to do with lineage, though pure-blood Vilani tend to maintain their traditional lifestyles). Most humans think of themselves first as citizens of their homeworld, then as citizens of any interstellar government. Cultural pollution has caused many worlds (especially those on major trade routes) to move towards a "standard-starfaring" culture, though even this is subject to local variations. Some worlds are very different to this starfaring-norm culture. Diversity (within limits) is more common than compliance.

Status: Major Race
Homeworlds: Numerous.
Languages: Galanglic and their own local homeworld languages (if any).

ZHODANI HUMANS

The other major human group is the Zhodani, who rule a large area of space away to Coreward-Spinward. The Zhodani have embraced telepathy and other psionic talents and are ruled by a psionic nobility. Their society is stable and peaceable, but ready to defend its borders against aggression.

At the top of the Zhodani social order are the psionic nobles, either drawn from the most adept psionicists among the Intendant class, or trained from birth when born of a noble family. Nobles in Zhodani society form the core of the elite business owners and managers, politicians and military leadership.

Below the nobility is the Intendant class. Intendants are psionically trained individuals born of an Intendant family, or selected from among the proles for their high psionic potential. Intendants act as the middle managers, bureaucrats, and functionaries of Zhodani society. Many are assigned as personal secretaries to individual Zhodani nobles.

The Proles, who greatly outnumber Nobles and Intendants, are typically not psionic, or are low strength

natural talents without any formal training. The Proles are the contented farmers, factory workers, scientists, technicians, dockworkers, supervisors, junior managers and enlisted members of the armed forces who make up the majority of Zhodani society.

All Zhodani characters with a Social Status of 16 or higher are nobles and are automatically considered to be a Natural Psionic Talent (see Psionics, pg. 186). All other Zhodani characters should automatically be checked to see if they are a Natural Psionic Talent. If the character is a natural talent with a PSI score of 10 or higher, he or she is considered to be an Intendant. If an Intendant's Social Status is below 10, it is automatically raised to 10.

Status: Major Race
Homeworlds: Zhdant A6547C8-D
Languages: Zdetl.

OTHER HUMANS

Various groups of genetically engineered, adapted or pure-blood humans exist in Charted Space; some of them in strange places. Cultures vary widely; usually this is the result of local conditions. Not all of these offshoot species are capable of interbreeding with genetically "straight" humans, and some are very different from the "human" norm.

Status: Minor Race
Homeworlds: Numerous.
Languages: Galanglic and their own local homeworld languages (if any).

VARGR

Of all the races of Charted Space, Vargr are the most similar to humans, though their biology and culture is quite different. Vargr have a pack mentality, which includes an obsession with status and "Prestige", and are known for their liberal attitude to laws. Vargr corsairs are notorious, and in some areas are the only contact humans have with Vargr. However, Vargr are part of human-dominated society in many regions.

The Vargr are an intelligent race descended from a carnivore/chaser stock that has a remarkable resemblance to the native Terran (Earth) animal known as the wolf.

VARGR RACIAL TRAITS

• +2 Dexterity, -2 Strength, -2 Constitution.

• Vargr base speed is 12 meters.

• Medium-size. Vargr receive no special bonus or penalties due to their size.

• Eyesight is much sharper than human sight, but has a more limited range of color sensitivity. They receive a +2 on all Search checks.

• Hearing is excellent, extending into lower ranges beyond the level of human capability. They receive a +2 on all Listen checks.



• Vargr also possess a keen sense of smell, gaining them a +1 on all Spot checks.

• Vargr enjoy a +1 BAB when attacking with their claws or bite. An unarmed Vargr may make two claw attacks (1d4 + STR Modifier in damage each) as a full round action, a single claw attack (1d4 + STR modifier in damage) as a standard action, or may try to bite an opponent (1d6+3 damage) as a standard action each round.

• Vargr have a special characteristic known as Prestige that is based on the character's Charisma score, but works in place of Charisma when dealing with other Vargr. It measures a Vargr's status (not necessarily self-worth) among his or her peers. Initially the Prestige score is equal to the character's Charisma score divided by 3 (round down, minimum of 1). When a new level is achieved the Referee should determine if the character will gain or lose one point of Prestige (or remain at the same score) based on the actions of the character since they last gained a level. Actions of notoriety (good, bad or otherwise) are more likely to improve Prestige than actions that gain little or no publicity. Prestige-gaining actions include leadership of a mission, promotion to an impressive post or rank, particularly flamboyant execution of a task, defeat of a notorious foe or avoiding destruction at

the hands of such a foe while carrying out actions that diminish them. Prestige loss is likely when a character suffers public defeat or humiliation, is eclipsed by another character of lesser Prestige, or is forced to back down publicly. For high-Prestige characters, simply not gaining more Prestige implies that they have started "playing it safe". Prestige will be lost if the character stops trying to build their legend.

• Automatic Languages: Irilitok and Galanglic.

Personality: Vargr are frequently characterized as 'inconsistent' by outsiders, who see many of their behavior patterns as contradictory and strange. They are a gregarious people who take great joy in the company of one another, and seek the security and comfort of fellowship with other of their own kind. Yet at the same time Vargr engage in almost constant struggles to achieve prestige and dominance within their group. This frequently gives the appearance of a quarrelsome, sometimes even treacherous nature. Indeed, Vargr move from one group or association to another with such great regularity that they may seem to have no loyalty to any specific institution or purpose. This is not the case. Vargr are every bit as loyal to their cause, leader, or institution as a human would be, but they know that eventually the time will come to shift that allegiance. When that time comes, they will transfer their loyalty to some new focus, and remain true to that until it is time to move on. Exactly what criteria are needed to convince a given Vargr that it is time to change varies widely.

Physical Description: Physically, Vargr are slightly smaller and lighter than an average Human (1.6m, 60kg), upright, bipedal, and remarkably humanoid in development and appearance. They are covered with short fur, which is generally brown, black, or rust colored and frequently combines shading of these and other colors. Their tails are fairly long and generally end in a flaring brush. The muzzle is much shorter and less pronounced than in Terran canines, but is still quite evident. The fingers of a Vargr also retain sharp pointed, non-retractable nails that can function as claws in some close combat situations. On the whole their reactions are slightly faster than those of a human.

Status: Major Race

Homeworld: Lair A8859B9-D

Languages: The most common dialect spoken by Vargr in the Gateway region of space is Irilitok, though there are numerous other Vargr dialects spoken through charted space. Most all Vargr also speak Galanglic.

Adventurers: Vargr are well suited to the risk/reward nature of the ever-changing adventurer lifestyle. The inbuilt drive to better oneself produces many born adventurers, and thus ideal Traveller characters.



Note: Other versions of ***Traveller*** do not have a Charisma stat. Vargr Prestige is called Charisma in these versions. The change was made for T20 to avoid confusion. If using materials written for a different Traveller rules set, treat any reference to Charisma as Prestige.

ASLAN

The first humans to encounter this alien race thought the humanoid Aslan to be vaguely "lion-like" in appearance and labeled them with an appropriate word from a Terran language. The resemblance is fairly minor (and Aslan certainly have no connection with Terran felines) but the name stuck. Aslan society is rigidly divided into male and female roles. Males are warriors and protectors; females are administrators and scientists. Male Aslan, who measure wealth in terms of land and prestige, have difficulty in surviving in human society. Concepts like "money" are alien to them, while humans seem to lack "honor". Females are more adept at organization, finance and business, and have far fewer problems interacting with non-Aslan.

Aslan are descended from four-limbed carnivorous pouncer stock that rose to the top of the food chain in the forests of their homeworld, Kusyu.

ASLAN RACIAL TRAITS

- All Aslan: +2 Strength, -2 Dexterity
- Male Aslan: +1 BAB with all weapons (which makes+2 with dewclaw; see below), -2 Wisdom. May not take the Academic, Belter, Professional, Merchant, or TAS Field Reporter classes.
- Female Aslan: May not take the Big Game Hunter, Mercenary, Noble, Scout, or Ace Pilot classes.
- Medium-size. Aslan receive no special bonuses or penalties due to their size.
- Require 10-11 hours of sleep every 32 or will begin to suffer degradation of their abilities.
- Aslan base speed is 12 meters. However they are capable of short bursts of speed. In combat an Aslan has a movement of 18 meters.
- Aslan enjoy a +1 BAB when attacking with their dewclaws (see Physical Description, below). An unarmed Aslan may make two separate dewclaw attacks (1d6 + STR modifier in damage each) as a full round action or a single dewclaw attack (1d6 + STR modifier in damage) as a standard action each round.
- Hearing is superior to that of humans, giving all Aslan a +1 to Listen checks.
- Low Light Vision: Aslan can see twice as far as humans in starlight, moonlight, or other low light conditions.
- Automatic Languages: Aslan and Galanglic.

Personality: The Aslan are a warrior race, noble and proud. They are dedicated to those in authority above them and responsible for those who owe fealty from below. Their society is based around the family and its relationships. They are fairly touchy, and it is quite easy for Aslan to give or take offense. Dueling is a common way by which insults and slights are resolved (see the Tolerance feat pg. 110).

Aslan males have a territorial instinct to acquire and accumulate land. This is the male's primary goal in life, his status being determined by the amount of land he controls. In society most males (except the lowest classes) are found in the military or in politics. Aslan females are the ones that handle the trade, industry, and accumulation of knowledge within Aslan society.

Aslan measure SOC by how much land an individual or his kin can lay claim to. A low to moderate SOC (up to about 12) usually indicates that the Aslan has little or no land of his own - his SOC is due to the holdings of his clan (or a family within the clan). SOC of 12 or above usually indicates that the character has at least a small amount of land somewhere, and the more he has, the higher his SOC will be. This land may actually be pretty worthless - a few square miles of pasture or lonely moorland - but to the Aslan the ability to take land and keep others from taking it away is the measure of a male's importance.

Physical Description: Aslan are upright bipeds standing roughly of Human height (1.8-2m). They weigh on average 100kg. The Aslan hand has three fingers opposing a single medial placed thumb, and all have retractable claws. In addition, Aslan have a single highly specialized claw under each thumb. This 'dewclaw' folds back jack-knife fashion into a horny covering in the base of the thumb and palm. The presence of these claws and the general body structure of Aslan make them somewhat clumsy by human standards, but what they lack in dexterity they make up for in strength.

Status: Major Race

Homeworld: Kusyu A876986-C

Languages: Aslan all share a common language and culture. Most Aslan also speak Galanglic.

Adventurers: Male Aslan will likely be adventuring with the eventual goal of acquiring land. Female Aslan may be adventuring for business or personal reasons.

THE OTHER MAJOR RACES

Droyne: The Droyne are bird-like, reptilian humanoids whose society is divided into six castes. They live on many worlds scattered throughout Charted Space, and seem not to have any large political groups. Many Droyne worlds are low-technology farming communities, but some possess technology different to (and perhaps in advance of) anything possessed by humans. Droyne often engage in incomprehensible activities, which they never explain. They thus seem very alien to humans.

Hivers: Hivers are strange, hexapod creatures resembling very large starfish. They are perhaps the most alien beings in Charted Space. Hivers are assumed to be physical cowards because they go to great lengths to avoid confrontation, though their penchant for clever manipulation of other beings (as individuals or even whole societies) is well known. Groups of Hivers sometimes wander through human-dominated space for their own reasons. Mostly they remain in their own large area of space. Several other races form part of the Hive Federation, and seem happy under Hiver rule.

K'Kree: The K'Kree (or Centaurs) resemble large herbivores with small grasping forelimbs sprouting from their forequarters. They are immensely claustrophobic, and being herd creatures tend to travel in large groups. K'Kree are militant vegetarians, and dream of the day that they will destroy all meat-eaters. Relations with humans can be rather strained, to say the least.

MINOR RACES

There are many minor races - some very alien indeed - throughout Charted Space. Not all of them are what they seem. The Referee is free to develop his or her own minor races, both human and alien, as necessary. Some examples from the Official Traveller Universe are given below.



LURIANI

The Luriani are an amphibious minor human race, apparently 'seeded' on their homeworld of Daramm roughly 300,000 years ago by the Ancients, in an (unfinished) attempt to breed a race of aquatic humans for some unknown purpose. Luriani constitute the third largest sub-race of humans in the region, second only to humans of Vilani or Solomani descent, and have long been an important part of the history and politics of the Domain.

LURIANI RACIAL TRAITS

- +2 Constitution, -2 Wisdom.
- Luriani base speed is 9 meters.
- Medium-size. Luriani receive no special bonus or penalties due to their size.
- Can dive in water down to depths of 240 meters without artificial aid.
- +2 on all Will and Fortitude saves due to cold conditions
- +4 to all Swim checks.
- +2 to all Pilot checks.
- Rarely will a Luriani have a Social Standing greater than 15 (Referee discretion). Currently there are only 7 known hereditary Luriani nobles.
- Luriani do not receive the normal human skill point bonus at 1st and subsequent levels.
- Luriani do not automatically receive the extra starting bonus feat that normal human do.
- Automatic Languages: Standard Luriani, Galanglic, Old High Vilani.

Personality: Because most Luriani are right-brain dominant (and thus left-handed), they have developed a highly passionate and artistically inclined society full of warm, uplifting music and sensual dance. Highly individualistic, most Luriani live as members of a large communal type family, in which the adults are members of a group marriage and all children are considered brothers and sisters, and all adults consider all the children their own.

To help quell what some outsiders might consider their 'hotblooded' nature the Luriani have evolved a Code of Honor when it comes to family and individual responsibilities. To a Luriani effort, hard work, and sincerity mean much more than the final results. When resolving matters of honor, this Luriani trait shows through. Instead of duels to settle the matter, Luriani engage in contests of skills and wit. As long as both sides put forth their best effort, they each walk away from the contest with the matter settled and their honor intact, no matter who actually wins.

Physical Description: At first glance, the Luriani appear to be fairly standard as humans go, although a bit heavier and more rounded. Upon closer inspection, two significant differences can be noted:- their hands and feet are webbed, and their skin has a slick appearance from the natural body oils they secrete to protect them from cold waters and climates. Much less apparent is the second eyelid, which protects their eyes from irritants as well as improving their vision underwater. To protect their ears from the pressures of deeper dives, they can voluntarily control the muscles of the inner ear and seal it off.



Internally the differences are more notable and remarkable. A subcutaneous layer of fat (causing their heavy, rotund appearance) acts as an insulating layer against the cold and helps store oxygen. Combined with an increased hemoglobin levels in their blood, this allows Luriani to collapse their lungs and make dives far deeper than any normal human, up to 240m. Because of this and other subtle difference in their biochemistry, Luriani tend to react unpredictably to drugs designed for standard humans.

Luriani are not interfertile with other humans, except via fairly intensive gene therapy treatments.

Status: Minor Race, human

Homeworld: Daramm A45AA76-E

Languages: Standard Luriani, Galanglic, Old High Vilani

Adventurers: Luriani adventure for the same reasons as any other human.

SYDITES

The Sydites are a race of genetically altered humans believed to have been bred by the Ancients for work, rather than brains or looks. They make excellent mechanics, technicians and soldiers, but being a bit unimaginative (some would say slow-witted) in their approach, tend not to do well in positions of responsibility and authority. While not generally stupid, most tend to solve the problems they encounter by simple, direct means rather than careful planning and finesse.



SYDITE RACIAL TRAITS

• +2 Strength, +2 Dexterity, +2 Constitution, -2 Intelligence, -2 Wisdom, -2 Charisma, -2 Social Standing.

• Sydite base speed is 9 meters.

• Medium-size. Sydites receive no special bonus or penalty due to their size.

• Even though they have 4 limbs, a Sydite may undertake actions with only one set at a time per round.

• Sydites do not receive the normal human skill point bonus at 1st and subsequent levels.

• Sydites do not automatically receive the extra starting bonus feat that normal humans do.

• Automatic Languages: Sopas, the native language of the Sydites.

Personality: Years of bigotry, stereotyping, and xenophobia have tended to portray the Sydites as a strong and fast but ugly, bumbling and inept sub-race of humans. The Sydites are quite aware of this and resent the image and the dismissal of their place in the history of the sector. As a race they are tired of being thought of as second-rate people. Despite their genetic limitations, the Sydites have developed an impressive culture, and once ruled a considerable empire in the Gateway Sector region.

Physical Description: Physically Sydites are quite a bit larger than an average human (2-2.5m tall, 130kg in weight). They are also rather ugly in comparison, having a more brutish and blockier facial structure. Their size and general appearance is not the most striking difference from the standard human form however. Sydites have two sets

of arms, the upper pair designed for heavy lifting, the second set designed for fine manipulatory work. The upper arms have an effective Dexterity equal to one-half the Sydite's Dexterity ability score, while the lower arms have an effective Strength equal to one-half the Sydite's Strength ability score.

Status: Minor Race, human

Homeworld: Khuur E959977-5 (Known as Sopater to its inhabitants)

Languages: All Sydites speak Sopas, their native tongue. Those living outside the Khuur league or those that deal with non-Sydites on a regular basis also typically speak Galanglic.

Adventurers: Outside of their own worlds, Sydites are often hired for mercenary work, as bodyguards or heavy manual labor, though their temperament also reduces their odds for gaining even these types of work with most employers.

URSA

Ursa are a genetically-uplifted Terran animal species, like Dolphins and Orca. The Solomani corporation GenAssist, established to adapt Terran native lifeforms to alien climates, saw a need for creatures that could assist in colonizing and developing various types of worlds for the Rule of Man. To that end, GenAssist began research on a number of species that might prove to be of use. The Ursa were developed fairly late in the project. It was anticipated that they would be used on higher than normal gravity planets or worlds with many hostile and dangerous lifeforms.

The project was declared a failure and dropped in favor of more promising species, and the experimental colonies were scheduled for extermination. The inhabitants of one Ursa colony succeeded in defeating the GenAssist death squads and seizing a number of starships. Rather than immediately making for safety, these brave few gambled the survival of their entire species by conducting a rescue of as many of their brethren as possible from other colonies. Only then did they flee into deep space. The Ursa managed to reach suitable worlds and established small colonies, some of which still exist. Ironically, their actions proved that far from being a failure, the Ursa Uplift Project had been an incredible success.

GenAssist hunted the Ursa for a time, but eventually found more productive activities to engage in. The whole incident was quietly forgotten about - at least by GenAssist and the Rule of Man.

Some humans, particularly those of strong Solomani background, still look at the Ursa and other uplifted races as inferior beings, not much above the animals they were engineered from, and who should be grateful to those who gave them the intelligence and station they now possess.



Such bigotry is one reason for Ursa clannishness.

URSA RACIAL TRAITS

- +4 Strength, +2 Constitution, -2 Dexterity, -2 Intelligence, -4 Social Standing.
- All Ursa begin as 2nd level characters with 1000XP (1 Alien Level + their first class level)
- Constitution ability score x 2 = Starting Stamina points.
- 10 + Constitution score = Lifeblood points.
- Ursa base speed is 12 meters.
- Large-size. Ursa receive a -1 attack and AC penalty due to their size.
- +1 natural AC bonus
- Ursa have two natural methods of attack, the slap and the hug. Unless an Ursa has multiple attacks due to their level, they may only make one slap attack per round as a standard action. Ursa have a +1 BAB when making a slap attack and will inflict 1d8+2 damage if they hit. The hug requires a successful grapple attack, and will inflict 2d6+Str modifier in damage per round it is held.
- Low Light Vision: Ursa can see twice as far as humans in starlight, moonlight, or other low light conditions.
- +2 to all Listen and Spot checks
- +4 to Move Silent Checks
- Automatic Languages: Galanglic.

Personality: The Ursa are quite clannish, preferring their own company after centuries of persecution and big-

otry at the hands of some humans. Because this love of clan and race is so strong, and because their numbers compared to other races are so small, an Ursa will take extreme measures or perhaps even allow himself to be killed rather than take the life of a fellow Ursa. This does not mean the Ursa do not fight among themselves, but when such instances do occur they are ritualistic battles for show rather than an attempt to truly injure the opponent. While some injuries do occur in such battles, they tend to be non-life threatening.

Among non-Ursa, they tend to be reserved, speaking when spoken to or when needed. It is only with those whom an Ursa has come to trust that they will open up and reveal a much lighter and playful side. Such trust must be earned, and is not given easily.

Physical Description: Uplifted from the brown bear found on Terra, the Ursa stand erect some 2.5 to 3 meters tall, 1.2 to 1.5 meters when on all fours, and 2 to 2.5 meters when sitting. They typically walk on all fours, but are quite capable of bipedal movement when needed or desired. When dealing with races smaller than themselves, Ursa tend to sit on their rears (bringing them down to eye level with most humans) or stand on all fours. They do not typically wear pants or footgear (unless needed), but often sport tunics and body packs for their carrying capacity and (when needed) rank and identifying insignia.

Status: Uplifted animal race

Homeworld: Khush C998509-5

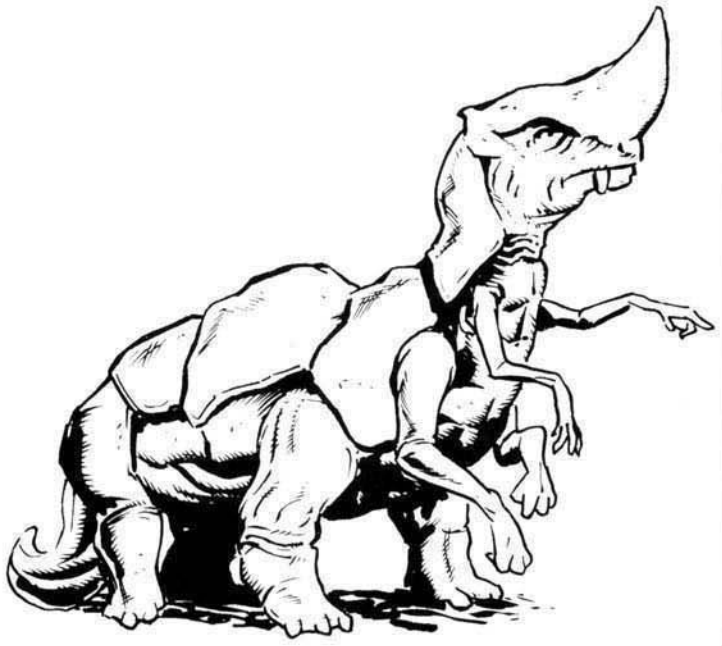
Languages: All Ursa speak Galanglic as their native tongue, being an uplifted race.

Adventurers: Most Ursa that venture beyond their adopted homeworld do so as bodyguards and mercenaries, jobs for which they are highly prized. A few may also be found traveling, satisfying an innate wanderlust and seeking to better understand the place of the Ursa in the universe.

VIRUSHI

Despite their enormous size and nicknames such as 'centaurs with tank blood' or 'intelligent bulldozers', the Virushi are truly gentle giants. They are extremely polite and soft-spoken; indeed their voices are naturally weak and quiet in normal (for humans) atmospheres, having been evolved for use in a much denser atmosphere.

Because they were one of the larger lifeforms on their homeworld, the Virushi never came under serious threat from other species. Their society has thus not evolved much beyond the 'cooperative' stage, with most Virushi preferring to remain apart from their fellows. They will typically work together only on those projects that profit both the individuals involved and Virushi society as a whole. Thus the Virushi have ultimately become an almost utopian culture; contented, pastoral, highly supportive of individual freedom. A Virushi will willingly cooperate on almost any task if so inclined, but it is almost impossible to order one to do anything he or she does not want to.



VIRUSHI RACIAL TRAITS

- +10 Strength, +2 Dexterity, -2 Social Standing, -2 Charisma.
- All Virushi begin as 4th level characters with 6000XP (3 Alien Levels + their first class level)
- Constitution x 5 = Starting Stamina Points.
- 20 + Constitution = Starting Lifeblood Points
- Virushi base speed is 6 meters.
- Large-size. Virushi receive a -1 attack and AC penalty due to their size.
- +6 natural AC bonus
- -4 to all Listen and Spot checks
- Automatic Languages: Virush (native language) and Galanglic.
- May not select the Mercenary, Barbarian, Rogue, Army, Navy, Marine, Ace Pilot, or Big Game Hunter classes.
- May attack up to twice per round with their natural weapons, once using their lower arms as a pair of clubs (2d6 + Str modifier for damage), and once with their tail (3d6 + Str modifier for damage).

Personality: Virushi are a bit of a contrast in terms of personality. They are quite individualistic and very unlikely to obey orders, yet a Virushi is usually quite willing to 'lend a hand' when they see it is needed and would benefit not only themselves but others too. Virushi individualism appears to

create grounds for friction, yet causes surprisingly little. This is mainly a result of their polite willingness to accept differences rather than come into conflict over them.

Despite their calm and placid demeanor, Virushi will fight if necessary, for example to defend the lives of friends, family, or other charges. They do not seek out conflict and will not press a confrontation if the aggressor backs down. It is very difficult to make a Virushi angry as they are largely indifferent to pain even on the rare occasions when they are under serious threat of bodily harm. They will almost always calmly and rationally (at least to a Virushi) attempt to discuss and negotiate a non-violent solution to a situation. If violence proves necessary, this too will be administered in a calm and rational manner - though the distinction is likely to be irrelevant to the person on the receiving end!

Physical Description: Standing almost 1.8 meters at the shoulder and tipping the scales at close to 1000kg, the Virushi are one of the largest sophont races ever encountered. The high gravity, dense atmosphere, and heavy radiation on their homeworld have evolved the Virushi into the impressive lifeforms they are today.

These massive creatures are covered by overlapping plates of armor with a texture similar to hardened leather. They walk on four tree-thick legs, and are capable of extraordinary feats of dexterity with an upper pair of almost human sized arms, while their lower pair of arms are heavily muscled. These lower arms are designed for heavily lifting, making the upper pair look withered in comparison. Adding to their overall mass is a rather thick tail that makes a potent defensive weapon when needed. The upper arms have only one-half the strength of the lower arms, while the lower arms only have one-half the dexterity of the upper arms.

This immense size and strength is somewhat offset by very poor sensory perception. Virushi eyes, buried beneath massive brow ridges, are adapted to work in brilliant sunlight perform rather poorly under lower light conditions. Their hearing is similarly degraded under normal atmospheric conditions, having evolved to hear sounds transmitted in a dense atmosphere. They find normal human speech very near the threshold limits of their hearing.

Status: Minor Alien Race

Homeworld: Virshash AA87901-D

Languages: Virush is the native language of the Virushi, but most Virushi are also fluent in Galanglic.

Adventurers: When Virushi are found away from their homeworld, they are usually employed in careers that stress service to others. Because of their great dexterity they make excellent doctors. Virushi surgeons are renowned throughout Charted Space. Despite their great size and strength, Virushi are not found in military or similarly structured organizations as Virushi do not take orders from anyone.

HOMEWORLD

The environment and society of the world where a character grew up plays a large part in determining their starting capabilities. In game terms, the Home or Birth World rules give a character a few extra specific skills added to their basic class skills, based on the world they come from. These rules do not determine a specific world by name that a character hails from, but rather a general characterization of the world. This way the player or Referee is free to select an appropriate world from his or her specific campaign locale. Alternately, the Referee may assign a specific homeworld to each character as he or she sees fit, or allow the players to select their own homeworld from the campaign maps.

DETERMINING THE HOMEWORLD

The first step is to determine the level of technological development available on the character's homeworld. This also gives an idea of the level of starport available to the world, and thus the level of offworld interaction the inhabitants are accustomed to. Characters from a world with a

WORLD TECHNOLOGICAL LEVEL

1d6	*Tech Level Group*	*TL*	*Starport*	*Prohibited Core (starting) Classes*
1	Very Low Technology	1d4-1 (0-3)	+0 (Class D or E)	Belter, Traveller
2	Low Technology	1d3+3 (4-6)	+2 (Class C or D)	Belter, Traveller
3	Mid-Level Technology	1d3+6 (7-9)	+4 (Class B or C)	Belter
4	High Technology 1	1d3+9 (10-12)	+4 (Class B or C)	None
5	High Technology 2	1d3+9 (10-12)	+6 (Class A or B)	None
6	Very High Technology	1d3+12 (13-15)	+8 (Class A)	None

WORLD TRADE CLASSIFICATIONS TABLE

	Tech Level Group					
2d6	*Very Low*	*Low*	*Mid*	*High 1*	*High 2*	*Very High*
2	Na Po	Na Ind HiPop Va	De	De LoPop	Fl	Na In Po HiPop
3	Ni HiPop	Ag Ri	Na Va	HiPop Fl	LoPop Fl	Ind Wa HiPop
4	LoPop De	Ind HiPop	Ag Ni	Po	Ri	Ni Wa
5	Wa LoPop	Wa LoPop	HiPop	Ni Po De	Na In HiPop Va	Ni
6	Po LoPop	Ni	Po LoPop	Ni	Ast LoPop Va	LoPop Va
7	LoPop	Po LoPop	LoPop	LoPop Va	Na Va	LoPop
8	Ag Ni	Ag Ni	In HiPop	Wa LoPop	Ni Va	Ast LoPop Va
9	Ni	LoPop Fl	Na Ni Va	Ni Po	Po De LoPop	In HiPop
10	Ag	Ag	Ic LoPop Va	Na In HiPop	Na Ni Ast Va	Na Va
11	Na Ni Po	HiPop	Na Va	Na Ni Po	Ag	Ag Ni Ri
12	Po	Na Ni Po De	Na Ni	Na Po De	Na Po HiPop	Na Po HiPop

Agricultural (Ag) Exports food. Imports manufactured goods, luxury goods, and raw materials.

Asteroid Belt (Ast) Not a world but a planetoid belt. Inhabitants live among domes and stations among the asteroids.

Desert (De) A dry world with little or no water available on its surface.

Fluid Oceans (Fl) A world on which the oceans are a liquid other than water.

High Population (HiPop) The world has a billion or more inhabitants.

Ice Capped (Ic) A world with frozen polar ice caps.

Industrial (In) Exports manufactured goods and some luxury goods. Imports food and raw materials.

Low Population (LoPop) The world has fewer than ten thousand inhabitants.

Non-Agricultural (Na) Exports raw materials and some manufactured goods. Imports food and luxury goods. Often a pre-industrial world.

Non-Industrial (Ni) Exports raw materials and some food. Imports manufactured goods and luxury goods. Often a pre-agricultural world.

Poor (Po) Exports little. Imports everything. Significant areas may remain undeveloped or uninhabited.

Rich (Ri) Exports luxury goods. Imports little. These are very 'Terrestrial' worlds, well suited to human life.

Water World (Wa) The great majority (95%+) of the surface of the world is covered by water oceans.

Vacuum (Va) A world with no atmosphere at all.

Class A type starport will tend to be more sanguine about space travel and world hopping, whereas characters from a world with a lesser starport are bit more 'in awe' of the whole concept (at least initially). Roll 1d6 and consult the World Tech Level Table, pg. 30 , to determine the technological group of the character's homeworld.

TL Range: The actual Technology Level rating for the character's homeworld has a significant bearing on the effectiveness of a character's education. For every 2 points a character's homeworld TL is below 11, he reduces his Education score by 1 (minimum score of 0). Conversely, for every two points a character's home TL is above 10, he may add 1 to his Education score. Any disadvantage a character suffers from a low homeworld TL may be offset by attending University (see pg 122).

EDUCATION MODIFIER

Homeworld TL	*Education Modifier*
0-1	-5
2-3	-4
4-5	-3
6-7	-2
8-9	-1
10-11	+/-0
12-13	+1
14-15	+2
16 or higher	+3



Starport: Roll 1d4 and add the starport modifier listed in the World Technological Level Table, pg. 30, to determine the type of starport that is available at the character's homeworld. For more information of starports see pg 377.

HOMEWORLD STARPORT

Result	*Starport Type*
1-2	E
3-4	D
5-6	C
7-8	B
9+	A

Prohibited Core Classes: Characters from certain tech level worlds may be prohibited from selecting certain classes when first creating their character. These restrictions do not apply to any Service or Prestige classes introduced later in this book or future supplements, unless otherwise noted within the specific service or prestige class description.

WORLD TRADE CLASSIFICATIONS

Once you have determined the Tech Level Group for the character's homeworld, you are ready to determine the basic characteristics of the world. Roll 2d6 on the World Shkills table for Tech Level Group. For example, a character is from a Low tech level group and the player rolls a 7 on 2d6. This indicates that the character is from a Poor (Po) and Low Population (LoPop) world. These trade classifications have a direct bearing on the types of skills that are available to a character in the next step.

WORLD SKILLS

Depending on the technological level of a character's homeworld, he or she will receive a number of additional class skills that may be added to the character's class skill list. A character automatically receives a K/Homeworld skill (rank 0) that provides knowledge of the history of the world, important figures, special landmarks, etc. Additional skills may be selected from any of the skills listed on the World Skills Table. These skills are always considered class skills for purposes of point cost.

A character may not take a skill that is higher than the technology level of their homeworld, but may select a skill that is up to two ranks lower than the technology of their homeworld. For example, a character from a High technology world, selecting a skill from the Non-Industrial list could select the T/Mechanical, Handle Animal, or Ride skill, but could not select the Survival or Knowledge skill for that trade classification.

The first time a skill is selected, if it is not an Untrained skilled (indicated by italics) the character has a skill rank of 0 with the new skill. If it is an Untrained skill, the character starts with a skill rank of 1 in the skill instead. A skill rank of zero will allow a character to use the skill as if it were an Untrained skill. The same skill may be selected more than once, in which case add +1 to their skill rank.

Very High or High Tech: Select 3 skills. Characters from a higher technology world generally have much more free time in which to pursue other interests beside work than at lower technology levels. Characters from these worlds automatically receive the T/Computer skill in addition to any other skills selected.

Mid Tech: Select 3 skills. Characters from a middle technology work manage to strike a better balance between work and the pursuit of other outside interests.

Very Low or Low Tech: Select 1 skill. Characters from lower technology worlds spend the vast majority of their time working and just trying to survive. Characters from these worlds automatically gain the Ride and Survival skill in addition to any other skill selected.

SKILL AND FEAT ABBREVIATIONS

Some skills, such as Knowledge, Entertain and Technical are in fact "cascades" which contain several specific skills. These are normally abbreviated with the first letter of the cascade. For example Technical/Astrogation might be abbreviated T/Astrogation. This is explained more fully in Chapter 4: Skills.

WORLD SKILLS

Tech Group	*Agricultural (Ag)*	*Non-Agricultural (Na)*	*Industrial (In)*
Very Low	*Handle Animal*	*Survival*	*Handle Animal*
Low	*Ride*	Navigation	T/Mechanical
Middle	*Driving**	T/Mechanical	T/Communications
High	T/Mechanical	T/Communications	T/Electronics
Very High	Knowledge	P/Prospecting	T/Gravitics

Tech Group	*Non-Ind (Ni) LoPop (LoPop)*	*Asteroid Belt (Ast)*	*Fluid Ocean (Fl)*
Very Low	*Survival*	-	*Survival*
Low	*Handle Animal*	-	*Driving***
Middle	*Ride*	T/Astrogation	Navigation
High	T/Mechanical	T/Communications	K/Chemistry
Very High	Knowledge	P/Prospecting	T/Communications

Tech Group	*Desert (De)*	*Water World (Wa)*	*Rich (Ri)*
Very Low	*Survival*	*Swim*	*Craft*
Low	*Spot*	*Survival*	*Entertain*
Middle	Intuit Direction	*Driving***	Knowledge
High	Navigation	Navigation	*Gambling*
Very High	T/Communications	T/Communications	*Liaison*

Tech Group	*Poor (Po)*	*High-Pop (HiPop)*	*Vacuum (Va)*
Very Low	*Intimidation*	*Leader*	-
Low	*Bluff*	*Trader*	-
Middle	*Gather Information*	P/Administration	T/Mechanical
High	*Forgery*	K/Interstellar Law	T/Communications
Very High	P/Prospecting	*Liaison*	T/Astrogation

The trade classification Ic (Ice-capped) provides no specific World skills.

* Automatically gains the Vessel/Wheeled feat if the character does not already possess it.

** Automatically gains the Vessel/Watercraft feat if the character does not already possess it.

WORLD FEATS

Characters may also start out with an automatic feat based on the technology level, and environment of their homeworld. Consult the chart below to see what feats your character qualifies for:

World Tech Level or Environment	*Automatic Feats*
Very Low Tech	Tracker and Trapping
Low Tech	Weapon Profiency (Swordsman)
Mid Tech	Vessel/Wheeled*
High Tech	Vessel/Grav**
Very High Tech	Vessel/Grav**
Asteroid Belt or Vacuum World	Vac Suit and Zero-G/Low Gravity Adaptation

* Automatically gains the Driving skill (cross-class unless otherwise noted as a class skill) at skill rank 0.

** Automatically gains the Pilot skill (crossclass unless otherwise noted as a class skill) at skill rank 0.

THE CLASSES

Rather than the basic classes found in the Core Rulebook, Traveller introduces 16 new classes in all, representing the vast majority of people inhabiting the universe. Some, such as the Rogue, are similar in nature to their counterparts available in the Core Rulebook but do have significant differences. The others are totally new classes specific to Traveller.

CORE CLASSES

The classes detailed in this chapter represent the archetypical background and lifestyle a character leads. They are rather broad in scope but cover most general 'types' of people that will be encountered in the universe. A character may usually multiclass into these classes at any point in their lifetime, including during Prior History development unless otherwise indicated in the class description.

Academic: A character that believes in research, logic, reasoning and knowledge as the best tools for solving a problem.

Barbarian: Rugged individuals, used to coping without technological means and surviving in harsh and dangerous environments.

Belter: Asteroid miners or prospectors, in search of the motherlode or working a claim in deep space.

Mercenary: An individual who earns a living through the application of intimidation and/or violence. The Mercenary class does not include government soldiers, sailors, scouts, and marines.

Merchant: A member of the crew of a starfaring merchant ship, or a portside merchant factor.

Noble: A rich, powerful individual, often with good leadership skills.

Professional: A technically-minded individual with good practical skills who favors a hands-on approach.

Rogue: A wanderer and adventurer, willing to bend a few rules here and there.

Traveller: A professional adventurer and jack-of-all-trades.

SERVICE CLASSES

The Army, Navy, Marines, and Scouts are exclusive classes representing a character on active full-time duty with the selected service. A player may choose to create a starting 1st level character in one of these service classes, but will be required to spend at least their first term of Prior History (see pg. 120) as a member of their respective service. Note that since a character can only gain levels in a service class (the one exception being Scouts) while active in Prior History in the appropriate career, the character will need to select another class to multiclass into upon mustering out.

Characters who do not start as a member may only multiclass into a Service Class during Prior History and, with the exception of the Scout service, levels may only be earned in these classes while the character is on active duty. See the chapter on Prior History (pg. 120) for more information.

Army: A member of Ground Force Command. Likely to be an infantryman, artilleryman, vehicle crewmember or a technical/support specialist.

Navy: A member of a starfaring navy or system defense force.

Marines: A soldier skilled in shipboard combat and assault operations.

Scout: An explorer or courier with a broad range of skills.

PRESTIGE CLASSES

Prestige classes are not available to starting characters, having fairly high requirements before they may be taken as an additional class. They represent fairly unique types of people, very specialized in their specific field of endeavor. Four prestige classes have been introduced in this core Traveller rulebook; the Travellers' Aid Society (TAS) Field Reporter, the Big Game Hunter, the Ace Pilot, and the Psionicist. Details on each of these prestige classes and their requirements may be found in chapter 9 - Prestige Classes (pg. 180).

TAS Field Reporter: A fearless investigative journalist seeking the "real story" in dangerous places.

Big Game Hunter: A stalker of dangerous creatures.

Ace Pilot: A genius at the controls of a particular kind of vehicle.

MULTICLASSING

Multiclassing is allowed in Traveller, and in many ways is encouraged. Multiclassing allows your character to earn improved combat capabilities, different ranges of skills, and new feats that might otherwise be unavailable to the character in their base class. Thus, if an Academic wanted to improve his or her combat capabilities they could multiclass as an Army Soldier, a Marine, or even a Mercenary. In the same manner a Mercenary might wish to multiclass as an Academic to improve the range of skills available to him. There are no experience penalties for multiclassing in T20 unless specifically noted within a class description. Players are encouraged to come up with a plausible reason for multiclassing. Examples include the Academic who serves as a reservist in her local defense regiment, or the Merchant who doubles as the ship's security officer and trains hard to maintain the skills he needs.

CLASS DESCRIPTIONS

The remainder of this chapter is devoted to detailing each of the core classes available in Traveller. Beginning each class entry is a brief description about the class itself, the typical characteristics of this type of character, the backgrounds such people often come from, and why they might make a good adventurer.

GAME RULE INFORMATION

The information needed to actually play a character using a selected class immediately follows the class description. Not all of the specific information below applies to every class.

Class Type: The type of class this is - Core, Service, or Prestige.

Initial Requirements: Any requirements that must be met before this class may be selected by a character.

Multiclass Restrictions: Any restrictions or limitations on multiclassing for the class.

Abilities: The most important ability scores for the class.

Stamina: The type of Stamina Die used by characters of the class determines the number of Stamina points gained per level.

Starting Funds: The amount of money in Credits that a 1st level character starts with. If multiclassing, these funds are not received. Additional funds may be acquired after completing any Prior History (see pg. 120).

CLASS TABLE

This table details how a character improves as he or she gains experience levels. Class tables typically include the following:

Level: The character's level in that class.

Base Attack Bonus: The character's base attack bonus and number of attacks.

Fort Save: The base save bonus on Fortitude saving throws. The character's Constitution modifier also applies.

Ref Save: The base save bonus on Reflex saving throws. The character's Dexterity modifier also applies.

Will Save: The base save bonus on Will saving throws. The character's Wisdom modifier also applies.

Special: Level-dependent class abilities, each explained in the "Class Features" sections that follow.

EXPERIENCE LEVELS

Character Level	*XP*	*Max Class Skill Rank*	*Max Cross-Class Skill Rank*	*Special*
1st	0	4	2	Feat*
2nd	1,000	5	2	
3rd	3,000	6	3	Feat
4th	6,000	7	3	Ability Increase
5th	10,000	8	4	
6th	15,000	9	4	Feat
7th	21,000	10	5	
8th	28,000	11	5	Ability Increase
9th	36,000	12	6	Feat
10th	45,000	13	6	
11th	55,000	14	7	
12th	66,000	15	7	Feat and Ability Increase
13th	78,000	16	8	
14th	91,000	17	8	
15th	105,000	18	9	Feat
16th	120,000	19	9	Ability Increase
17th	136,000	20	10	
18th	153,000	21	10	Feat
19th	171,000	22	11	
20th	190,000	23	11	Ability Increase

* In addition to any class and racial starting feats

Feat: The character may select one additional feat from among any he is qualified for. This does not include feats specific to a character's class. For example, a Merchant character could not select Steward as one of these feats.

Ability Increase: The character may add one point to any ability score of his choice. This increase is permanent. This is often useful in offsetting aging penalties for older, but more experienced characters. A character may never increase his or her Social Standing to greater than 15. The Referee usually handles an increase in Social Standing over 15, typically as a reward during the course of play.

CLASS SKILLS

The number of skill points the character starts with at 1st level, the number of skill points gained each level thereafter, and the list of class skills.

CLASS FEATURES

These are the special characteristics of the class. When applicable, this section also mentions restrictions and disadvantages of the class. Class features include some or all of the following:

Starting Feats: Which weapons and armor types the character is proficient with, along with any feats a character automatically earns when taking this class.

Bonus Feats: In place of a specific unique capability, a character may be allowed to select a feat from a list is specific to that class. Some of these bonus feats may be specific to a particular class, and otherwise unavailable to anyone else. In such cases, the feat will be described here.

Ex-Members: If, for some reason, a character is forced to give up this class, these are the rules for what happens.

THE ACADEMIC

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+0	+1	+1	Starting Feats + Bonus Feat
2nd	+0	+0	+2	+2	Bonus Feat
3rd	+0	+1	+2	+2	
4th	+1	+1	+2	+2	
5th	+1	+1	+3	+3	Bonus Feat
6th	+1	+2	+3	+3	
7th	+1	+2	+4	+4	Bonus Feat
8th	+2	+2	+4	+4	
9th	+2	+3	+4	+4	
10th	+2	+3	+5	+5	Bonus Feat
11th	+2	+3	+5	+5	Bonus Feat
12th	+3	+4	+6	+6	
13th	+3	+4	+6	+6	Bonus Feat
14th	+3	+4	+6	+6	Bonus Feat
15th	+3	+5	+7	+7	
16th	+4	+5	+7	+7	
17th	+4	+5	+8	+8	Bonus Feat
18th	+4	+6	+8	+8	
19th	+4	+6	+8	+8	Bonus Feat
20th	+5	+6	+9	+9	

ACADEMIC CLASS FEATURES

All of the following are class features of the Academic:

Starting Feats:

Research Skill Focus (Knowledge)*

* A specialized class feat.

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Academic gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100) that they are qualified for.

Academic Lecture*	Advanced Knowledge*	Advanced Research*	Geological Survey
Hacker	Legal Eagle	Medical Specialization	Mental Discipline*
Naval Architect	Pseudo-Eidetic Memory*	Related Field of Study*	Skill Focus (Knowledge)
Surgery	Xeno-Empathy	Xeno-Medicine	

* A specialized class feat.

ACADEMIC CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Craft (any)	Int	Driving	Dex
Decipher Script*	Int	Knowledge (any)	Edu
Gather Information	Cha	Professional (Knowledge Related)	Wis
Navigation	Edu	Speak Language	None
Read/Write Language	None	Use Alien Devices*	Wis
Technical (any)	Edu		

* Exclusive Skill

Starting Skill Points: (8 + Int modifier) x 4. If you are taking Academic as a multiclass, you do not receive these starting skill points.

Skill Points per Level: 8 + Int modifier

ACADEMIC
CORE CLASS

The Academic is inclined towards sedentary and studious pursuits. Academics range from "true" academics - students and college professors - through accountants and bureaucrats to field scientists who may experience some danger and action in their daily work. This class covers anyone whose primary function is to collect and apply knowledge, usually from a comfortable chair. The Academic may be a scruffy teenage computer wizard; a balding, bespectacled and distinctly erratic genius; a respectable (and wealthy) individual whose hobby is science or a savvy archaeologist specializing in dangerous and unorthodox research out on the frontiers.



Characteristics: An Academic is skilled at and interested in gaining knowledge, and has little aptitude (and usually no liking) for rough-and-tumble adventures. Even if he develops combat skills, these will tend to be applied in a fussy and precise rather than instinctive manner. Not all Academics are absent-minded idiots who wander in front of the drive exhausts while examining a rare rock formation, but they all share a healthy interest in how and why things work, and have a great deal of curiosity.

Background: Academics typically come from a reasonably well-off background; people who can afford the time and the cost of going to college or studying at home. Possible careers for Academics include administrators, computer hackers, individuals trying to develop or investigate psionic powers, research scientists and starship engineers with a strong theoretical interest in how their engines work.

Adventuring: Not all problems can be solved by force or deception. The Academic may have knowledge or contacts that can help solve a problem (or create an adventure lead). Sometimes NPC scholars will be unwilling to talk to their "intellectual inferiors" and will need to be approached by someone respected in the academic community. In a high-tech society, knowledge can really be power - and it is amazing what you can achieve from a swivel chair if you have the right datanet codes....

GAME RULE INFORMATION

Class Type: Core

Initial Requirements: A starting character must have an Education 14+ and Intelligence 12+, or must make a Wisdom check (DC5) to become an academic. Most Academics will usually (but not always) attend University before beginning play in a campaign, in an attempt to earn their degree (see University, pg. 122).

Multiclass Restrictions: To multiclass into the Academic class, a character must have earned at least a Bachelor's degree at University, or have Education 14+ and an Intelligence 12+

Abilities: Education, Intelligence

Stamina: 1d4 + Con modifier per level

Starting Funds: Cr1000

Academic Lecture: The academic may add a +4 synergy bonus when using a related Knowledge skill towards a Bluff skill check rather than the normal +2 synergy bonus, in an appropriate situation.

Advanced Knowledge: The Academic may select one skill from among their Education or Intelligence based class skills to have acquired Advanced Knowledge with. Advanced Knowledge increases the maximum possible skill rank in a selected Intelligence or Education based skill from character level +3 to character level +3 + Education Bonus (any penalty is considered +0 for purposes of this class feature). This class feature may be taken more than once, but each subsequent selection must specify a different skill.

Advanced Research: The Academic may add a +4 synergy bonus when using a related Knowledge skill towards a Gather Information skill check rather than the normal +2 synergy bonus.

Mental Discipline: With a highly trained and analytical mind, an Academic may add +2 to all Intelligence ability checks that require some form of mental agility or problem solving.

Pseudo-Eidetic Memory: Advanced training and practice allows an academic to develop a system of what can occasionally seem like near-total recall. Add a +2 synergy bonus to all Knowledge and Education checks when attempting to recall information that has previously been studied, learned, or otherwise become aware of by the character.

Related Field of Study: The Academic may select any one non-class Intelligence or Education based skill and make it a permanent class skill. Advanced Knowledge may only be taken once per individual skill.

ARMY

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+0	+2	+0	Starting Feats + Bonus Feat
2nd	+1	+0	+3	+0	Bonus Feat
3rd	+2	+1	+3	+1	
4th	+3	+1	+4	+1	
5th	+3	+1	+4	+1	Bonus Feat
6th	+4	+2	+5	+2	
7th	+5	+2	+5	+2	Bonus Feat
8th	+6/+1	+2	+6	+2	
9th	+6/+1	+3	+6	+3	
10th	+7/+2	+3	+7	+3	Bonus Feat
11th	+8/+3	+3	+7	+3	Bonus Feat
12th	+9/+4	+4	+8	+4	
13th	+9/+4	+4	+8	+4	Bonus Feat
14th	+10+5	+4	+9	+4	Bonus Feat
15th	+11/+6/+1	+5	+9	+5	
16th	+12/+7/+2	+5	+10	+5	
17th	+12/+7/+2	+5\	+10	+5	Bonus Feat
18th	+13/+8/+3	+6	+11	+6	
19th	+14/+9/+4	+6	+11	+6	Bonus Feat
20th	+15/+10/+5	+6	+12	+6	

SERVICE SKILLS

Characters from a high-tech army may select as class skills anything under the High Tech Army list. Low-tech soldiers may only select as class skills those listed under Low-Tech Army. Soldiers from a mid-tech army may select as class skills from either High or Low tech lists, with the exception of the Technical skill. A mid-tech soldier may only select the T/Mechanical skill.

HIGH/MD TECH ARMY SERVICE SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Bribery	Cha	Combat Engineering	Int
Demolitions	Dex	Driving	Dex
Forward Observer	Int	Gambling	Int
Gather Information	Cha	Gunnery	Wis
Leader	Int/Cha	Liaison	Cha
P/Administration	Wis	Pilot	Int/Dex
Recruiting	Edu	Sense Motive	Wis
Spot	Wis	Survival	Wis
Technical (any*)	Edu		

* Communications, Computer, Electronics, Gravitics, Mechanical, Medical, or Sensors

Skill Points per Level: 4+ Int Modifier

MID/LOW TECH ARMY SERVICE SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Bribery	Cha	Gambling	Int
Gather Information	Cha	Handle Animal	Cha
Leader	Int/Cha	Liaison	Cha
Recruiting	Edu	Ride	Dex
Spot	Wis	Survival	Wis

Skill Points per Level: 4 + Int modifier

ARMY SERVICE FEATURES

All of the following are class features of the Army:

Starting Feats: The Armysoldier begins play with the following feats:

Low Tech	Mid Tech	High Tech
Weapon Proficiency (Swordsman)	Weapon Proficiency (Marksman)	Weapon Proficiency (Marksman)
Armor Proficiency (Light)	Weapon Proficiency (Combat Rifleman)	Weapon Proficiency (Combat Rifleman)
	Armor Proficiency (Light)	Armor Proficiency (Light)
		Armor Proficiency (Medium)
		Armor Proficiency (Vac Suit)

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level Army personnel gain a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100) that they are qualified for.

Low Tech	Mid Tech	High Tech
Brawling	Armor Proficiency (Vac Suit)	Armor Proficiency (Battledress)
Command Presence*	Brawling	Brawling
Mounted Combat	Command Presence*	Command Presence*
Tactics I*	Heavy Metal	Heavy Metal
Ride-By Attack	Mounted Combat	Tactics I*
Shield Proficiency	Tactics I*	Tactics II*
Spirited Charge	Tactics II*	Strategy*
Trample	Ride-By Attack	Vessel (Aircraft)
Vessel (Watercraft)	Vessel (Aircraft)	Vessel (Grav)
Weapon Specialization*	Vessel (Ground)	Vessel (Ground)
	Vessel (Watercraft)	Vessel (Watercraft)
	Weapon Proficiency (Field Artillery)	Weapon Proficiency (Field Artillery)
	Weapon Proficiency (Lasers)	Weapon Proficiency (High Energy)
	Weapon Specialization*	Weapon Proficiency (Lasers)
		Weapon Specialization*

* A specialized class feat.

ARMY
SERVICE CLASS

Most worlds maintain Ground Forces for their own defense. Characters who have served in the Army will have gained experience in one of the three main combat arms (Infantry, Artillery, Cavalry) or the support formations (Technical, Logistics, Intelligence etc). Most characters are likely to have served in the infantry. Army characters (of all arms) learn how to operate infantry weapons plus some specialist skills, for example dealing with vehicle operations, hostile-environment survival or combat engineering.

Characteristics: Military personnel are trained to act. They have a tendency to engage problems rather than stand about wondering what to do. This does not guarantee the ex-soldier will come up with the best solution to a problem; merely that he or she will do something. Military personnel are usually very proud of whatever unit they served with. They will be familiar with military equipment and weapons of their own and other cultures.

Background: The Army requires its personnel to be in reasonably good physical shape (even for desk jobs at the supply bases). Highly technical jobs such as Combat Engineering or Electronic Warfare require a good education and familiarity with high-tech equipment, but almost anyone can be trained to be a skilled infantryman, so ex-army characters may come from any background. Those with a high social standing, intelligence or education often become technical specialists and/or officers

Adventuring: Military personnel are a great asset to any adventuring group. Their training and weapons skills are an asset in a fight, and many ex-soldiers have other useful skills such as T/Electronics or survival which can assist a group in reaching its goal.

GAME RULE INFORMATION

Class Type: Service

High Tech Army (H): Tech Level 9+

Mid Tech Army (M): Tech Level 5-8

Lo Tech Army (L): Tech Level 1-4

Initial Requirements: The character must be from a world with some form of military or paramilitary ground forces. Strength 10+ and Dexterity 8+ are also required.

Multiclass Restrictions: Only a character actively working in the Army prior history may multiclass into the Army class.

Stamina: 1d8 + Con modifier per level

Starting Funds: Acquired as part of the mustering out benefits after prior history.

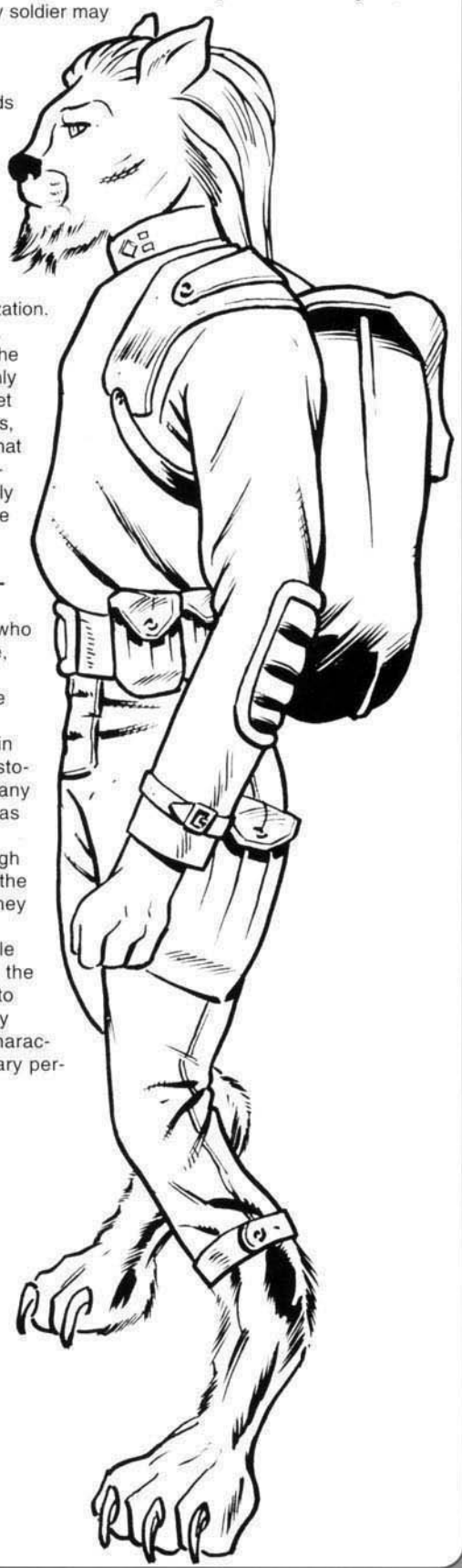
Command Presence: The art of using presence and voice to inspire confidence and leadership. Add a +2 synergy bonus to all Leader skill checks. This bonus does stack with the Natural Born Leader feat.

Strategy: Requires the Tactics II class feature. With this feat, the soldier may add his Wisdom or Intelligence bonus (whichever is higher) to any initiative rolls or saving throws made by units under his command. Treat any negative ability modifier as +0 for purposes of this feat.

Tactics I: With this feat, the soldier may add his Wisdom or Intelligence bonus (whichever is higher) to any small-unit initiative rolls or saving throws. Treat any negative ability modifier as +0 for purposes of this feat. A small unit is a team of combatants numbering from 2 to 12 troops.

Tactics II: Requires the Tactics I class feature. The soldier has developed an insight into the tactics involved in maneuvering larger sized battlefield units including both manpower and vehicle assets ranging from platoon to battalion size. The soldier may add his Wisdom or Intelligence bonus (whichever is higher) to the initiative rolls or saving throws for these assets. Treat any negative ability modifier as +0 for purposes of this feat.

Weapon Specialization: On achieving 2nd level or higher, as a feat the army soldier may take Weapon Specialization. Weapon Specialization adds a +2 damage bonus with a chosen weapon. The soldier must have Weapon Focus with that weapon to take Weapon Specialization. If the weapon is a ranged weapon, the damage bonus only applies if the target is within 10 meters, because only at that range can the soldier strike precisely enough to hit more effectively.



EX-ARMY PERSONNEL

Army personnel who muster-out, retire, are otherwise released from the service and not actively working in the army prior history, may not take any additional levels as a member of the Army class, though they retain all of the skills and feats they have already acquired. This rule may be waived if the Referee intends to run an active duty campaign with characters playing military personnel.

BARBARIAN

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+1	+2	+0	+1	Starting Feats + Bonus Feat
2nd	+2	+3	+0	+2	Bonus Feat
3rd	+3	+3	+1	+2	
4th	+4	+4	+1	+2	
5th	+5	+4	+1	+3	Bonus Feat
6th	+6/+1	+5	+2	+3	
7th	+7/+2	+5	+2	+4	Bonus Feat
8th	+8/+3	+6	+2	+4	
9th	+9/+4	+6	+3	+4	
10th	+10/+5	+7	+3	+5	Bonus Feat
11th	+11/+6/+1	+7	+3	+5	Bonus Feat
12th	+12/+7/+2	+8	+4	+6	
13th	+13/+8/+3	+8	+4	+6	Bonus Feat
14th	+14/+9/+4	+9	+4	+6	Bonus Feat
15th	+15/+10/+5	+9	+5	+7	
16th	+16/+11/+6/+1	+10	+5	+7	
17th	+17/+12/+7/+2	+10	+5	+8	Bonus Feat
18th	+18/+13/+8/+3	+11	+6	+8	
19th	+19/+14/+9/+4	+11	+6	+8	Bonus Feat
20th	+20/+15/+10/+5	+12	+6	+9	

BARBARIAN CLASS FEATURES

Starting Feats: The Barbarian begins play with the following feats:

Armor Proficiency (Light)	Technophobia
Shield Proficiency	
Weapon Proficiency (Archer)	
Weapon Proficiency (Swordsman)	

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Barbarian gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100) that they are qualified for.

Animal Whisperer*	Athletic	Brawling
Dodge	Endurance	Great Fortitude
Improved Initiative	Iron Will	Lightning Reflexes
Mobility	Natural Born Leader	Natural Compass
Natural Medicine*	Run	Skill Focus (Outdoor Survival)*
Stealthy	Toughness	Tracker
Trapping	Weapon Focus	Weapon Specialization*

* A specialized class feat.

BARBARIAN CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Animal Empathy*	Cha	Climb	Str
Craft (any**)	Int	Entertain (any**)	Cha
Handle Animal	Cha	Hide	Dex
Intuit Direction	Wis	Jump	Str
Listen	Wis	Move Silently	Dex
Ride	Dex	Spot	Wis
Swim	Str	Technosavvy*	Int
Tumble	Dex	Survival	Wis

* Exclusive Skill

** As appropriate for a TL0-3 society.

Starting Skill Points: (2 + Int modifier) x 4.
Skill Points per Level: 2 + Int modifier

BARBARIAN
CORE CLASS

The Barbarian hails from a rural low-tech society. This may be the outback of a developed world or the towns of a low-tech planet. Not all Barbarians are muscular sword-wielding heroes. Many are craftsmen, merchants or professionals such as priests or scribes, but for the most part Barbarian characters will be familiar with outdoor life and will possess survival, hunting or low-tech combat skills. Barbarians are not stupid; they are merely uneducated in the technological marvels of the universe and unfamiliar with life in the big city.

Characteristics: Barbarians are rugged individuals, used to coping without technological means. They are self-reliant and usually slow to trust others. Coming from a world without trauma centers and social services, barbarians tend to be prudent about risk-taking but at the same time willing to stake a great deal on their own competence. Some Barbarians may shun or actually be afraid of technology; most are likely to see it as a useful tool but one that can make the user forget about his own capabilities in favor of quick and easy technological crutches. Such individuals may be willing to use technology but will be careful not to become reliant on it.

Background: A Barbarian character might be a stone-age savage rescued from wild animals on his homeworld, a backwoods hunter from a mid-tech society, or a chainmail-armored swordsman recruited from the royal guard of his TL2 homeworld.

Adventuring: Barbarians usually have excellent "woodcraft" skills and can be a big asset when out in the wilds, acting as scouts and hunters. They are also skilled at fighting, and can learn how to use modern weapons if they choose to. Sometimes the simplistic "barbarian" outlook can provide a direct answer to problems that elude more sophisticated individuals.

GAME RULE INFORMATION

Class Type: Core

Initial Requirements: A starting character must usually be from a Very Low technology homeworld (TL 0-3) to become a Barbarian, though the Referee may choose to allow Barbarian characters to hail from higher technology worlds if desired. Barbarians begin as a young adult (age 14 for most races) rather than an adult (age 18 for most races), and must take at least one term of Barbarian Prior History before taking a term of Prior History in any other service or profession.

Multiclass Restrictions: You cannot multiclass into the Barbarian class.

Abilities: Dexterity, Wisdom

Stamina: 1d12 + Con modifier per level

Starting Funds: Cr100

Animal Whisperer: While a Barbarian cannot exactly talk to animals, their ability to deal with them sometimes makes it almost appear to be true. In non-combat situations, a barbarian with an Animal Empath skill rank of 5 or more may add a +4 skill synergy bonus to all Handle Animal or Ride skill checks rather than the standard +2 synergy bonus.

Natural Medicine: While not technologically advanced, Barbarians do tend to have a fair amount of herbal lore and natural remedies available to them when they must deal with injuries and ailments. This feat is similar to the First Aid feat available to anyone, allowing a barbarian to function as if he had a T/Medical skill rank of 0. In addition, it also allows a barbarian to use this skill in a wilderness environment as if he had a proper basic TL5-7 field medical kit at all times. This feat requires a K/Herbal Lore skill rank of 5 or greater.

Outdoor Survival: A Barbarian may add +2 to all Survival skill checks on Thin, Standard, or Dense atmosphere worlds. In addition they may treat the following skills as Untrained skills: Animal Empathy, Handle Animal, Intuit Direction, and Tumble.

Weapon Specialization: At 2nd level and higher, the Barbarian may take Weapon Specialization. Weapon Specialization adds a +2 damage bonus with a chosen weapon. The barbarian must have Weapon Focus with that weapon to take Weapon Specialization. If the weapon is a ranged weapon, the damage bonus only applies if the target is within 10 meters, because only at that range can the soldier strike precisely enough to hit more effectively. This feat may be taken more than once, but each time it must be applied to a different weapon.

Technophobia: Because of their unfamiliarity with technology, Barbarians are often wary of and all have difficulty with items of a technology level of 4 or better, or when using technology related skills (any technical skills, combat engineering, demolitions, driving, forward observer, all knowledge skills, and pilot).

When attempting to use technology related skills, a Barbarian suffers a -2 penalty to all checks.

When attempting to use a technological item, a Barbarian suffers a -4 penalty to all checks. If someone has shown him how to use the item or he has used the item previously, the penalty is only -2.

Technosavvy Skill: Technosavvy is a skill available only to the Barbarian class. Its sole purpose is to allow a Barbarian to offset the penalties incurred because of Technophobia. This skill is developed like any other skill, and is considered a class skill for point costs. Advancement in this skill represents the character's increasing familiarity with technology. A Technosavvy skill check may be made (DC20) whenever the Barbarian character would normally be penalized for Technophobia. If the skill check is successful, the character may reduce any Technophobia penalties by 2 points.

EX-BARBARIANS

A Barbarian who becomes too technologically sophisticated is no longer a true barbarian. If his Technosavvy skill rank ever equals or exceeds 10, the character may no longer earn levels as a barbarian. Furthermore, if a Barbarian who is multiclassed ever improves another class level by more than one level above his current Barbarian class level, he may never again raise his Barbarian level, though he retains all of his Barbarian abilities. For example, a character with Barbarian level 2 and army level 2 could take a new level in army and still earn levels as a Barbarian at the next level increase, because his army class level would still only be 1 greater than his Barbarian class level. If the character decided to take another level in army next time, he would no longer be able to earn levels as a barbarian because his army level (4th) is now two levels higher than his Barbarian class level. An ex-Barbarian keeps all abilities previously earned, and no longer suffers a -2 penalty when attempting to use technology related skills.



BELTER

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+0	+0	+2	Starting Feats + Bonus Feat
2nd	+1	+0	+0	+3	Bonus Feat
3rd	+1	+1	+1	+3	
4th	+2	+1	+1	+4	
5th	+2	+1	+1	+4	Bonus Feat
6th	+3	+2	+2	+5	
7th	+3	+2	+2	+5	Bonus Feat
8th	+4	+2	+2	+6	
9th	+4	+3	+3	+6	
10th	+5	+3	+3	+7	Bonus Feat
11th	+5	+3	+3	+7	Bonus Feat
12th	+6/+1	+4	+4	+8	
13th	+6/+1	+4	+4	+8	Bonus Feat
14th	+7/+2	+4	+4	+9	Bonus Feat
15th	+7/+2	+5	+5	+9	
16th	+8/+3	+5	+5	+10	
17th	+8/+3	+5	+5	+10	Bonus Feat
18th	+9/+4	+6	+6	+11	
19th	+9/+4	+6	+6	+11	Bonus Feat
20th	+10/+5	+6	+6	+12	

BELTER CLASS FEATURES

All of the following are class features of the Belter:

Starting Feats: The Belter begins play with the following feats:

Armor Proficiency (Light)	Armor Proficiency (Vac Suit)
Weapon Proficiency (Marksman)	Zero-G/Low Gravity Adaptation

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Belter gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100) that they are qualified for.

3D Spatial Awareness*	Dumb Luck	Gearhead
Geological Survey	Imp Zero-G/Low Gravity Adaptation	Junkyard Dog*
Jury Rig	Midas Touch*	Miracle Worker
Self-Reliance*	Ship Tactics	Skill Focus (Prospecting)
Vessel (Ship's Boat)	Vessel (Starships)	Weapon Proficiency (Ship's Weapons)

*A specialized class feat.

BELTER CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Appraise	Int	Bluff	Cha
Demolitions	Dex	Forward Observer	Int
Gambling	Int	Gunnery	Dex
K/Mining	Wis	K/Geology	Wis
Astrogation	Edu	Pilot	Dex
P/Prospecting	Wis	Search	Int
Technical (Any)	Edu		

Starting Skill Points: (6 + Int modifier) x 4
Skill Points per Level: 6 + Int modifier

BELTER
CORE CLASS

Belters are asteroid miners or prospectors. Many operate small starships while others live and work in small, close-knit communities. Belters have a wide range of skills from starship operations to engineering and working in hostile-environments. Belters range from scruffy "one-mule" prospectors who spend months at a time alone in space to highly-educated mining engineers with impressive degrees.

Characteristics: A Belter's livelihood and his life depend upon his equipment and his colleagues. Belters are thus unwilling to trust either until it or they have been proven worthy. They tend to be close-mouthed and rather dour in the working environment, and extremely intolerant of waste or incompetence. Belters often show another side of their character when away from work, and may party riotously to let off steam. Some Belters are avid scholars, fascinated by new techniques and ways to wring a little more utility out of their equipment. The great majority are rule-of-thumb engineers using techniques learned from Old Uncle Bob and getting along just fine, thank you very much.

Background: Most Belters are the children of Belters or are adopted into the Belting community. Such individuals tend to have a rather rough-and-ready upbringing and education, but are often experts on equipment maintenance and safety. Some "Belters" are actually "Asteroid Miners"; highly-skilled engineers in shiny starships. Such individuals are scorned by "true" Belters, and treated as "rich kids playing at Belting".

Adventuring: Belters are self-reliant and skilled with machinery, especially at jury-rigging and adapting old gear to new applications. They can fill many positions aboard a starship and have a good broad set of skills that suit them to freewheeling adventure among the stars.

GAME RULE NFORMATION

Class Type: Core

Initial Requirements: Must be from a High Technology world (TL 10+). Belters begin as a young adult (age 14 for most races) rather than an adult (age 18 for most races), and must take at least one term of Belter Prior History before taking a term of Prior History in any other service or profession.

Multiclass Restrictions: You cannot multiclass into the Belter class.

Abilities: Education, Intelligence

Stamina: 1d6 + Con modifier per level

Starting Funds: Cr200

3D Spatial Awareness: Due to a Belter's years in low or zero gravity environments, the ability to maneuver in three dimensions has become second nature to them. Add a +2 circumstance bonus when making Reflex saves in such an environment, and a +1 circumstance bonus to all Pilot skill checks while operating in space. Requires both the Zero-G/Low Gravity Adaptation feat and the Improved Zero-G/Low Gravity Adaptation feat.

Junkyard Dog: Some Belters prefer to deal in salvage work rather than prospecting for mineral wealth. With this feat, a Belter automatically earns a 1d8+2 percent 'finders fee' when returning salvaged items owned by a government rather than having to barter for the additional cash as per the normal Salvage rules (see pg. 344). When selling salvaged items for scrap, a Belter with this feat is able to command a price equal to 2d6% of the original value of the item rather than just 1d10%. This feat will also impart a +2 bonus when using the Appraise skill to attempt to determine the possible value of a salvaged item.

Self-Reliance: When you tend to work out in the middle of nowhere, hours or days from contact with other people, and something goes wrong a certain amount of self-reliance develops. This feat allows a Belter may treat any Technical skill as an Untrained skill.

Midas Touch: Some Belters (they more prosperous ones at least) tend to develop a knack for locating potentially lucrative spots for prospecting. If a strike is made, the Belter may increase the level of the discovery by 1 level of value as per the Prospecting rules (pg. 84) if desired.



EX-BELTERS

A Belter must always have a P/Prospecting skill rank equal to or higher than his current Belter level. If a Belter's class level would ever exceed his P/Prospecting skill rank, he may not take another level in the Belter class until his P/Prospecting skill rank is improved sufficiently.

MARINE

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+1	+2	+0	+1	Starting Feats + Bonus Feat
2nd	+2	+3	+0	+2	Bonus Feat
3rd	+3	+3	+1	+2	
4th	+4	+4	+1	+2	
5th	+5	+4	+1	+3	Bonus Feat
6th	+6/+1	+5	+2	+3	
7th	+7/+2	+5	+2	+4	Bonus Feat
8th	+8/+3	+6	+2	+4	
9th	+9/+4	+6	+3	+4	
10th	+10/+5	+7	+3	+5	Bonus Feat
11th	+11/+6/+1	+7	+3	+5	Bonus Feat
12th	+12/+7/+2	+8	+4	+6	
13th	+13/+8/+3	+8	+4	+6	Bonus Feat
14th	+14/+9/+4	+9	+4	+6	Bonus Feat
15th	+15/+10/+5	+9	+5	+7	
16th	+16/+11/+6/+1	+10	+5	+7	
17th	+17/+12/+7/+2	+10	+5	+8	Bonus Feat
18th	+18/+13/+8/+3	+11	+6	+8	
19th	+19/+14/+9/+4	+11	+6	+8	Bonus Feat
20th	+20/+15/+10/+5	+12	+6	+6	

MARINE SERVICE FEATURES

All of the following are class features of the Marine:

Starting Feats: The Marine begins play with the following feats:

Weapon Proficiency (Marksman)	Weapon Proficiency (Combat Rifleman)
Weapon Proficiency (Swordsman)	Weapon Focus (Cutlass)
Armor Proficiency (Light Armor)	Armor Proficiency (Medium Armor)
Armor Proficiency (Vac Suit)	

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Marine gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg 100) that they are qualified for.

Armor Proficiency (Battledress)	Brawling	Command Presence*
Heavy Metal	High Morale*	Improved Zero-G/Low Gravity Adaptation
Second Wind*	Tactics I*	Tactics II*
Toughness	Vessel (Aircraft)	Vessel (Grav)
Vessel (Ground)	Vessel (Ship's Boat)	Weapon Proficiency (High Energy)
Weapon Proficiency (Lasers)	Weapon Proficiency (Ship's Weapons)	Weapon Specialization
	Zero-G Combat	Zero-G/Low Gravity Adaptation

* A specialized class feat.

MARINE SERVICE SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Bribery	Cha	Combat Engineering	Int
Demolitions	Dex	Driving	Dex
Forward Observer	Int	Gambling	Int
Gather Information	Cha	Gunnery	Wis
Leader	Int/Cha	Liaison	Cha
P/Administration	Wis	Pilot	Int/Dex
Recruiting	Edu	Sense Motive	Wis
Spot	Wis	Survival	Wis
Technical (any*)	Edu		

* Communications, Computer, Electronics, Gravitics, Mechanical, Medical, or Sensors

Skill Points per Level: 2 + Int modifier

MARINES
SERVICE CLASS

The Marine Corps is a specialized fighting force. Its troopers gain impressive combat skills and some shipboard experience. Marines are adept at fighting in zero-g and other hostile environments.

Characteristics: Marines are tough and team-oriented. They are sometimes a little contemptuous of the Army, and claim not to be able to comprehend the Navy's way of doing things. Marines are exceptionally proud of their unit and of the Marine Corps in general. The Marines are often used as a hammer to smash the government's problems, and many Marines retain the "break it now, let someone else worry about questions and stuff" attitude.

Background: Marines are generally recruited on mid to high tech worlds. Physical standards are high, and trained higher. As close cousins to the Navy, the Marines have a higher proportion of Noble officers than the Army (the Scouts have almost none!). Marines also tend to be intelligent and flexible, since they have to operate complex weapon systems in highly fluid combat environments.

Adventuring: A Marine is an impressive one-person fighting force, and may have useful secondary skills like T/Electronics or Gunnery. A Marine uniform is less well regarded than a Naval one, but ex-Marines are generally treated with respect wherever they go.

GAME RULE INFORMATION

Class Type: Service

Initial Requirements: The character must be from a world with some form of spacefaring or starfaring military forces. Strength 10+, Dexterity 10+ and Intelligence 8+ are also required.

Multiclass Restrictions: Only a character actively working in the marines prior history may multiclass into the marines class.

Stamina: 1d10 + Con modifier per level

Starting Funds: Acquired as part of the mustering out benefits after prior history.

Command Presence: The art of using presence and voice to inspire confidence and leadership. Add +2 bonus to all Leader skill checks. This bonus can be stacked with the Natural Born Leader feat.

Tactics I: With this feat, the character may add his Wisdom or Intelligence bonus (whichever is higher) to any small-unit initiative rolls or saving throws. Treat any negative ability modifier as +0 for purposes of this feat. A "small unit" is a team of combatants numbering from 2 to 12 troops.

Tactics II: Requires the Tactics I class feature. The character has developed an insight into the tactics involved in maneuvering larger sized battlefield units including both manpower and vehicle assets ranging from platoon to battalion size. The soldier may add his Wisdom or Intelligence bonus (whichever is higher) to the initiative rolls or saving throws for these assets. Treat any negative ability modifier as +0 for purposes of this feat.

High Morale: Marines are known for their high morale and esprit de corps, thus marines with this feat earn a +2 to all Will saving throws.

Second Wind: Once per day the character may make a Will saving throw in place of a failed Fortitude saving throw. If the Will save is successful, the character is considered to have made the original Fortitude saving throw anyway. This class feat may be taken more than once, with each subsequent selection adding +1 to the number of times per day this feat may be used.

Weapon Specialization: Weapon Specialization adds a +2 damage bonus with a chosen weapon. The character must have Weapon Focus with that weapon to take Weapon Specialization. If the weapon is a ranged weapon, the damage bonus only applies if the target is within 10 meters, because only at that range can the character shoot precisely enough to hit more effectively. The marine may take this feat as a bonus feat or as a regular one.



EX-MARINE PERSONNEL

Marine personnel who muster-out, retire, are otherwise released from the service and not actively working in the Marine prior history may not take any additional levels as a member of the marine class, though they retain all of the skills and feats they have already acquired. This rule may be waived if the Referee intends to run an active duty campaign with characters playing military personnel.

MERCENARY

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+1	+2	+0	+1	Starting Feats + Bonus Feat
2nd	+2	+3	+0	+2	Bonus Feat
3rd	+3	+3	+1	+2	
4th	+4	+4	+1	+2	
5th	+5	+4	+1	+3	Bonus Feat
6th	+6/+1	+5	+2	+3	
7th	+7/+2	+5	+2	+4	Bonus Feat
8th	+8/+3	+6	+2	+4	
9th	+9/+4	+6	+3	+4	
10th	+10/+5	+7	+3	+5	Bonus Feat
11th	+11/+6/+1	+7	+3	+5	Bonus Feat
12th	+12/+7/+2	+8	+4	+6	
13th	+13/+8/+3	+8	+4	+6	Bonus Feat
14th	+14/+9/+4	+9	+4	+6	Bonus Feat
15th	+15/+10/+5	+9	+5	+7	
16th	+16/+11/+6/+1	+10	+5	+7	
17th	+17/+12/+7/+2	+10	+5	+8	Bonus Feat
18th	+18/+13/+8/+3	+11	+6	+8	
19th	+19/+14/+9/+4	+11	+6	+8	Bonus Feat
20th	+20/+15/+10/+5	+12	+6	+6	

MERCENARY SERVICE FEATURES

All of the following are class features of the Mercenary:

Starting Feats: The Mercenary begins play with the following feats:

Armor Proficiency (Light)	Armor Proficiency (Medium Armor)
Armor Proficiency (Vac Suit)	Weapon Proficiency (Marksman)
Weapon Proficiency (Combat Rifleman)	

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Mercenary gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100) that they are qualified for.

Alertness	Armor Proficiency (Heavy)	Brawling
Cross Training*	Defensive Roll*	Dodge
Evasion*	Far Shot	Heavy Metal
Improved Critical	Improved Initiative	Improved Unarmed Strike
Opportunist*	Point Blank Shot	Precise Shot
Quick Draw	Rapid Shot	Shot on the Run
Sneak Attack*	Tactics I*	Toughness
Uncanny Dodge*	Weapon Focus	Weapon Specialization
Vessel/Ground Vehicles	Vessel/Watercraft	Zero-G/Low Grav Adaptation

* A specialized class feat

MERCENARY CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Bluff	Cha	Gambling	Int
Driving	Dex	Intimidate	Cha
Hide	Dex	Move Silently	Dex*
Leader	Int	Technical	Edu
Spot	Wis		

Starting Skill Points: (2 + Int modifier) * 4. If you are taking Mercenary as a multiclass, you do not receive these starting skill points.

Skill Points per Level: 2 + Int modifier

MERCENARY
CORE CLASS

The Mercenary is inclined towards combat and violence. Some are actual mercenary soldiers, while others are barfighters, gunmen, bouncers, martial artists, security officers and so on. The Mercenary finds it easy to learn about combat and related matters such as stealth and hostile-environment skills.

Characteristics: The Mercenary may be a simple thug, a realist willing to accept violence as a fact of life, or some kind of "enlightened warrior" who seeks truths and inner peace while battling all comers. Most Mercenaries are often willing to take a direct and sometimes brutal approach to problems, and to accept risk or even casualties in order to achieve their goals. Very few are murderous, sociopathic thugs and most have a healthy respect for the consequences of violent action.

Background: Mercenaries have been exposed to violence at various times, and usually have some formal combat training. Service in the interstellar or planetary armed forces is a common route. Others might have trained with a mercenary unit or a megacorporation's security arm, or may have learned their skills in a martial arts dojo or on the streets of a rough neighborhood.

Adventuring: Some problems require force to overcome, and these are the people to supply it. Mercs have the skills to use personal weapons effectively, and often have the ability to operate military equipment such as secure communications gear, combat vehicles and explosives.

GAME RULE INFORMATION

Class Type: Core

Initial Requirements: A starting character must have Strength 12+ and Dexterity 8+ to become a Mercenary.

Multiclass Restrictions: To multiclass into the Mercenary class a character must have served at least one term in the Army, Marines, or Navy prior history (see Prior History, pg.120).

Abilities: Dexterity, Intelligence

Stamina: 1d10 + Con modifier per level

Starting Funds: Cr2000

Cross Training: The character may select one class feat from the Army, Marine, or Navy class. This class feat may be selected a maximum of two times.

Defensive Roll: Once per day, a Mercenary may attempt to roll with an incoming blow to take less damage from it. She makes a Reflex save (DC=stamina damage dealt) and if successful, she only takes half damage (stamina and lifeblood) from the blow. She must be aware or the attack and able to execute this maneuver. If she would normally be denied her Dexterity bonus to AC, she can't try it. Note that the Mercenary's Evasion feature does not apply when attempting a Defensive Roll.

Evasion: If exposed to any effect that normally allows a character to attempt a Reflex saving throw for half damage (such as a grenade), she takes no damage with a successful saving throw. Evasion can only be used if the Mercenary is wearing light armor or no armor.

Opportunist: Once per round, the Mercenary can make an attack of opportunity against an opponent that has just been hit for at least 1 point of lifeblood damage. This attack counts as the Mercenary's attack of opportunity for this round. Even a Mercenary with the Combat Reflexes feat may not make more than one Opportunist attack per round.

Sneak Attack: If a Mercenary can catches an opponent unaware or unable to defend himself (i.e. without their normal Dexterity bonus to AC; attacking from behind, a flank attack, etc.), she may strike for extra damage by targeting a vital spot. If the attack is successful, the mercenary will inflict one extra die of damage. If a critical hit occurs, this extra damage is not multiplied. Ranged attacks can only be a sneak attack if the target is within 9 meters. This class feature may be selected more than once. Each subsequent selection will add 1 extra die of damage to the effects of a successful sneak attack.

Tactics I: With this feat, the character may add his Wisdom or Intelligence bonus (whichever is higher) to any small-unit initiative rolls or saving throws. Treat any negative ability modifier as +0 for purposes of this feat. A "small unit" is a team of combatants numbering from 2 to 12 troops.

Uncanny Dodge: The Mercenary gains the ability to react to danger before her senses would normally allow her to do so. She retains her Dexterity bonus to AC (if any) regardless of being caught flat-footed or unaware.



MERCHANT

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+1	+0	+1	Starting Feats + Bonus Feat
2nd	+0	+2	+0	+2	Bonus Feat
3rd	+0	+2	+1	+2	
4th	+1	+2	+1	+2	
5th	+1	+3	+1	+3	Bonus Feat
6th	+1	+3	+2	+3	
7th	+1	+4	+2	+4	Bonus Feat
8th	+2	+4	+2	+4	
9th	+2	+4	+3	+4	
10th	+2	+5	+3	+5	Bonus Feat
11th	+2	+5	+3	+5	Bonus Feat
12th	+3	+6	+4	+6	
13th	+3	+6	+4	+6	Bonus Feat
14th	+3	+6	+4	+6	Bonus Feat
15th	+3	+7	+5	+7	
16th	+4	+7	+5	+7	
17th	+4	+8	+5	+8	Bonus Feat
18th	+4	+8	+6	+8	
19th	+4	+8	+6	+8	Bonus Feat
20th	+5	+9	+6	+9	

MERCHANT CLASS FEATURES

All of the following are class features of the Merchant:

Starting Feats: The Merchant begins play with the following feats:

Armor Proficiency (Light)	Armor Proficiency (Vac Suit)
Barter	Weapon Proficiency (Marksman)

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Merchant gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100) that they are qualified for.

Calculating Eye*	Carousing	Chief Steward*
Connections (Merchants)	Fast Talk	Gearhead
Jury Rig	Market Analyst*	Miracle Worker
Narrow Escape*	Ship Tactics	Steward*
Vessel (Ship's Boat)	Vessel (Starship)	Zero-G/Low Gravity Adaptation

* A specialized class feat.

MERCHANT CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Appraise	Int	Bluff	Cha
Bribery	Cha	Broker	Int
Driving	Dex	Gambling	Int
Gather Information	Cha	K/Trade & Commerce Law	Edu
Liaison	Cha	Astrogation	Edu
Pilot	Int/Dex	Professional	Wis
Technical (Any)	Edu	Trader	Int

Starting Skill Points: (7 + Int modifier) * 4. If you are taking Merchant as a multiclass, you do not receive these starting skill points.

Skill Points per Level: 7 + Int modifier

MERCHANTS
CORE CLASS

The Merchant is usually a trader rather than a shopkeeper. He or she may be a highly-paid corporate factor or a member of the crew of a beat-up old merchant starship. Merchants are adept at thinking on their feet, seeking out new business opportunities, and at talking or shooting their way out of situations their business sense has got them into.

Characteristics: Merchants tend to have good interpersonal skills (the exception being arrogant high-powered brokers or those who do their business via data transfer in high-tech cities) and related skills like Gather Information or K/Interstellar Law that help get the deal done. The sort of merchant who becomes a player-character tends to be a risk-taker and is often willing to venture into seedy, dangerous places in order to make a profit. These characters can usually take care of themselves with fists or firearms.

Background: Merchants (especially those that own or crew starships) are often from a well-off or educated background. Others may have signed on as part of a Free Trader crew and gradually acquired trading skills as they served aboard in a technical capacity.

Adventuring: With their broad and general skillset, Merchants make excellent adventurers. They are good at getting information and finding adventure leads and can usually obtain hard-to-get equipment. Merchants often also have shipboard skills, making them doubly useful to a party with a starship.

GAME RULE INFORMATION

Class Type: Core

Initial Requirements: A starting character must have Strength 12+ and Intelligence 14+, or must make a Wisdom check (DC8) to become a Merchant. Once you have finished creating a Merchant character you are obligated to spend at least one term (4 years) serving in the Merchant prior history (see Prior History, pg. 120). You may choose to defer the enlistment term and attend University first if desired (see University pg. 122).

Multiclass Requirements: To multiclass into the Merchant class a character must be actively working as a merchant in prior history (see Prior History, pg.120), or must be an active crewmember of a working starship of any type.

Abilities: Education, Intelligence, Dexterity

Stamina: 1d6 + Con modifier per level

Starting Funds: Cr1000

Narrow Escape: Some Merchants (particularly those of somewhat less than sterling reputations) develop a knack for sensing trouble and avoiding it before it spots them, whether it be pirates, local customs frigates, or a navy destroyer. When an encounter with these types of ships occurs, the merchant may attempt to avoid the encounter before it happens. The Merchant will roll 1d20 and add +1 for every 5 or more Merchant class levels he has attained against a DC of 17. If successful, the encounter does not occur.

Calculating Eye: Merchants make their living through the art of the deal, and knowing the potential value of various items and cargo is a large part of the process. Some merchants manage to develop a very Calculating Eye towards this task, and may add a +2 synergy bonus to their Appraise skill checks when attempting to appraise the value of common objects and equipment ranging from poor to masterful quality. This does not apply to rare items such as works of art, artifacts, antiques, etc.

Merchants with this feature may also Take10 when using their Broker skill to negotiate the price of a speculative trade good or cargo.

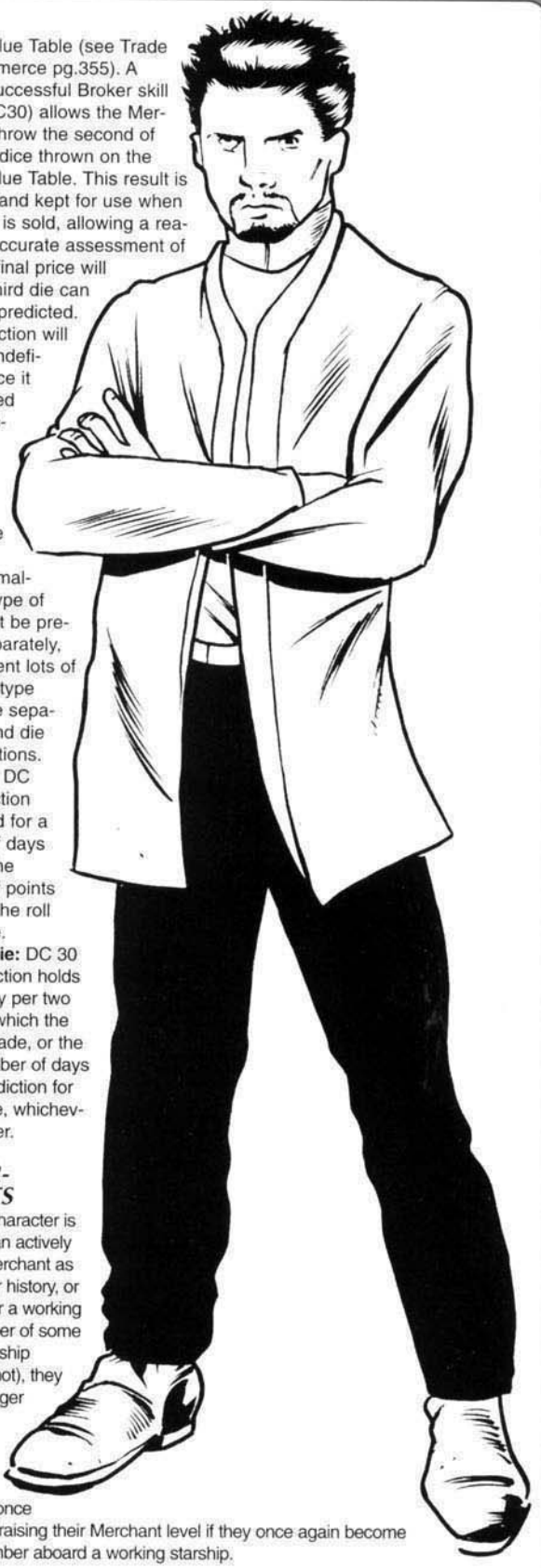
Steward: Adds 1d3 Middle and 1d6 Low passengers requesting travel aboard ship.

Chief Steward: Adds 1d3 High, 1d6 Middle, and 1d6+3 low passengers to the number requesting travel aboard ship. Requires the Steward class feature first.

Market Analyst: This feature of the Merchant class bestows knowledge of base market values for trade goods, and the ability to predict general sale trends for a specific world. A successful Broker skill check (DC15) allows the first die of the 3d6 to be thrown on the Actual Value Table (see Trade and Commerce pg.355). A second successful Broker skill check (DC30) allows the Merchant to throw the second of the three dice thrown on the Actual Value Table. This result is recorded and kept for use when the cargo is sold, allowing a reasonably accurate assessment of what the final price will be. The third die can never be predicted. The prediction will not hold indefinitely. Once it has expired the prediction is invalid and all Actual Value dice will be rolled normally. Each type of good must be predicted separately, and different lots of the same type must have separate second die roll predictions.

First Die: DC 15. Prediction holds valid for a number of days equal to the number of points by which the roll was made.

Second Die: DC 30 This prediction holds for one day per two points by which the roll was made, or the same number of days as the prediction for the first die, whichever is shorter.



EX-MERCHANTS

If a character is no longer an actively working Merchant as part of prior history, or is no longer a working crewmember of some type of starship (owner or not), they may no longer raise their level as a Merchant. The character may once again start raising their Merchant level if they once again become a crewmember aboard a working starship.

NAVY

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+0	+0	+2	Starting Feats + Bonus Feat
2nd	+1	+0	+0	+3	Bonus Feat
3rd	+1	+1	+1	+3	
4th	+2	+1	+1	+4	
5th	+2	+1	+1	+4	Bonus Feat
6th	+3	+2	+2	+5	
7th	+3	+2	+2	+5	Bonus Feat
8th	+4	+2	+2	+6	
9th	+4	+3	+3	+6	
10th	+5	+3	+3	+7	Bonus Feat
11th	+5	+3	+3	+7	Bonus Feat
12th	+6/+1	+4	+4	+8	
13th	+6/+1	+4	+4	+8	Bonus Feat
14th	+7/+2	+4	+4	+9	Bonus Feat
15th	+7/+2	+5	+5	+9	
16th	+8/+3	+5	+5	+10	
17th	+8/+3	+5	+5	+10	Bonus Feat
18th	+9/+4	+6	+6	+11	
19th	+9/+4	+6	+6	+11	Bonus Feat
20th	+10/+5	+6	+6	+12	

NAVY CLASS FEATURES

All of the following are class features of the Navy:

Starting Feats: The Navy begins play with the following feats:

Armor Proficiency (Light)	Armor Proficiency (Vac Suit)
Weapon Proficiency (Marksman)	Weapon Proficiency (Laser)

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level Naval personnel gain a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg 100) that they are qualified for.

Armor Proficiency (Battle Dress)	Brawling	Carousing
Command Presence*	Cross Training*	Damage Control
EW Specialist	Fleet Tactics	Gearhead
Heavy Metal	Interrogation	Jury Rig
Natural Born Leader	Miracle Worker	Naval Architect
Ship's Tactics	Vessel (Starships)	Vessel (Ship's Boat)
Weapon Proficiency (Ship's Weapons)	Weapon Proficiency (Swordsman)	

* A specialized class feat.

NAVY SERVICE SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Bribery	Cha	Driving	Int/Dex
Forgery	Int/Dex	Forward Observer	Int
Gambling	Int	Gather Information	Cha
Gunnery	Wis	Leader	Int/Cha
Liaison	Cha	Navigation	Edu
Pilot	Int/Dex	P/Administration	Wis
Recruiting	Edu	Survival	Wis
Technical (any)	Edu		

Skill Points per Level: 6 + Int modifier

NAVY
SERVICE CLASS

The Navy and the various system defense squadrons require educated, intelligent personnel to operate technical systems and weapons, or to fly and navigate the spacecraft and starships of the service. Naval service is very prestigious. Ex-Navy characters will have basic skills in routine shipboard tasks and vacc suit operations, plus the skills of their specialist department. This is most likely to be Engineering, Gunnery, Flight or "Crew". The latter are general personnel who fulfill many jobs aboard ships and at installations. Highly educated characters or those from a good family are likely to be officers.

Characteristics: Naval personnel are generally intelligent and well-educated. Like the Army, the Navy instills a fierce pride in its crews. Many ex-Navy personnel remain on the "reserve" list ready to be called up for service. Their dress uniform will come out for formal occasions. Naval personnel know that they are held in high regard as defenders of the stars. Some are rather contemptuous of the Army.

Background: Naval personnel are drawn from high-tech worlds. They are usually well educated and should be reasonably dexterous (for low-g maneuvering). Naval officers are often drawn from among the Nobility. This is especially true of ship commanders and flight branch officers. Others (gunnery and engineering, for example) are likely to be well-educated commoners.

Adventuring: Naval personnel have excellent shipboard skills, and may also have contacts in the service. They will have taken liberty in many ports across charted space, and should have a decent set of interpersonal skills too. While less skilled at combat that Army characters, the Navy does train its people with weapons in addition to their technical skill.

GAME RULE INFORMATION

Class Type: Service

Initial Requirements: The character must come from a world with some form of starfaring or spacefaring military forces. Intelligence 12+ and Dexterity 12+ are also required.

Multiclass Restrictions: Only a character actively working in the Navy prior history may multiclass into the Navy class.

Stamina: 1d6 + Con modifier per level

Starting Funds: Acquired as part of the mustering out benefits after prior history.

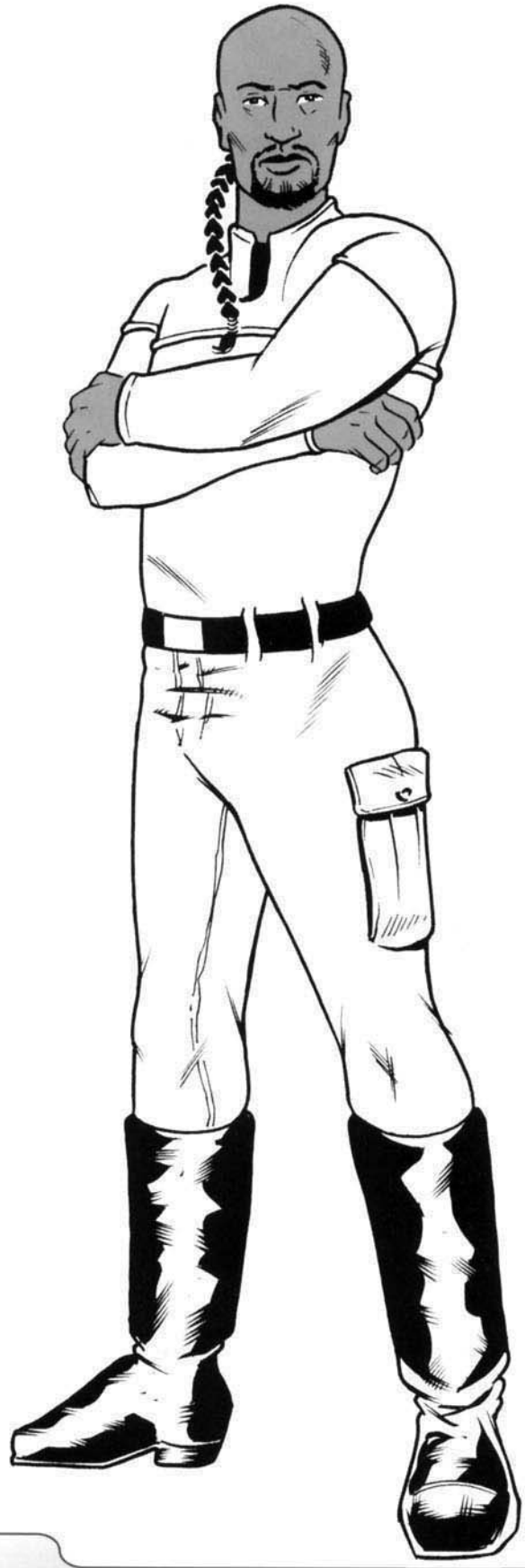
Command Presence: The art of using presence and voice to inspire confidence and leadership. Add a +2 synergy bonus to all Leader skill checks. This bonus does stack with the Natural Born Leader feat.

Cross Training: The Navy believes in training its sailors with at least some familiarity of a variety of tasks allowing for more flexibility of personnel in the event of the loss of other crewmembers during a battle. Any Technical skills the character is not currently trained in may be treated as if it were an 'untrained' skill. This means the character may attempt to use the skill as if they had a skill rank of 0. This feat may only be taken once by Naval personnel.

Damage Control: Being aboard a fighting naval vessel will usually impart some level of knowledge on the art of damage control, or quickly and effectively instituting temporary but critical repairs when needed. When a character or NPC leading a repair crew has the damage control feat, they may add x2 to the Repair Point multiplier for the team each round.

EX-NAVY PERSONNEL

Navy personnel who muster-out, retire, are otherwise released from the service and not actively working in the Navy prior history, may not take any additional levels as a member of the Navy class, though they retain all of the skills and feats they have already acquired. This rule may be waived if the Referee intends to run an active duty campaign with characters playing military personnel.



NOBLE

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+0	+0	+2	Starting Feats + Bonus Feat
2nd	+1	+0	+0	+3	Bonus Feat
3rd	+1	+1	+1	+3	
4th	+2	+1	+1	+4	
5th	+2	+1	+1	+4	Bonus Feat
6th	+3	+2	+2	+5	
7th	+3	+2	+2	+5	Bonus Feat
8th	+4	+2	+2	+6	
9th	+4	+3	+3	+6	
10th	+5	+3	+3	+7	Bonus Feat
11th	+5	+3	+3	+7	Bonus Feat
12th	+6/+1	+4	+4	+8	
13th	+6/+1	+4	+4	+8	Bonus Feat
14th	+7/+2	+4	+4	+9	Bonus Feat
15th	+7/+2	+5	+5	+9	
16th	+8/+3	+5	+5	+10	
17th	+8/+3	+5	+5	+10	Bonus Feat
18th	+9/+4	+6	+6	+11	
19th	+9/+4	+6	+6	+11	Bonus Feat
20th	+10/+5	+6	+6	+12	

NOBLE CLASS FEATURES

All of the following are class features of the Noble:

Starting Feats: The Noble begins play with the following feats:

Armor Proficiency (Light) Weapon Proficiency (Swordsman)

Weapon Proficiency (Marksman)

Bonus Feat: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Noble receives a bonus feat that may be selected from any of the open or combat related feats or from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg 100) that they are qualified for.

Carousing	Noble Presence*	Connections
Fast Talk	Hobby	Interrogation
Iron Will	Legal Eagle	Natural Born Leader
Noble Indignance*	Patronage*	Trustworthy
Trust Fund*	Vessel (any)	

*A specialized class feat.

NOBLE CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Appraise	Int	Bluff	Soc/Cha
Bribery	Soc/Cha	Craft (any)	Int
Entertain (any)	Cha	Gather Information	Cha
Innuendo	Wis	Intimidate	Soc/Cha
Knowledge (any)	Edu	Leader	Int
Liaison	Soc/Cha	Profession (any*)	Wis
Read/Write Language	None	Sense Motive	Wis
Speak Language	None		

* As appropriate for a noble.

Starting Skill Points: (6 + Int modifier) * 4 If you are taking Noble as a multiclass, you do not receive these starting skill points.

Skill Points per Level: 6 + Int modifier

NOBLE
CORE CLASS

Nobles generally move in high-powered circles, meeting rich, powerful or well-respected individuals in the course of their activities. They often serve as diplomats or act as representatives for interest groups. Many Nobles have a specific vocation, such as Naval Officer or Diplomat, while others are freelance troubleshooters or members of a higher noble's household or court.

Characteristics: While some Nobles are rich playboys, most are skilled and dedicated, either born into a tradition of service or elevated to their rank in recognition of their past deeds. Either way, Nobles tend to be skilled at leading and directing people and have a get-things-done mentality. The vast majority of nobles would be very reluctant to act against the interests of the government or the people it represents.

Background: A character can be a member of the nobility in two general ways. They can be born into a noble family or elevated for exceptional service. This can be military or diplomatic service or in recognition of scientific or artistic brilliance. Nobles tend to be well educated and cultured individuals, or are expected to become so after their elevation.

Adventuring: Having a Noble in the party opens doors. Red tape tends to vanish and officials are often more polite and efficient than towards other characters. A Noble will tend to get better results than a commoner when trying to take charge of a situation, however good their respective ideas may be. A Noble's skills are primarily in leadership and diplomacy, but many Nobles develop proficiency with weapons - particularly the dueling sword - and may have high combat skill levels due to a previous career, for example in the Navy.

GAME RULE INFORMATION

Class Type: Core

Initial Requirements: A starting character must have Social Standing 16 + to become a Noble.

Multiclass Restrictions: To multiclass into the Noble class, a character must have Social Standing 16+

Abilities: Social Standing, Education, Intelligence

Stamina: 1d6 + Con modifier per level

Starting Funds: Cr5,000

Noble Presence: The art of using presence and voice to inspire confidence and leadership. With this feat a noble may use their Social Standing in place of their Charisma as the key ability for the Leader and Liaison skills.

Noble Indignance: Many Nobles are quite adept at using their titles to browbeat and intimidate those of lesser social status into temporary compliance. With this feat a Noble may use their Social Standing in place of their Charisma as the key ability for the following skills: Bluff, Bribery, and Intimidate.

Patronage: Some Noble families are known for their patronage of the arts or sciences, and tend to impart such an interest in their offspring and focus much of their schooling in these directions. This class feature may only be selected once, and the noble must choose between the following two options:

A Patron of the Arts is raised with an appreciation and eye for the fine arts, and may attempt to use any Entertain or Craft skill that they have NO skill ranks in, as if they had a skill rank of 1 instead. This does not mean the noble actually has a rank of 1 in the skill; the first two skill ranks will still have to be bough if the noble wishes to actually learn and develop such a skill. In addition, they may apply a +4 rather than a +2 synergy bonus when using an art, craft, or entertainment related Knowledge skill or a Technical skill to aid another skill check.

A Patron of the Sciences is broadly schooled in the various fields of science and technology, and may treat any Technical skill, as if it were an Untrained skill. In addition, they may apply a +4 rather than a +2 synergy bonus when using a science related Knowledge skill or a Technical skill to aid another skill check.

Trust Fund: A modest trust fund is awarded as part of the noble's title that may be drawn upon as needed. This fund is set up in such a way as to allow the noble to draw up to Cr200 X their SOC score in funds per month. For large purchases on credit, the noble's family will usually be willing to guarantee such loans, up to MCr1 X her SOC score, provided she has handled her finances in a reasonable manner previously.



PROFESSIONAL

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+0	+0	+2	Starting Feats + Bonus Feat
2nd	+0	+0	+0	+3	Bonus Feat
3rd	+0	+1	+1	+3	
4th	+1	+1	+1	+4	
5th	+1	+1	+1	+4	Bonus Feat
6th	+1	+2	+2	+5	
7th	+1	+2	+2	+5	Bonus Feat
8th	+2	+2	+2	+6	
9th	+2	+3	+3	+6	
10th	+2	+3	+3	+7	Bonus Feat
11th	+2	+3	+3	+7	Bonus Feat
12th	+3	+4	+4	+8	
13th	+3	+4	+4	+8	Bonus Feat
14th	+3	+4	+4	+9	Bonus Feat
15th	+3	+5	+5	+9	
16th	+4	+5	+5	+10	
17th	+4	+5	+5	+10	Bonus Feat
18th	+4	+6	+6	+11	
19th	+4	+6	+6	+11	Bonus Feat
20th	+5	+6	+6	+12	

PROFESSIONAL CLASS FEATURES

All of the following are class features of the Professional:

Starting Feats: The Professional Starts play with the following feats:

Armor Proficiency (Light) Professional Speciality

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Professional gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100) that they are qualified for.

Acrobatics	Acting Prodigy	Armor Proficiency (Vacc Suit)
Athletic	Barter	Brawling
Carousing	Connections	Credit Line
EW Specialist	Fast Talk	Gearhead
Hacker	Hobby	Interrogation
Jury Rig	Legal Eagle	Miracle Worker
Naval Architect	Research	Tracker
Trapping	Trustworthy	Vessel (any but starship)
Vessel Specialization	Weapon Proficiency (Swordsman)	

*A specialized class feat.

PROFESSIONAL CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Appraise	Int	Craft (any)	Int
Driving	Dex	Entertain (any)	Cha
Gambling	Cha	Knowledge (any)	Edu
Leader	Int/Cha	Liaison	Cha
Astrogation	Edu	Pilot	Int/Dex
Profession (any)	Wis	Survival	Wis
Technical (any)	Edu	Trader	Int
Speak Language	None		

Starting Skill Points: (7 + Int modifier) * 4 If you are taking Professional as a multiclass, you do not receive these starting skill points.

Skill Points per Level: 7 + Int modifier

PROFESSIONAL
CORE CLASS

Professionals are individuals whose job is highly skilled and technical but essentially hands-on. This includes many engineers, medical professionals and scientists. Note that a scientist may be either an Academic or a Professional depending on how inclined to field work he or she is. Professionals are better able to handle themselves in the field than Academics, but otherwise have similar skills.

Characteristics: Professionals are usually highly intelligent and well educated, with good technical skills rather than academic ones. Used to working in the field, they are practical individuals who are likely to have picked up good interpersonal, leadership and even some combat skills while working in frontier environments. They are more interested in how rather than why, which is seen as the Academics' preserve.

Background: Professionals are well trained and/or educated. This usually requires that they come from a mid-tech or higher background, or have either spent some time in the services or attended an offworld university. Many professional engineers or field scientists started their career with a stint in a highly technical service such as the Navy.

Adventuring: The Professional is a highly useful individual in a high-tech environment. Professionals may include starship personnel, engineers of various sorts and medical experts, all of whom can be highly useful in an adventuring group.

GAME RULE INFORMATION

Class Type: Core

Initial Require-ments: Any starting character may become a Professional.

Multiclass Res-trictions: To multiclass into the Professional class, a character must have at least 4 skill ranks in at least one Craft, Professional, or Technical skill, or 4 skill ranks in Pilot, Navigation, or Driving skill.

Abilities: Ed-ucation, Intelligence

Stamina: 1d6 + Con modifier per level

Starting Funds: Cr2500

Professional Speciality: A Professional may select a specific Entertain, Profession or Technical skill that represents a facet of their profession or how they are most likely to make their living. This class feature may only be selected once.

Profession or Technical Skills: When using this skill , the Professional may always elect to Take10, even in situations where they normally could not.

Entertain Skills: A Professional with 3 or more ranks in an Entertain skill can cause a single person to become fascinated with him. The person to be enthralled must be able to see and hear the performance and must be within 30 meters. The Professional must also see the person. The person must be able to pay attention to the performance. The distraction of a nearby combat or other dangers prevents the ability from working. The professional makes an Entertain check, and the target can negate the effect with a Will saving throw equal to or greater than the Professional's check result. If the saving throw succeeds, the character cannot attempt to enthrall that person again for 24 hours. If the saving throw fails, the person sits quietly and watches and listens to the Performance for up to 1 round per level of the professional. While fascinated, the target's Spot and Listen checks suffer a -4 penalty. Any potential threat (such as an ally of the Professional moving behind the fascinated person) allows the enthralled person a second saving throw against a new Entertain check result. Any obvious threat, such as drawing or aiming a weapon, automatically breaks the effect.

While performing, the professional must concentrate and may take no other actions. This may be attempted once per day per level of the professional.

Skill Focus: Beginning at 4th level, and every 4 levels after that, the Professional gains an extra Skill Focus feat. The skill selected to focus upon must be the same as the type of skill selected as the character's Professional Speciality class feature. If the Professional Speciality skill is an Entertain type, this class feature may only be applied to Entertain skills. If it is a Profession skill, this class feature applies only to Profession skills, and if it is a Technical skill, this class feature only applies to Technical skills. The Professional may not select the same skill twice.



ROGUE

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+0	+2	+0	Starting Feats + Bonus Feat
2nd	+1	+0	+3	+0	Bonus Feat
3rd	+2	+1	+3	+1	
4th	+3	+1	+4	+1	
5th	+3	+1	+4	+1	Bonus Feat
6th	+4	+2	+5	+2	
7th	+5	+2	+5	+2	Bonus Feat
8th	+6/+1	+2	+6	+2	
9th	+6/+1	+3	+6	+3	
10th	+7/+2	+3	+7	+3	Bonus Feat
11th	+8/+3	+3	+7	+3	Bonus Feat
12th	+9/+4	+4	+8	+4	
13th	+9/+4	+4	+8	+4	Bonus Feat
14th	+10+5	+4	+9	+4	Bonus Feat
15th	+11/+6/+1	+5	+9	+5	
16th	+12/+7/+2	+5	+10	+5	
17th	+12/+7/+2	+5	+10	+5	Bonus Feat
18th	+13/+8/+3	+6	+11	+6	
19th	+14/+9/+4	+6	+11	+6	Bonus Feat
20th	+15/+10/+5	+6	+12	+6	

ROGUE CLASS FEATURES

All of the following are class features of the Rogue:

Starting Feats: The Rogue begins play with the following feats:

Armor Proficiency (Light)	Armor Proficiency (Medium)
Weapon Proficiency (Swordsman)	Weapon Proficiency (Marksman)

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Rogue gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100) that they are qualified for.

Alertness	Dumb Luck	Brawling
Carousing	Fast Talk	Fence Stolen Goods *
Hacker	Improved Search *	Sixth Sense
Smuggling *	Spot Trouble*	Stealthy
Toughness	Tracker	

*A specialized class feat.

ROGUE CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Appraise	Int	Bluff	Cha/Soc
Bribery	Cha	Disguise	Cha
Driving	Dex	Forgery	Int/Dex
Gambling	Int	Gather Information	Cha
Hide	Dex	Innuendo	Wis
Intimidate	Cha/Soc	Listen	Wis
Move Silently	Dex*	Search	Int
Sense Motive	Wis	Spot	Wis
T/Mechanical or Electronics		Edu	

Starting Skill Points: (4 + Int modifier) * 4. If you are taking Rogue as a multiclass, you do not receive these starting skill points.

Skill Points per Level: 4 + Int modifier

ROGUE
CORE CLASS

Rogues vary, from out-and-out criminals to those who live by their wits on the edge of the law or like to take an unconventional, indirect approach to a problem. Some are conmen, swindlers or bank raiders, while others are smugglers and thugs. However, many Rogues actually have quite legal occupations including soldiers, merchants, bodyguards, martial artists and even certain kinds of archaeologist.

Characteristics: Not all Rogues are criminals, and most would stop short of murder and other serious crimes. However, most are willing to take a liberal approach to laws and conventions. It is wise not to ask the ship's assistant engineer where the spares came from, nor to inquire closely how those weapons permits came to be issued so quickly. Rogues exist in all walks of life. What they all have in common is a certain streetwise savvy and a willingness to use whatever methods seem likely to get a result. Some Rogues are slimy weasels, some are thugs and bullies. Others are charming individuals or just ordinary people who are willing to bend the rules a little.

Background: Anyone can be a Rogue. Some have a career, such as starship crew, military personnel, or even scientist. Others weasel their way from one scam to another or make a shady living doing whatever pays the bills. Violence is often an integral part of the Rogue's world, and combat skills tend to get picked up along the way.

Adventuring: The Rogue is the classic adventurer. A wide range of skills makes the character highly useful to any group. Stealth and interpersonal skills, coupled with some weapons proficiency, makes the Rogue a go-anywhere, do-anything individual.

GAME RULE INFORMATION

Class Type: Core

Initial Requirements: Any starting character may become a Rogue.

Multiclass Restrictions: To multiclass into the Rogue class, a character must have the Connections/Underworld feat.

Abilities: Dexterity, Intelligence

Stamina: 1d8 + Con modifier per level

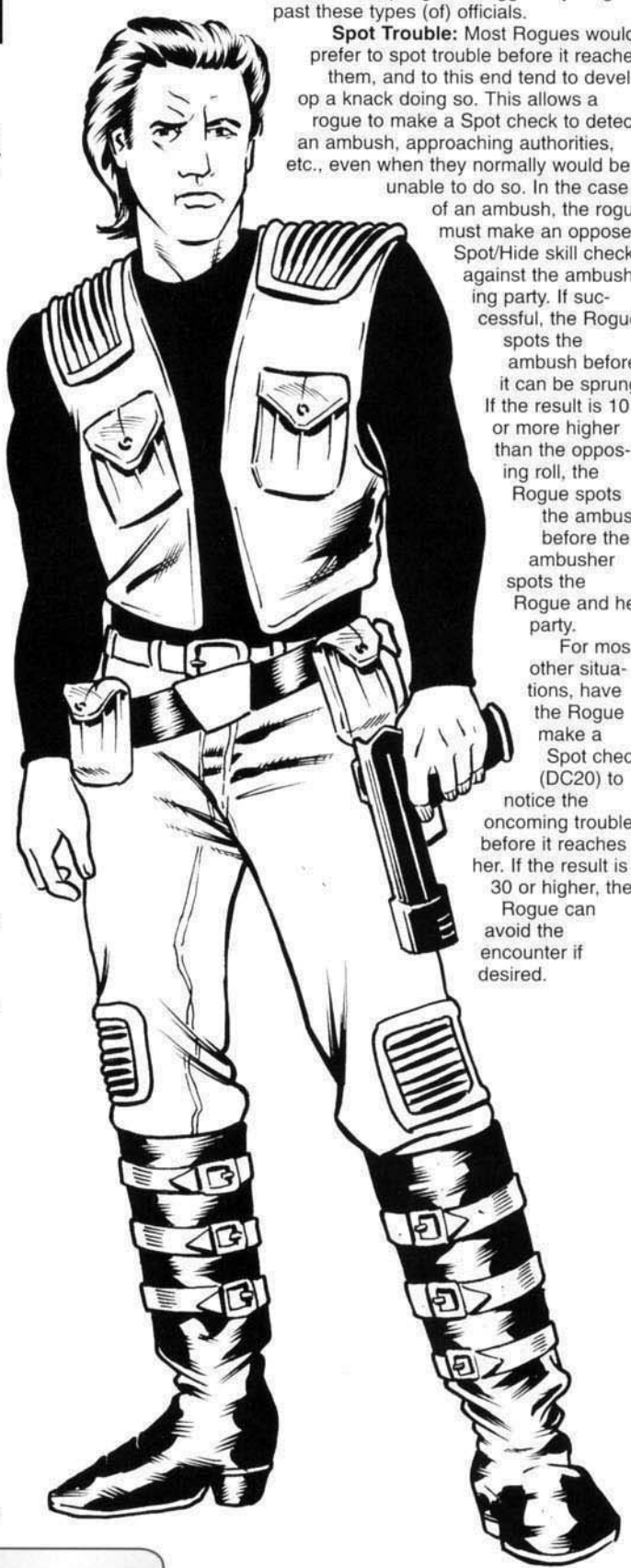
Starting Funds: Cr2500

Fence Stolen Goods: The Rogue knows know how to locate buyers for stolen or otherwise illegal goods and products, with a reduced chance of getting caught. An Appraisal check must first be made on the item(s) to determine their value. How quickly the item(s) sell, and how much they bring are all dependent upon one another. The faster an item sells, the less it will likely bring. The higher the asking price for an item, the harder it will be to find a buyer. When checking to see if a buyer has been found willing to pay the asking price, the character must make a Gather Information check vs. the appropriate DC. If the check fails by 10 or more, the legal authorities have learned of the attempt to fence the goods and will try to arrest the character.

% Actual Value	*Check for Buyer*	*Find Buyer DC*
0-10%	1 per day	5
11-20%	1 every 2 days	10
21-30%	1 every 3 days	15
31-50%	1 per week	20
41-75%	1 every 2 weeks	25
76-100%	1 per month	30

Improved Search: The Rogue is adept at locating the likely spots that someone would tend to hide their valuables and other items of importance, add +2 to all Search checks.

Smuggling: The Rogue has learned numerous tricks and techniques for hiding contraband and other illegal goods from law enforcement officials and customs officials. Add a +2 circumstance bonus to all Hide checks when attempting to smuggle anything past these types (of) officials.



Spot Trouble: Most Rogues would prefer to spot trouble before it reaches them, and to this end tend to develop a knack doing so. This allows a rogue to make a Spot check to detect an ambush, approaching authorities, etc., even when they normally would be unable to do so. In the case of an ambush, the rogue must make an opposed Spot/Hide skill check against the ambushing party. If successful, the Rogue spots the ambush before it can be sprung. If the result is 10 or more higher than the opposing roll, the Rogue spots the ambush before the ambusher spots the Rogue and her party.

For most other situations, have the Rogue make a Spot check (DC20) to notice the oncoming trouble before it reaches her. If the result is 30 or higher, the Rogue can avoid the encounter if desired.

SCOUT

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+0	+1	+1	Starting Feats + Bonus Feat
2nd	+1	+0	+2	+2	Bonus Feat
3rd	+2	+1	+2	+2	
4th	+3	+1	+2	+2	
5th	+3	+1	+3	+3	Bonus Feat
6th	+4	+2	+3	+3	
7th	+5	+2	+4	+4	Bonus Feat
8th	+6/+1	+2	+4	+4	
9th	+6/+1	+3	+4	+4	
10th	+7/+2	+3	+5	+5	Bonus Feat
11th	+8/+3	+3	+5	+5	Bonus Feat
12th	+9/+4	+4	+6	+6	
13th	+9/+4	+4	+6	+6	Bonus Feat
14th	+10+5	+4	+6	+6	Bonus Feat
15th	+11/+6/+1	+5	+7	+7	
16th	+12/+7/+2	+5	+7	+7	
17th	+12/+7/+2	+5	+8	+8	Bonus Feat
18th	+13/+8/+3	+6	+8	+8	
19th	+14/+9/+4	+6	+8	+8	Bonus Feat
20th	+15/+10/+5	+6	+9	+9	

SCOUT SERVICE FEATURES

All of the following are class features of the Scout:

Starting Feats: The Scout begins play with the following feats:

Armor Proficiency (Vac Suit) Armor Proficiency (Light)

Weapon Proficiency (Marksman)

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Scout gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg 100) that they are qualified for.

Barter	Brawling	Carousing
Contact Specialist*	EW Specialist	Hacker
Gearhead	Geological Survey	Imp Zero-G/Low Gravity Adaptation
Jack of all Trades*	Naval Architecture	Negotiator*
Obscure Knowledge*	Ship's Tactics	Vessel (Starships)
Vessel (Ship's Boat)	Vessel (Grav)	Vessel (Water)
Vessel (Ground)	Weapon Proficiency (Lasers)	Weapon Proficiency (Ship's Weapons)
Xeno-Medicine	Zero-G Combat	Zero-G/Low Gravity Adaptation

* A specialized class feat.

SCOUT SERVICE SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Bribery	Int	Driving	Dex
Forgery	Int/Dex	Gambling	Int
Gather Information	Cha	Gunnery	Wis
Leader	Int/Cha	Liaison	Cha
Navigation	Edu	P/Administration	Wis
P/Survey	Wis	Pilot	Int/Dex
Ride	Dex	Spot	Wis
Survival	Wis	Technical (any)	Edu
Trader	Int		

Skill Points per Level: 4 + Int modifier

SCOUTS
SERVICE CLASS

The Interstellar Scout Service is an excellent place to gain experience as an adventurer. The Scouts train their personnel in a wide range of skills ranging from starship operations to planetary survival. Most personnel will have served in Communications, Survey or Exploration and will have specialist skills to match the office they served in.

Characteristics: Scouts are resourceful generalists used to having a great deal of personal latitude in order to complete their mission. They are trained to operate in a wide range of environments and to deal with almost anyone from any part of charted space. They are highly motivated problem-solvers with a cosmopolitan outlook.

Background: The Scouts recruit people from all walks of life. Whatever background they have will be broadened and deepened by training and experience. The only real requirements are intelligence and integrity.

Adventuring: Scouts are excellent adventurers with a broad range of skills. They are also a source of adventure leads, as they can be brought back into service at any time.

GAME RULE INFORMATION

Class Type: Service

Initial Requirements: The character must come form a world with some form of interstellar or spacefaring capability. Intelligence 10+ and Dexterity 8+ are also required.

Multiclass Restrictions: Only a character actively working in the Scout prior history may multiclass into the scouts class.

Abilities: Education, Dexterity

Stamina: 1d8 + Con modifier per level

Starting Funds: Acquired as part of the mustering out benefits after prior history.

Contact Specialist: The Scout has been trained in the art of first contact, and making a good impression. Add a +4 circumstance bonus to all initial Liaison or reaction checks when dealing individuals for the first time.

Jack of all Trades: Any class skill (from any class the character has multiclassed into) the character is not currently trained in may be treated as if it were an 'untrained' skill. This means the character may attempt to use these class skills as if they had a skill rank of 0. Each subsequent selection of this class feature improves the character's effective skill rank in these untrained class skills by +1. So a character with JoT +3 would make such skill checks as if the had a skill rank of 3.

Cross class skills may similarly be used, but at a skill rank equal to JoT rank -1.

Negotiator: The Scout is a born negotiator. Add a +2 synergy bonus to all Liaison and Administration checks.

Obscure Knowledge: A character may make a special obscure knowledge check with a bonus equal to his level + his Intelligence modifier to see whether he knows some relevant information about local world, unusual technology, alien race, or similar type of information. This check will not reveal any specific information, but may give a clue as to where to find more data on the subject, or other lead. The scout may not Take 10 or Take 20 on this check; this sort of knowledge is essentially random. The Referee will determine the Difficulty Class of the check by referring to the table below.

DC	*Type of Knowledge*
10	Common, known by at least a substantial minority of people.
20	Uncommon but available, known by only a few people.
25	Obscure, known by very few, hard to come by.
30	Extremely obscure, known by an elite few, possibly forgotten by most who once knew it, possibly known only by those who don't understand the significance of the knowledge.

EX-SCOUT PERSONNEL

There is really no such thing as a retired Scout. All Scouts who 'retire' or muster-out from the Scout Service are placed on inactive reserve status (usually known as "Detached Duty", though some Scouts are detached for other reasons than retirement) and subject to recall and activation at any time for any duration and for any purpose the Scout Service deems necessary. Because of this, unlike other services (Army, Navy, and Marines), Scouts may continue to earn additional levels as a Scout even when not on active-duty.



THE TRAVELLER

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1st	+0	+0	+1	+1	Starting Feats + Bonus Feat
2nd	+1	+0	+2	+2	Bonus Feat
3rd	+1	+1	+2	+2	
4th	+2	+1	+2	+2	
5th	+2	+1	+3	+3	Bonus Feat
6th	+3	+2	+3	+3	
7th	+3	+2	+4	+4	Bonus Feat
8th	+4	+2	+4	+4	
9th	+4	+3	+4	+4	
10th	+5	+3	+5	+5	Bonus Feat
11th	+5	+3	+5	+5	Bonus Feat
12th	+6/+1	+4	+6	+6	
13th	+6/+1	+4	+6	+6	Bonus Feat
14th	+7/+2	+4	+6	+6	Bonus Feat
15th	+7/+2	+5	+7	+7	
16th	+8/+3	+5	+7	+7	
17th	+8/+3	+5	+8	+8	Bonus Feat
18th	+9/+4	+6	+8	+8	
19th	+9/+4	+6	+8	+8	Bonus Feat
20th	+10/+5	+6	+9	+9	

TRAVELLER CLASS FEATURES

All of the following are class features of the Traveller:

Starting Feats: The Traveller begins play with the following feats:

Armor Proficiency (Light) Armor Proficiency (Medium)

Weapon Proficiency (Marksman)

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Traveller gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100) that they are qualified for.

Alertness	Brawling	Carousing
EW Specialist	Fast Talk	Gearhead
Hacker	Hobby	Improved Zero-G/Low Gravity Adaptation
Jack of all Trades*	Jury Rig	Linguist*
Miracle Worker	Obscure Knowledge*	Ship Tactics
Sixth Sense	Tactics I*	Toughness
Trustworthy	Vessel (any)	Weapon (Ship's Weapons
Well Connected*	Xeno-Empathy	Zero-G/Low Gravity Adaptation

* A specialized class feat.

TRAVELLER CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Bribery	Cha/Soc	Craft	Int
Driving	Dex	Entertain	Cha
Liaison	Cha	Driving	Dex
Gambling	Int	Gather Information	Cha
Gunnery	Dex	Innuendo	Wis
Knowledge	Edu	Leader	Int
Liaison	Cha/Soc	Navigation	Edu
Pilot	Int/Dex	Profession	Wis
Read/Write Language	None	Speak Language	None
Technical	Edu	Trader	Int
Use Alien Devices*	Wis		

* Exclusive Skill

Starting Skills: (6 + Int modifier) x 4. If you are taking Traveller as a multi-class, you do not receive these starting skill points.

Skill Points per Level: 6 + Int modifier

TRAVELLER
CORE CLASS

The Traveller is someone who makes his or her living away from home. Travellers need a balance of abilities - specialist career skills and enabling skills in the interpersonal or combat fields, to allow them to get the job done without interference. Travellers may be starship crew, corporate employees, particularly rugged field scientists or freelancers such as engineers or journalists.

Characteristics: Usually a Traveller has a job that takes them out into the wider universe. Travellers tend to be resourceful individuals who have met and survived many unusual situations. Their other characteristics are usually dictated by their profession.

Background: Anyone can be a Traveller. Most are from mid-tech or higher worlds, and tend to have a prior history in one of the services. Many members of the Scout Service are Travellers.

Adventuring: The Traveller is another excellent adventurer class. Travellers have a wide range of skills and aptitudes and can tackle many situations.

GAME RULE INFORMATION

Class Type: Core

Initial Requirements: Any starting character may become a Traveller.

Multiclass Restrictions: None.

Abilities: Education, Intelligence, Dexterity

Stamina: 1d6 + Con modifier per level

Starting Funds: Cr5000

Jack of all Trades: Any class skills (from any class the character has multiclassed into) the character is not currently trained in may be treated as if it were an 'untrained' skill. This means the character may attempt to use these class skills as if they had a skill rank of 0. Each subsequent selection of this class feature improves the character's acting skill rank in these untrained class skills by +1. So a character with JoT +3 would make such skill checks as if the had a skill rank of 3.

Cross class skills may similarly be used, but at a skill rank equal to JoT rank -1.

Linguist: Exposure and interaction with numerous cultures and societies has imbued the Traveller with a gift for languages. In situations where a Traveller needs to communicate with another, but is unfamiliar with the local language he may still attempt to get a point or question across.

DC	*Type of Language*
10	Subtongue or closely related to a known language
20	Obscurely related to a known language.
25	Archaic or earlier version of a known language (100s of years old)
30	Ancient root tongue of a known language (1000s of years old)

Modifiers

- Simple questions or phrases (hello, what are you called, etc.) +0
- Moderately complex questions and phrases (where are we, what happened) +2
- Difficult and highly involved questions and phrases (local history, questions about society)+5
- Highly advance scientific and technical concepts +10

Obscure Knowledge: A Traveller may make a special Obscure Knowledge check with a bonus equal to his level + his Intelligence modifier to see whether he knows some relevant information about a local world, unusual technology, alien race, or similar type of information. This check will not reveal any specific information, but may give a clue as to where to find more data on the subject, or other lead. The Traveller may not Take 10 or Take 20 on this check as this sort of knowledge is essentially random. The Referee will determine the Difficulty Class of the check by referring to the table below.

DC	*Type of Knowledge*
10	Common, known by at least a substantial minority of people.
20	Uncommon but available, known by only a few people.
25	Obscure, known by very few, hard to come by.
30	Extremely obscure, known by an elite few, possibly forgotten by most who once knew it, possibly known only by those who don't understand the significance of the knowledge.

Tactics I: With this feat, the character may add his Wisdom or Intelligence bonus (whichever is higher) to any small-unit initiative rolls or saving throws. Treat any negative ability modifier as +0 for purposes of this feat. A "small unit" is a team of combatants numbering from 2 to 12 troops.

Well Connected: The years spent traveling across space by a Traveller has resulted in a multitude of contacts, acquaintances, and friends spread across numerous worlds. Once per visit to a world, the character may roll 1d20 + 1 for every Traveller class level vs a DC equal to 30 - the world's Population UWP digit. If successful, the Traveller has remembered someone on the current world that might be able to help in some way (provide accommodation, learn of news and rumors, etc.).

This feature only provides for 'remembering' such a contact. Actually locating them and talking them into actually helping are another set of tasks altogether. A 'single' visit begins when a character arrives via Jump into the world's starsystem and ends when the character leaves the starsystem by Jumping to another starsystem.



SKILLS
OPEN GAME CONTENT

Skills represent the capabilities of a character beyond his or her combat ability. Detailed for each class is a list of skills that are its "class skills". Any skill not listed for the class is considered a "cross-class skill". Class skills represent those skills that a member of the class will usually spend the most time using. Cross-class skills are everything else.

SKILL RANK

A character's ability with a skill is measured in "ranks". A skill may have a rank ranging from 0 to a maximum of 23, with the exception of the Academic class and Advanced Knowledge (see pg. 37). When a skill check is made, a character's rank in that skill is added to the roll. The maximum number of ranks a character can have in a class skill is equal to that character's level +3. The maximum ranks a character can have in a cross-class skill is half that number (do not round up or down).

SKILL POINTS

Characters have a number of skill points based on their race and their class levels. Class skills require 1 skill point per rank; cross-class skills require 2 skill points per rank.

CASCADE SKILLS

Some skills, specifically Craft, Entertain, Knowledge, Profession, and Technical are "cascade skills" meaning that they can represent more than one specific field of endeavor. When a cascade skill is selected, the character must immediately decide on the specific field of endeavor for that skill. Each cascade skill will list one or more example fields of endeavor that may be chosen from, or the character may come up with a new appropriate endeavor with the approval of the Referee.

In this book and throughout T20 products, all cascade skills will be written in the following format: First Letter of the Cascade Skill Type (C, E, K, P, or T) / The Specific Field of Endeavor. For example, a character with the Technical skill chooses Electronics as his field of endeavor with the skill. This would be written as T/Electronics. If he had the Craft skill and selected Pottery, it would be written as C/Pottery.

USING SKILLS

When the character uses a skill, the character makes a skill check to determine how successful they are. The higher the result on the character's skill check, the better outcome. Based on the circumstances, the character's result must match or beat a Difficulty Class (DC) to use the skill successfully. The harder the task, the higher the DC, i.e. the higher the number the character needs to roll.

To make a skill check, roll 1d20 and add the character's skill modifier for that skill. The skill modifiers include:

1) The character's rank with the skill
2) The character's ability modifier for that skill's key ability
3) Any racial bonuses with the skill
4) Any armor check penalty
5) Any other miscellaneous modifiers that may be applicable. See the skill description for details.

If the result of the 1d20 roll + the modifiers equals or exceeds the DC, the test is successful. Any other result is a failure. A "natural 20" on the die roll is not an automatic success. A "natural 1" on the die roll is not an automatic failure.

DIFFICULTY CLASS

The Difficulty Class or DC is the number that the character must equal or exceed when attempting a skill check roll for the task to be successful.

Type	*DC*	*Example*
Simple	0	Walk across the floor
Very Easy	5	Climb a ladder
Easy	10	Climb a knotted rope
Average	15	Plot a course to a familiar star system
Hard	20	Jump a horse over an obstacle while riding
Difficult	25	Swim in churning, storm driven water
Formidable	30	Remove a bullet from a victim.
Challenging	35	Plot a course to an uncharted star, while under fire and without a computer.
Incredible	40	Convince the judge that a pardon scrawled on the back of a cocktail napkin really is from the planetary governor
Nearly Impossible	45	Perform brain surgery with a low-tech field surgical kit, under fire, in the rain, while wounded



DEGREE OF SUCCESS

A character's degree of success is determined by how much better than the DC the roll turns out to be.

DC or higher	*Success*
DC+10 or higher	Great Success
DC+20 or higher	Incredible Success

OPPOSED CHECKS

An opposed check is used when another character or NPC directly opposes a skill check. For example a character attempting to Bluff her way past a customs officer would be an opposed skill check against the custom officer's Sense Motive check. The character makes her Bluff skill check roll and the Referee makes a Sense Motive skill check roll for the customs officer. If the character's Bluff skill check roll is higher than the customs officer's Sense Motive check roll, the custom officer believes the character's bluff.

In the case of a tie, the side with the higher appropriate ability scores for their skill wins. If there is still a tie, both sides roll the skill checks again.

RETRYING

In general, the character can try a skill check again if it fails, and can keep trying indefinitely. Some skills, however, have consequences of failure that must be taken into account. Some skills are virtually useless once a character

has failed on an attempt to accomplish a particular task. For most skills, when a character has succeeded once at a given task, additional successes are meaningless.

If a skill carries no penalties for failure, the player can choose to can Take 20 and assume that the character keeps at it long enough to succeed eventually.

UNTRAINED SKILL CHECKS

Generally, if a character attempts to use a skill they don't possess any skill ranks in, the character makes a skill check as normal. The character does get to add all modifiers other than skill rank though, such as the ability modifier for the skill's key ability.

However, many skills can only be used if the character is trained in the skill. Skills that cannot be used untrained are marked with a "No" in the "Untrained" column on Table: Skills.

FAVORABLE AND UNFAVORABLE CONDITIONS

Some situations may make a skill easier or harder to use, resulting in a bonus or penalty added into the skill modifier for the skill check or a change to the DC of the skill check.

The Referee can alter the odds of success in four ways to take into account exceptional circumstances:

1. Give the skill user a +2 bonus to represent circumstances that improve performance.
2. Give the skill user a -2 penalty to represent conditions that hamper performance.
3. Reduce the DC by 2 to represent circumstances that make the task easier.
4. Increase the DC by 2 to represent circumstances that make the task harder.

A bonus to the character's skill modifier and a reduction in the check's DC have the same result: they create a better chance that the character will succeed. But they represent different circumstances, and sometimes that difference is important.

TIME AND SKILL CHECKS

Using a skill might take a round, take no time, or take several rounds or even longer. Most skill uses are standard actions, move-equivalent actions, or full-round actions. Types of actions define how long activities take to perform within the framework of a combat round (6 seconds) and how movement is treated with respect to the activity. Some skill checks are instant and represent reactions to an event, or are included as part of an action. These skill checks are not actions. Other skill checks represent part of movement. The distance the character jumps when making a Jump check, for example, is part of the character's movement. Some skills take more than a round to use, and the skill descriptions often specify how long these skills take to use.

Taking 10: When the character is not in a rush and is not being threatened or distracted, the character may choose to Take 10. Instead of rolling 1d20 for the skill check, calculate the character's result as if the character had rolled a 10.

Taking 20: When the character has plenty of time (generally 2 minutes for a skill that can normally be checked in 1 round, one full-round action, or one standard action), and when the skill being attempted carries no penalties for failure, the character can Take 20. Instead of rolling 1d20 for the skill check, calculate the character's result as if the character had rolled a 20. Taking 20 means the character is trying until he or she finally gets it right. Taking 20 takes about twenty times as long as making a single check would take.

COMBINING SKILL CHECKS

When more than one character tries the same skill at the same time and for the same purpose, their efforts may overlap.

Individual Events: Often, several characters attempt some action and each succeeds or fails on her own. An example of this would be a group of characters climbing up a rope. All are performing the same action at the same time, but each must make a separate Climb skill check to see if they succeed or fail.

Teamwork: Sometimes the individual PCs are essentially reacting to the same situation, but they can work together and help each other out. In this case, one character is considered the leader of the effort and makes a skill check, while each team member makes a separate skill check against DC 10 (Taking 10 is not permitted on this check). For each team member who succeeds, the leader gets a +2 circumstance bonus (as per the rule for favorable conditions). In many cases, a character's help will not be beneficial, or only a limited number of characters can help at once. The Referee may limit cooperation as seems fitting for the conditions.

Skill Synergy: It is also possible for a character to have two skills that work well together. In general, having 5 or more ranks in one skill gives the character a +2 synergy bonus on skill checks with its synergistic skills, as noted in the skill description.

ABILITY CHECKS

Sometimes a character tries to do something to which no specific skill really applies. In these cases, the character makes an ability check. An ability check is the roll of 1d20 plus the appropriate ability modifier. Essentially, the character is making an untrained skill check. The Referee assigns a Difficulty Class depending upon the circumstances and the task being carried out.

INHABITANTS OF THE IMPERIUM



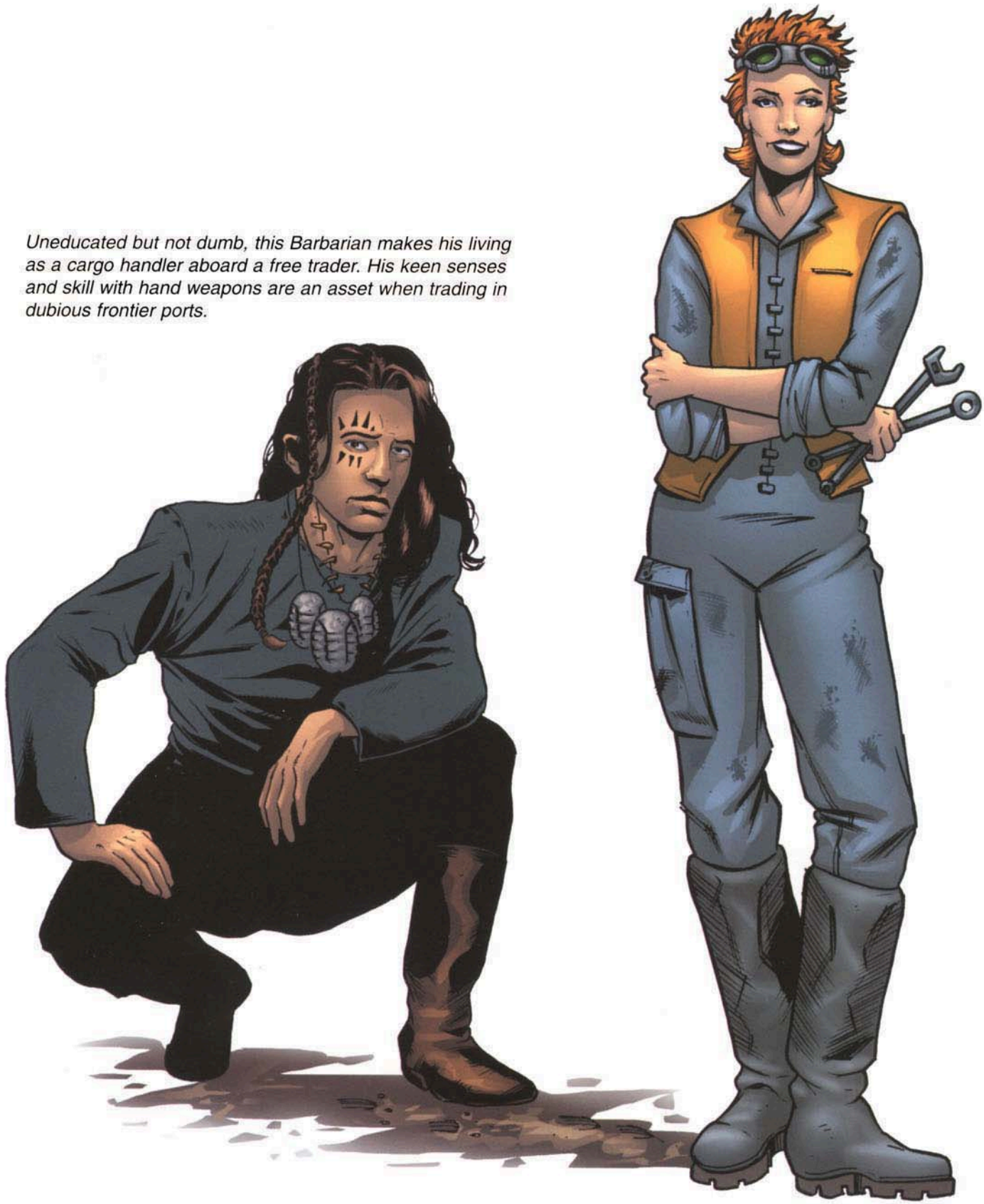
Serving aboard a Free Trader as an assistant engineer, this Academic ponders ways to make the ship's drive more efficient.



An Aslan Infantry lieutenant prepares to lead a tough cross-country exercise. Physical fitness and initiative are vital to effective infantry soldiers.

This resourceful Belter keeps her ancient and jury-rigged equipment in working order through constant tinkering. Maybe the next strike will enable her to get some new gear. Until then, she'll make do with what she has.

Uneducated but not dumb, this Barbarian makes his living as a cargo handler aboard a free trader. His keen senses and skill with hand weapons are an asset when trading in dubious frontier ports.





After learning her trade as an Imperial Army sniper, this Big Game Hunter now pits her skills against the most deadly creatures in Charted Space.



Out of her vac suit and into the boardroom; a mineralogist prepares to present her findings to the mine directorate. Professionals work in hazardous field conditions as often as in comfortable offices.



This Ex-Imperial Marine corporal now heads a security team on a frontier highport. It's a job that requires tact, diplomacy and the capacity for sudden, intense violence.



Mercs come in many kinds. This flamboyant pistoleer hires out as a bodyguard to the rich and famous, who see him as a status symbol as much as a security asset.



This Merchant is owner-aboard of a small trading ship. The Port Authority has just told him his ship's departure slot has been reallocated, and he's not impressed.



This Petty Officer serves in his homeworld's System Defense Force. Not as prestigious as the Imperial Navy, the SysDef squadrons nevertheless play a vital role.



This Imperial Knight is a member of the Archduke's court. This year's court fashion includes elements of early Terran and Vilani styles.



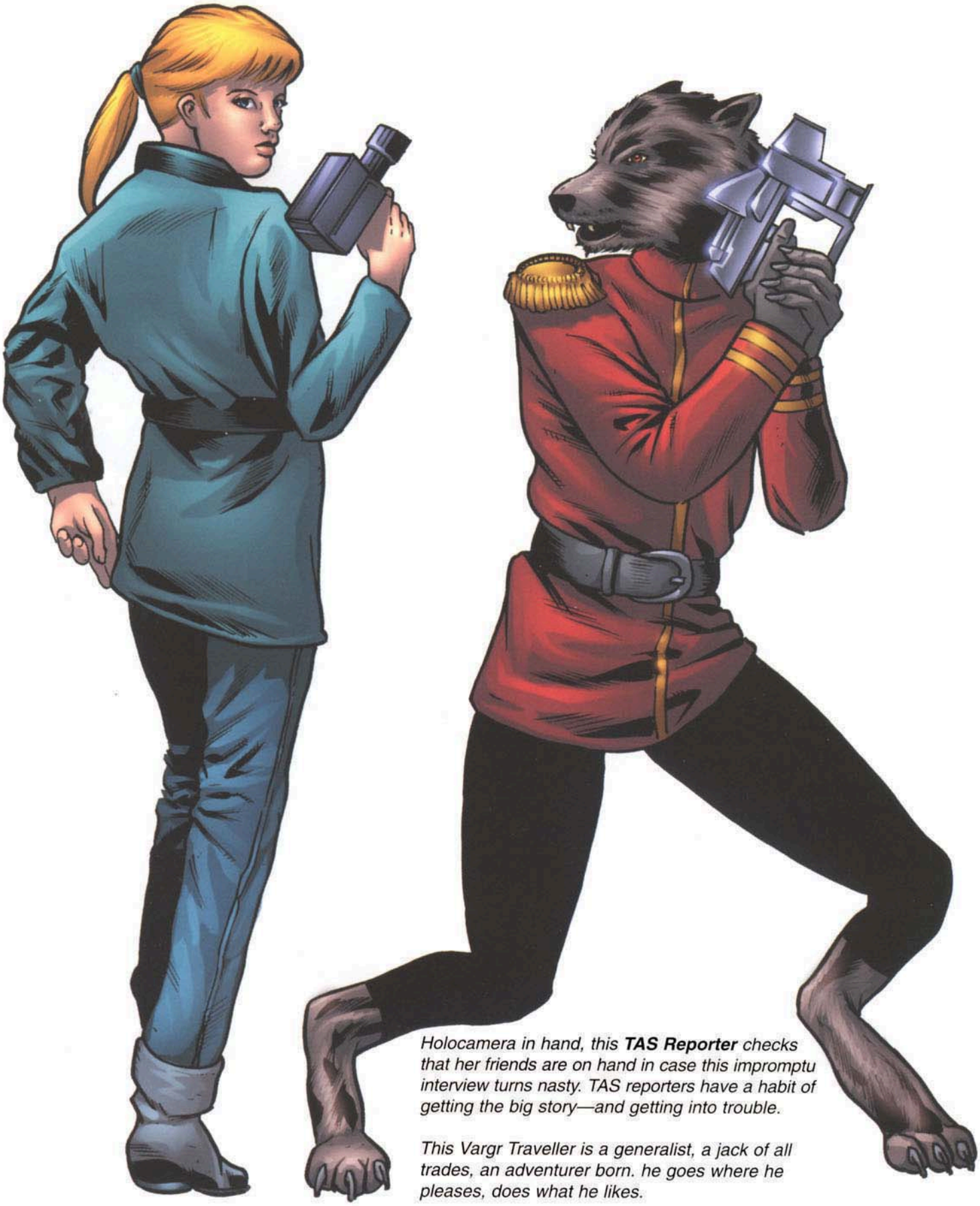
A Marine Assault Pilot reports for flight duty. Wherever there are vehicles to drive or fly, there will be those for whom speed becomes a way of life.



Set a thief to catch one. This rogue makes his living as a Skip Tracer, a bounty hunter specializing in the recovery of stolen starships. Skip Tracer is one of the most hazardous occupations in Charted Space.



Been there, done that. This scout is assigned to the Exploration Office, where no duty shift is ever the same as the last one.



*Holocamera in hand, this **TAS Reporter** checks that her friends are on hand in case this impromptu interview turns nasty. TAS reporters have a habit of getting the big story—and getting into trouble.*

This Vargr Traveller is a generalist, a jack of all trades, an adventurer born. he goes where he pleases, does what he likes.

CORE CLASS SKILLS

Skill	Aca	Bbn	Blt	Mry	Mct	Nbl	Prf	Rog	Trv	Untrained	Key Ability
Animal Empathy	X	C	X	X	X	X	X	X	X	No	Cha
Appraise	•	•	C	•	C	C	C	C	•	Yes	Int
Balance	•	•	•	•	•	•	•	•	•	Yes	Dex*
Bluff	•	•	C	C	C	C	•	C	•	Yes	Cha
Bribery	•	•	•	•	C	C	•	C	C	Yes	Cha
Broker	•	•	•	•	C	•	•	•	•	Yes	Int
Climb	•	C	•	•	•	•	•	•	•	Yes	Str*
Combat Engineering	•	•	•	•	•	•	•	•	•	No	Int
Craft [cascade]	C	C	•	•	•	C	C	•	C	Yes	Int/Dex
Decipher Script	C	X	X	X	X	X	X	X	X	No	Int
Demolitions	•	•	C	•	•	•	•	•	•	No	Dex
Disguise	•	•	•	•	•	•	•	C	•	Yes	Cha
Driving	C	•	•	C	C	•	C	C	C	Yes	Dex
Entertain [cascade]	•	C	•	•	•	C	C	•	C	Yes	Cha
Forgery	•	•	•	•	•	•	•	C	•	Yes	Int/Dex
Forward Observer	•	•	C	•	•	•	•	•	•	No	Int
Gambling	•	•	C	C	C	•	C	C	C	Yes	Int
Gather Information	C	•	•	•	•	C	•	C	C	Yes	Cha
Gunnery	•	•	C	•	•	•	•	•	C	No	Wis
Handle Animal	•	C	•	•	•	•	•	•	•	Yes	Cha
Hide	•	C	•	C	•	•	•	C	•	Yes	Dex*
Innuendo	•	•	•	•	•	C	•	C	C	No	Wis
Intimidate	•	•	•	C	•	C	•	C	•	Yes	Cha
Intuit Direction	•	C	•	•	•	•	•	•	•	No	Wis
Jump	•	C	•	•	•	•	•	•	•	Yes	Str*
Knowledge [cascade]	C	•	•	•	•	C	C	•	C	No	Edu
K/Geology	C	•	C	•	•	•	C	•	C	No	Edu
K/Interstellar Law	C	•	•	•	C	•	C	•	C	No	Edu
K/Mining	C	•	C	•	•	•	C	•	C	No	Edu
Leader	•	•	•	C	•	C	C	•	C	Yes	Int/Cha
Liaison	•	•	•	•	C	C	C	•	C	Yes	Cha
Listen	•	C	•	•	•	•	•	C	•	Yes	Wis
Move Silently	•	C	•	C	•	•	•	C	•	Yes	Dex*
Navigation	C	•	•	•	•	•	•	•	C	No	Edu
Pilot	•	•	C	•	C	•	C	•	C	No	Int/Dex
Profession [cascade]	•	•	•	•	C	C	C	•	C	No	Wis
P/Hunting	•	•	•	•	C	C	C	•	C	No	Wis
P/Journalist	•	•	•	•	C	C	C	•	C	No	Wis
P/Knowledge Related	C	•	•	•	C	C	C	•	C	No	Wis
P/Prospecting	•	•	C	•	C	C	C	•	C	No	Wis
P/Survey	•	•	•	•	C	C	C	•	C	No	Wis
Read/Write Language	C	•	•	•	•	C	•	•	C	No	n/a
Recruiting	•	•	•	•	•	•	•	•	•	Yes	Edu
Ride	•	C	•	•	•	•	•	•	•	Yes	Dex
Search	•	•	C	•	•	•	•	C	•	Yes	Int
Sense Motive	•	•	•	•	•	C	•	C	•	Yes	Wis
Speak Language	C	•	•	•	•	C	C	•	C	No	n/a
Spot	•	C	•	C	•	•	•	C	•	Yes	Wis
Survival	•	C	•	•	•	•	C	•	•	Yes	Wis
Swim	•	C	•	•	•	•	•	•	•	Yes	Str
Technical [cascade]	C	•	C	C	C	•	C	•	C	No	Edu
T/Astrogation	C	•	C	C	C	•	C	•	C	No	Edu
T/Communications	C	•	C	C	C	•	C	•	C	No	Edu
T/Computer	C	•	C	C	C	•	C	•	C	No	Edu
T/Electronics	C	•	C	C	C	•	C	C	C	No	Edu
T/Gravitics	C	•	C	C	C	•	C	C	C	No	Edu
T/Mechanical	C	•	C	C	C	•	C	C	C	No	Edu
T/Medical	C	•	C	C	C	•	C	•	C	No	Edu
T/Sensors	C	•	C	C	C	•	C	•	C	No	Edu
Technosavvy	X	C	X	X	X	X	X	X	X	No	Int
Trader	•	•	•	•	C	•	C	•	C	Yes	Wis
Tumble	•	C	•	•	•	•	•	•	•	No	Dex*
Use Alien Devices	C	X	X	X	X	X	X	X	C	No	Wis

C = Class Skill • = Cross-Class Skill X = You can't buy this skill because it's exclusive to another class
* = Armor check penalty, if any, also applies.

Academic (Aca) Belter (Blt) Barbarian (Bbn) Mercenary (Mry) Merchant (Mct) Noble (Nbl) Professional (Prf)
Rogue (Rog) Traveller (Trv)

NOTE: Only those cascade skills that are specific to certain classes (and thus differ from their parent cascade) are listed here. The characteristics of all other cascade skills are identical to those for the parent cascade. (e.g. T/Computer and T/Electronic are identical in characteristics to all other T/ cascade skills).

SERVICE AND PRESTIGE CLASS SKILLS

Skill	Aht	Amt	Alt	Mar	Nav	Sct	Ace	Bgh	Tfr	Untrained	Key Ability
Animal Empathy	X	X	X	X	X	X	X	C	X	No	Cha
Appraise	•	•	•	•	•	•	•	•	•	Yes	Int
Balance	•	•	•	•	•	•	•	•	•	Yes	Dex*
Bluff	•	•	•	•	•	•	•	•	C	Yes	Cha
Bribery	C	C	C	C	C	C	•	•	C	Yes	Cha
Broker	•	•	•	•	•	•	•	•	•	Yes	Int
Climb	•	•	•	•	•	•	•	•	•	Yes	Str*
Combat Engineering	C	C	C	•	•	•	•	•	•	No	Int
Craft [cascade]	•	•	•	•	•	•	•	•	•	Yes	Int/Dex
Decipher Script	X	X	X	X	X	X	X	X	X	No	Int
Demolitions	C	C	•	C	•	•	•	•	•	No	Dex
Disguise	•	•	•	•	•	•	•	•	•	Yes	Cha
Driving	C	C	•	C	C	C	C	•	•	Yes	Dex
Entertain [cascade]	•	•	•	•	•	•	•	•	•	Yes	Cha
Forgery	•	•	•	•	C	C	•	•	•	Yes	Int/Dex
Forward Observer	C	C	•	C	C	•	•	•	•	No	Int
Gambling	C	C	C	C	C	C	C	C	•	Yes	Int
Gather Information	C	C	C	C	C	C	C	•	C	Yes	Cha
Gunnery	C	C	•	C	C	C	C	•	•	No	Wis
Handle Animal	•	C	C	•	•	•	•	C	•	Yes	Cha
Hide	•	•	•	•	•	•	•	C	•	Yes	Dex*
Innuendo	•	•	•	•	•	•	•	•	•	No	Wis
Intimidate	•	•	•	•	•	•	•	•	C	Yes	Cha
Intuit Direction	•	•	•	•	•	•	•	C	•	No	Wis
Jump	•	•	•	•	•	•	•	C	•	Yes	Str*
Knowledge [cascade]	•	•	•	•	•	•	C	C	C	No	Edu
K/Geology	•	•	•	•	•	•	C	C	C	No	Edu
K/Interstellar Law	•	•	•	•	•	•	C	C	C	No	Edu
K/Mining	•	•	•	•	•	•	C	C	C	No	Edu
Leader	C	C	C	•	C	C	C	C	•	Yes	Int/Cha
Liaison	C	C	C	•	C	C	•	C	C	Yes	Cha
Listen	•	•	•	•	•	•	•	C	C	Yes	Wis
Move Silently	•	•	•	•	•	•	•	C	•	Yes	Dex*
Navigation	•	•	•	•	C	C	•	C	•	No	Edu
Pilot	C	C	•	C	C	C	C	•	•	No	Int/Dex
Profession [cascade]	•	•	•	•	•	•	•	•	•	No	Wis
P/Administration	C	C	•	C	C	C	•	•	C	No	Wis
P/Hunting	•	•	•	•	•	•	•	•	•	No	Wis
P/Journalist	•	•	•	•	•	•	•	•	C	No	Wis
P/Prospecting	•	•	•	•	•	•	•	•	•	No	Wis
P/Survey	•	•	•	•	•	C	•	•	•	No	Wis
Read/Write Language	•	•	•	•	•	•	•	•	C	No	n/a
Recruiting	C	C	C	C	C	•	C	•	•	Yes	Edu
Ride	•	C	C	•	•	C	•	C	•	Yes	Dex
Search	•	•	•	•	•	•	•	C	•	Yes	Int
Sense Motive	C	C	•	C	•	•	•	•	C	Yes	Wis
Speak Language	•	•	•	•	•	•	•	•	C	No	n/a
Spot	C	C	C	C	•	C	C	C	•	Yes	Wis
Survival	C	C	C	C	C	C	C	C	•	Yes	Wis
Swim	•	•	•	•	•	•	•	•	•	Yes	Str
Technical [cascade]	•	•	•	•	C	C	•	•	•	No	Edu
T/Astrogation	•	•	•	•	C	C	•	•	•	No	Edu
T/Communications	C	•	•	C	C	C	C	•	C	No	Edu
T/Computer	C	•	•	C	C	C	C	•	C	No	Edu
T/Electronics	C	•	•	C	C	C	C	•	•	No	Edu
T/Gravitics	C	•	•	C	C	C	•	•	•	No	Edu
T/Mechanical	C	C	•	C	C	C	C	•	•	No	Edu
T/Medical	C	•	•	C	C	C	•	C	•	No	Edu
T/Sensors	C	•	•	C	C	C	•	•	•	No	Edu
Technosaavy	X	X	X	X	X	X	X	X	X	No	Int
Trader	•	•	•	•	•	C	•	•	•	Yes	Wis
Tumble	•	•	•	•	•	•	•	•	•	No	Dex*
Use Alien Devices	X	X	X	X	X	X	X	X	X	No	Wis

Key
C = Class Skill • = Cross-Class Skill X = You can't buy this skill because it's exclusive to another class.

* = Armor check penalty, if any, also applies.

Army, High-Tech (Aht) Army, Mid-Tech (Amt) Army, Low-Tech (Alt) Marine (Mar) Navy (Nav)
Scout (Sct) Ace Pilot (Ace) Big Game Hunter (Bgh) TAS Field Reporter (Tfr)

SKILL DESCRIPTIONS

Each skill description is typically detailed in the following format. If a section does not apply to a skill, it will not appear in the description format.

SKILL NAME (KEY ABILITY)

Trained Only; Armor Check Penalty; [Class Name] Only

The skill name line includes the following information:

Key Ability: The abbreviation of the ability whose modifier applies to the skill check. Some skills have two key abilities listed, in which case the character may choose to use the ability they have the higher score in. Exceptions: Speak Language has "None" listed as its key ability because the use of this skill does not require a check.

Trained Only: If "Trained Only" is included in the skill name line, the character must have at least 1 rank in the skill to use it. If it is omitted, the skill can be used untrained (with a rank of 0). If any special notes apply to trained or untrained use, they are covered in the Special section (see below).

Armor Check Penalty: Apply any armor check penalty to skill checks for this skill.

[Class Name] Only: The skill is exclusive to a certain class or classes. Only characters of the named classes may learn or use the skill. If it is omitted, the skill is not exclusive and may be used by a character of any class.

The skill name line is followed by a general description of what using the skill represents. After the description are three other types of information:

Check: What the character can do with a successful skill check, how much time it takes to make a check, and the DC of the check.

Retry: Any conditions that apply to successive attempts to use the skill successfully. If this paragraph is omitted, the skill can be retried without any inherent penalty other than consuming additional time.

Special: Any extra facts that apply to the skill, such as rules regarding untrained use, or if this skill has a synergistic relationship with other skills, or benefits that certain characters receive because of class or race.

ANIMAL EMPATHY (CHA)

Trained Only; Barbarians and Big Game Hunters Only

The character has the ability to influence the reactions of animals such as calming a barking dog, or soothing a stalking carnivore before it pounces.

Check: The character can improve the attitude of an animal with a successful check. To use the skill, the character and the animal must be able to study each other, noting each other's body language, vocalizations, and general demeanor. This means that the character must be within 10 meters under normal conditions.

Generally, influencing an animal in this way takes 1 minute, but it might take more or less time.

Retry: As with attempts to influence people, retries on the same animal generally don't work (or don't work any better), whether the character has succeeded or not.

APPRAISE (INT)

The character is adept at determining the value of an object, from artwork dating back to the Ziru Sirka to rare artifacts plucked from the shifting sands of Saanshakase.

Check: The character can appraise common or well-known objects within 10% of their value (DC 12). Failure means the character estimates the value at 50% to 150% of actual value. The Referee secretly rolls 2d6+3, multiplies by 10%, multiplies the actual value by that percentage, and tells the character that value for the item.

Rare or exotic items require a successful check against DC 15, 20, or higher. If successful, the character estimates the value at 70% to 130% of its actual value. The Referee secretly rolls 2d4+5, multiplies by 10%, multiplies the actual value by that percentage, and tells the character that value for the item. Failure means the character cannot estimate the item's value.

An electronic or optical magnifying aid such as a jeweler's lens or an electronic equivalent gives a +2 circumstance bonus to Appraise checks involving any item that is small or highly detailed, such as a gem. A merchant's scale or similar device gives a +2 circumstance bonus to Appraise checks involving any items that are valued by weight, including anything made of precious metals. These bonuses stack.

Appraising an item takes 1 minute.

Retry: Not on the same object, regardless of success.

Special: The check may be made untrained. For common items, failure means no estimate. For rare items, success means an estimate of 50% to 150% (2d6+3 times 10%).

BALANCE (DEX)

Armor Check Penalty

The character is skilled at keeping his or her balance in precarious situations such as walking the ledge on the outside of a building, a slippery or unstable surface or any similar environment.

Check: The character can walk on a precarious surface as a move-equivalent action. A successful check lets the character move at half the character's speed along the surface for 1 round. A failure means that the character cannot move for 1 round. A failure by 5 or more means that the character falls.



The difficulty varies with the surface:

Surface	*DC*
18-30 cm wide	10
5-17 cm wide	15
Less than 5 cm wide	20
Uneven Floor	10
Surface Angled	+5*
Surface Slippery	+5*

*Cumulative; if both apply, use both.

Being Attacked while Balancing: Attacks against the character are made as if the character were off balance: They gain a +2 attack bonus, and the character loses any Dexterity bonus to AC. If the character has 5 or more ranks in Balance, then the character can retain the Dexterity bonus to AC (if any) in the face of attacks. If the character takes damage, the character must make a check again to stay balanced.

Accelerated Movement: The character can try to walk a precarious surface more quickly than normal. If the character accepts a -5 penalty, the character can move at normal speed as a move-equivalent action. (Moving twice the character's speed in a round requires two checks.)

Special: If the character has 5 or more ranks in Tumble, the character gets a +2 synergy bonus on Balance checks.

BLUFF (CHA)

The character has the ability to convince others of even the most outrageous of stories through a combination of fast-talking, body language, misdirection and other tricks of the trade.

Check: A Bluff check is opposed by the target's Sense Motive check. Favorable and unfavorable circumstances weigh heavily on the outcome of a bluff. Two circumstances can weigh against the character: The bluff is hard to believe, or the action that the target is to take goes against the target's self-interest, nature, personality, orders, etc. If it is important, the Referee can distinguish between a bluff that fails because the target doesn't believe it and one that fails because it just asks too much of the target. For instance, if the target gets a +10 bonus because the bluff demands something risky of them, and the Sense Motive check succeeds by 10 or less, then the target didn't so much see through the bluff as prove reluctant to go along with it. If the target succeeds by 11 or more, he has seen through the bluff (and would have done so even if it had not entailed any demand on him).

A successful Bluff check indicates that the target reacts as the character wishes, at least for a short time

(usually 1 round or less) or believes something that the character wants him to believe.

A bluff requires interaction between the character and the target. Creatures unaware of the character cannot be bluffed. A bluff always takes at least 1 round (and is at least a full-round action) but can take much longer if the character tries something elaborate.

Feinting in Combat: The character can also use Bluff to mislead an opponent in combat so that he cannot dodge the character's attack effectively. Doing so is a miscellaneous standard action that does not draw an attack of opportunity. If the character is successful, the next attack the character makes against the target does not allow him to use his Dexterity bonus to Armor Class (if any). This attack must be made on or before the bluffing character's next turn. Feinting in this way against an alien is difficult because it is harder to read a strange creature's body language; the character suffers a -4 penalty. Against a creature of animal Intelligence (1 or 2) bluffing is even harder; the character suffers a -8 penalty. Against a non-intelligent creature, bluffing is impossible.

Creating a Diversion to Hide: The character can use Bluff to help the character hide. A successful Bluff check can give the character the momentary diversion the character needs to attempt a Hide check while people are aware of the character.

Retry: Generally, a failed Bluff check makes the target too suspicious for a bluffer to try another ruse in the same circumstances. For feinting in combat, the character may retry freely, though each feint attempt is a new miscellaneous standard action.

Special: Having 5 or more ranks in Bluff gives the character a +2 synergy bonus on Intimidate checks and a +2 synergy bonus on Innuendo checks to transmit a message. Also, if the character has 5 or more ranks of Bluff, they get a +2 synergy bonus on Disguise checks when they act "in character" to fit the disguise and a +2 synergy bonus on P/Administration checks when attempting to get past customs or other situations requiring paperwork or similar bureaucratic hassles.

Nobles with the Noble Indignance class feature may use their Social Standing in place of Charisma as the key ability for this skill.

BRIBERY CHECK

Offense	*DC*	*Minimum Bribe*
Petty Crime or Infraction	5 + World Law Level	Cr10 per level of official
Misdemeanor, Minor Infraction	10 + World Law Level	Cr50 per level of official
Serious Crime, Serious Infraction	15 + World Law Level	Cr100 per level of official
Major Felony, Grievous Infraction	20 + World Law Level	Cr500 per level of official

Modifiers	*DC Modifier*
No skill ranks	+5
Per doubling of bribe amount	-1

BRIBERY (CHA)

The character has experience in bribing petty and not-so-petty officials in order to circumvent regulations or ignore cumbersome laws.

Check: If the bribe is less than the minimum bribe required, the attempt will automatically fail. Characters may offer more than the minimum bribe required and receive a -1 on the DC for each multiple of the bribe offered. For example, a character trying to bribe a 4th level official to ignore a minor smuggling infraction would have to offer a minimum bribe of Cr200. If the character offered Cr400 instead the character could subtract -1 from the task DC. If Cr600 were offered, the character could subtract -2 from the task DC, etc.

Retry: If the first offer is refused, a character may make a second attempt at twice the previous value of the bribe.

Special: If both attempts are refused (failed), the Referee should have the character make an opposed Charisma ability check vs the World Law Level (1d20 + Law Level). If this also fails, the NPC will bring the character up on charges of attempted bribery.

Nobles with the Noble Indignance class feature may use their Social Standing in place of Charisma as the key ability for this skill.

BROKER (INT)

A broker is skilled in facilitating the purchase and resale of commercial goods, as per the Trade and Commerce rules (pg. 355).

Check: A character may apply their Broker skill whenever they must consult the Trade and Commerce Actual Value Table (pg. 359).

CLIMB (STR)

Armor Check Penalty

The character is proficient at traversing many types of surfaces, including ropes, rock faces, building facades, etc, with and without tools and other climbing equipment.

CLIMBING CHECK CONDITIONS

DC	*Example Wall or Surface*
0	A slope too steep to walk up. A knotted rope with a wall to brace against.
5	A rope with a wall to brace against, or a knotted rope.
10	A surface with ledges to hold on to and stand on, such as a very rough wall or a sailing ship's rigging.
15	Any surface with adequate handholds and footholds (natural or artificial), such as a very rough natural rock surface or an unknotted rope.
20	An uneven surface with some narrow handholds and footholds, such as a typical wall in a ruined structure.
25	A rough surface, such as a natural rock wall or a brick wall.
25	Overhang or ceiling with handholds but no footholds.
	A perfectly smooth, flat, vertical surface cannot be climbed.

Modifiers	
-10*	Climbing a chimney (artificial or natural) or other location where one can brace against two opposite walls (reduces DC by 10).
-5*	Climbing a corner where the character can brace against perpendicular walls (reduces DC by 5).
+5*	Surface is slippery (increases DC by 5).

*These modifiers are cumulative; use any and all that apply.

Check: With each successful Climb check, the character can advance up, down, or across a slope or a wall or other steep incline (or even a ceiling with handholds) at one-half the character's speed as a miscellaneous full-round action. The character can move half that far (one-fourth of the character's speed) as a miscellaneous move-equivalent action. A slope is considered to be any incline of less than 60 degrees; a wall is any incline of 60 degrees or steeper.

A failed Climb check means that the character makes no progress, and a check that fails by 5 or more means that the character falls from whatever height he has already attained.

A climber's kit gives a +2 circumstance bonus to Climb checks.

The DC of the check depends on the conditions of the climb.

Since the character can't move to avoid a blow while climbing, enemies can attack as if the character were stunned: An attacker gets a +2 bonus, and the character loses any Dexterity bonus to Armor Class.

It is not possible to use a shield while climbing.

Any time the character takes damage while climbing, make a Climb check against the DC of the slope or wall. Failure means the character falls from his current height and sustains the appropriate falling damage.

Accelerated Climbing: The character tries to climb more quickly than normal. As a miscellaneous full-round action, the character can attempt to cover the character's full speed in climbing distance, but suffers a -5 penalty on Climb checks AND the character must make two checks each round. Each successful check allows the character to climb a distance equal to one-half the character's speed. By accepting the -5 penalty, the character can move this far as a move-equivalent action rather than as a full-round action.

Making the character's Own Handholds and Footholds: The character can make his or her own handholds and footholds by pounding pitons into a wall. Doing so takes 1 minute per piton, and one piton is needed per 1 meter. As with any surface with handholds and footholds, a wall with pitons in it has a DC of 15. In the same way, a climber with a handaxe or similar implement can cut holds in an ice wall.

Catching One's Self When Falling: It is practically impossible to catch one's self on a wall or other vertical surface while falling. Make a Climb check (DC = wall's DC + 20) to do so. A slope is a lot easier to catch one's self on (DC = slope's DC + 10).

COMBAT ENGINEERING (INT)

Trained Only

The individual has practical experience as well as training in a variety of combat engineering skills.

Combat engineering involves the rapid construction of field fortifications, their camouflage, the assessment of their ability to withstand enemy fire, mine and sensor placement and clearance, temporary bridge building, etc.

Camouflage: A combat engineer is able to hide and disguise combat emplacements, fortifications and even

vehicles, making them much harder to spot by both ground and aerial observation. The base DC to Spot a camouflaged item is 25 + the Combat Engineering skill of the character that set up the camouflage.

It is also easier for a character with this skill to spot likely locations of enemy positions, and recognize signs of camouflaging. When searching for enemy emplacements the Referee should make a secret skill check for the character against a DC equal to the camouflage rating of the emplacements (if any). A Spot check can also be used in place of Combat Engineering skill when trying to spot enemy emplacements, but this incurs a -4 penalty to the roll.

Booby Traps and Land Mines: The combat engineer is trained in setting up and detecting booby traps and land mines. When setting up a booby trap or laying a minefield, the character makes his Combat Engineering skill check to set the DC, as for camouflage.

Retry: Can only be attempted once per day for any given task.

Special: A character with 5 or more ranks in Combat Engineering will enjoy a +2 synergy bonus on Demolitions skill checks when placing demo charges on buildings, combat emplacements, or similar structures.

CRAFT (INT/DEX)

Craft is actually a number of separate skills. For instance, the character could have the skill Craft (Gunsmithing). The character's ranks in that skill don't affect any checks the character happens to make for painting or woodworking, for example. The character could have several Craft skills, each with its own ranks, each purchased as a separate skill.

A Craft skill is specifically focused on creating items of utility and/or beauty such as custom weaponry, sculpting, painting, woodworking, pottery, and similar tasks. When this skill is selected, the character immediately must pick a specific type of craft that is represented by the skill.

Check: The character can practice a trade and make a decent living, earning about half the check result x 40 in Credits per week of dedicated work. The character knows how to use the tools of the trade, how to perform the craft's daily tasks, how to supervise untrained helpers, and how to handle common problems. (Untrained laborers and assistants earn an average of 75 Credits per day.)

However, the basic function of the Craft skill is to allow the character to make an item of the appropriate type. The DC depends on the difficulty of the item created. The DC, the character's check results, and the price of the item determine how long it takes to make the item. The item's finished price also determines the cost of raw materials. (In the game world, it is the skill level required, the time required, and the raw materials required that determine an item's price. That's why the item's price and DC determine how long it takes to make the item and the cost of the raw materials.)

CRAFT CONSTRUCTION

Item	*Craft*	*DC*
Small Firearms	Gunsmithing	12
Medium Firearms	Gunsmithing	15
Machineguns	Gunsmithing	18
Bows, Crossbows	Weaponsmith	15
Small Melee Weapons	Weaponsmith	10
Medium Melee Weapons	Weaponsmith	12
Large Melee Weapons	Weaponsmith	15
Very simple item	Varies	5
Typical item	Varies	10
High-quality item	Varies	15
Complex or superior item	Varies	20

All crafts require artisan's tools to give the best chance of success; if improvised tools are used instead, the check is made with a -2 circumstance penalty.

To determine how much time and money it takes to make an item:

1. Have the Referee set a DC for the item to be crafted.
2. Pay one-third the item's final value in raw materials.
3. Make a skill check representing one week's work.

If the check succeeds, find the current "work value" by multiplying the check result by the DC and dividing by 10. If the work value equals the price of the item, then the character has completed the item. If the work value is double or triple the price of the item then the character has completed the task in one-half or one-third the time, and so on. If the work value is less than the price, it represents the progress the character has made this week. Record the result and make a check for the next week. Each week the character makes more progress until the total work value reaches the price of the item.

If the character fails the check, he makes no progress this week. If the character fails by 5 or more, the character ruins half the raw materials and will have to pay half the original raw material cost again. A failure by 10 or more indicates the whole piece is ruined. All work value is lost

and new materials must be obtained for the character to start over.

Progress by the Day: The character can make checks by the day instead of by the week, in which case the character's progress (result times DC) is at one tenth the weekly rate.

Creating Masterwork Items: The character can make a masterwork item (an item that conveys a bonus to its use through its exceptional craftsmanship). To create a masterwork version of an item on the table below, the character creates the masterwork component as if it were a separate item in addition to the standard item. The masterwork component has its own price and DC. Once both the standard component and the masterwork component are completed, the masterwork item is finished. (Note: The price the character pays for the masterwork component is one-third of the given amount, just as it is for the price in raw materials.)

Masterwork tools add a +2 circumstance bonus to related skill checks (if any). Masterwork weapons add a +1 bonus to attack rolls. Masterwork items usually sell for at least twice their normal value.

Retry: Yes, but each time the check is missed by 5 or more, the character ruins half the raw materials or may have to start again (see above).

DECIPHER SCRIPT (INT)

Trained Only; Academic Only

The character is capable of figuring out the meaning and general (non-specific) content of written, chiseled, carved or drawn communications such as alien symbols, fragments of an decree by an ancient and long dead civilization, or even the graffiti scrawled by local gangs on the walls of buildings in the local startown.

Check: The character can decipher writing in an unfamiliar language or a message written in an incomplete or alien form. The base DC is 20 for the simplest messages, 25 for standard texts, and 30 or higher for intricate, exotic, alien, or very old writing.

If the check succeeds, the character understands the general content of a piece of writing, reading about one page of text (or its equivalent) in 1 minute. If the check fails, the Referee makes a secret Wisdom check (DC 5) for the character. Success means that the character fails to determine any meaning but does not draw a false conclusion from the text. Failure means that he or she has gained an erroneous impression.)

The Referee secretly makes both the skill check and (if necessary) the Wisdom check so the player cannot tell whether the conclusion their character draws is true or false.

Retry: No.

Special: When attempting to encrypt or decrypt data via computer, a skill rank of 5 or more in Decipher Script will add a +2 synergy modifier.

DEMOLITIONS (DEX)

Trained Only

The individual is trained and experienced in the handling, placement, and efficient use of explosives. See Demolitions (pg. 155) for more information.

Special: A character with 5 or more ranks in Combat Engineering will enjoy a +2 synergy bonus to any Demolition skill checks involving buildings, combat emplacements, or similar structures. When using demolitions on vehicles and equipment, 5 or more ranks in T/Mechanical skill will add a +2 synergy bonus to the Demolitions skill check. When placing charges against starships and small craft, 5 or more ranks in T/Engineering skill will give a +2 synergy bonus to the Demolitions skill check.

DISGUISE (CHA)

The character can impersonate people, either specific individuals or general stereotypes. For example, the character might, with little or no actual disguise, seem like a well-seasoned traveller even if in fact he or she has never been more than a few miles from home.

Check: The effort requires at least a few props, some makeup, and 1d3 X 10 minutes of work. The use of a disguise kit provides a +2 circumstance bonus to a Disguise check. A disguise can include an apparent change of up to one-tenth of the character's height or weight.

The character's Disguise check result determines how good the disguise is, and it is opposed by others' Spot check results. Make one Disguise check even if several people make Spot checks. The Referee makes the character's Disguise check secretly so that he or she is not sure how good the disguise is.

If the character does not draw any attention to him or herself, however, others do not get to make Spot checks. If the character comes to the attention of people who are suspicious (such as a customs guard who is watching people walking through a starport gate), the Referee can assume that such observers are taking 10 on their Spot checks.

The effectiveness of the character's disguise depends in part on how much the character is attempting to change his or her appearance:

Disguise	*Modifier*
Minor details only	+5
Disguised as different sex	-2
Disguised as different race	-2 or more!
Disguised as different age category	-2*
Disguised as specific class	-2

*Per step of difference between character's actual age category and disguised age category (young [younger than adulthood], adulthood, middle age, old, venerable).

If the character is impersonating a particular individual, those who know what that person looks like get a bonus on their Spot checks (and are automatically considered to be suspicious of the character, so opposed checks are always invoked).

Familiarity	*Bonus*
Recognizes on sight	+4
Friends or associates	+6
Close friends	+8
Intimate	+10

Usually, an individual makes a check for detection immediately upon meeting the character and each hour thereafter. If the character casually meets many different people, each for a short time, check once per day or hour, using an average Spot bonus for the group. For example, if a character is trying to pass for a merchant at a bazaar, the Referee can make one Spot check per hour for the people she encounters using a +1 bonus on the check to represent the average of the crowd (most people with no Spot ranks and a few with good Spot skills).

Retry: A character may try to redo a failed disguise, but once others know that a disguise was attempted they will be more suspicious.

Special: If the character has 5 or more ranks of Bluff, he gets a +2 synergy bonus on Disguise checks when he knows that he is being observed and tries to act "in character" with his disguise

DRIVING (DEX)

Special

The individual is skilled in the operation and maintenance of a specific type vehicle commonly available in society. See Vehicle and Starship Maneuver Actions (pg. 159) for more information.

Special: This skill is only gained by selecting an appropriate Vehicle feat.

ENTERTAIN (CHA)

The character is skilled in a particular form of public entertainment and performance. It is possible for a character to be capable of more than one form of performance, each with its own skill ranks. Possible Entertainment type skills include singing, dancing, comedy, dramatic acting, specific musical instruments, poetry, storytelling and many others. A character may select one of these, or with the Referee's permission select some other form of entertainment skill such as juggling.

Check: The character can impress audiences with talent and skill. These skills may be used for both pleasure and as a possible source of income. The table below will help determine the quality of a performance based on the appropriate Entertain skill check made by the character:

Roll	*Performance Quality*
1-5	Abysmal performance
6-10	Poor performance
11-15	Routine performance
16-20	Enjoyable performance
21-25	Great performance
26-30	Memorable performance
31+	Extraordinary performance

A masterwork musical instrument gives a +2 circumstance bonus to Entertain checks that involve the use of the instrument.

Employment: To obtain a gig, the character must make a search each week to contact prospective employers and canvas for an opening. At the end of the week the character makes a skill check against a DC of 10 + the Maintain Employment DC of the position being sought. For example, a character searching for a billing as the headline singer at a respectable but modest sized nightclub for a week would need to make a successful E/Singing skill check vs. DC25 to locate a job opening that week.

Note that a character may not Take10 or Take20 when making a Maintain Employment or Earn Promotion check

Maintaining Employment: At the end of each week a character has worked in at a gig, she must make a Maintain Employment check to see if she maintains the job for another week. If the check fails, she forfeits her pay for that week and must immediately make another skill check at the same DC. If this second check is also failed, she is demoted to the next lower level of billing and makes a third check. If she cannot make this one, she loses her job!

A weekly check is called for to allow characters to take occasional mundane jobs in between their travels. The Referee may, at his or her discretion, increase this check

ENTERTAINER MAINTAINING EMPLOYMENT

Billing	*Maintain Employment*	*Earn Promotion*	*Weekly Pay*
General Act at Local Dive	5	25	Cr500
Opening Act at Decent Venue	10	30	Cr750
Headline Act at Decent Venue	15	35	Cr1000
Headline Act at Large Venue	20	-	Cr2000

to one every month or even every year. For even longer periods of employment, see the Prior History section on the Professional class for more information.

Earning a Promotion: At the end of each month a character has worked in at a gig, she may make an Earn Promotion check to see if she is promoted to a better billed position. For example, a character who is working as an opening act and earns a promotion would begin the next month as a headline act. Performers engaged as a headline act at a large venue cannot be promoted. Superstardom is a matter for roleplaying, not skill checks.

The Weekly Paycheck: At the end of the week a character will earn a paycheck consummate with their billing.

Retry: Retries are allowed, but they don't negate previous results, and an audience that has been unimpressed in the past is going to be prejudiced against future performances.

FORGERY (INT OR DEX)

The individual is skilled at faking electronic and written documents and papers with a view to deceiving officials, banks, patrons, or other persons.

Documents necessary for cargo transfers, bank transactions, personal identification, and many other purposes are often closely inspected by officials such as the police, customs agents, or clerks when encounters occur. Note that Administration and Bribery skills may also be used to determine whether documents are actually examined by the individuals involved.

Creating a Forgery: Electronic documents require the creator of the forgery to either have T/Computer skill, or be working in conjunction with someone who does. Items such as electronic ID cards also will require the use of T/Electronics skill to create the electronics necessary for the forged device.

For each required additional skill, a successful check must be made against that skill, or the forgery will be unusable. Either the data is scrambled (failed T/Computer check) or the electronics do not work properly (failed T/Electronics check). Either way the result is obviously useless. If all such skill checks are successful, a Forgery check must now be rolled to set the Forgery Level of the document.

Final Forgery Check Modifiers	*Roll Adjustment*
Working from memory	-5
Copy (not original) of document or device to reverse engineer	+5
Original document/device blueprints	+10

Detecting a Forgery: The person reviewing the forged documents or device must make their own Forgery check against a DC equal to the Forgery Level of the item in order to detect the fact. Obviously contrary orders or identity cards that do not match the person holding them, such as an ID describing a noble being used by someone that appears to be a street thug, will tend to arouse suspicions.

Circumstances	*DC Modifier*
Suspicious request/circumstances	+5
Type of document/device unknown to reviewer	-2
Type of document/device somewhat familiar to reviewer	+0
Type of document/device well known to reviewer	+2
Casual review	-2
Electronic or other analysis	+4

Retry: None. Once an individual has detected a forgery they will always know it. However the same forged document could be used again on someone else who may not detect the fact it is a fake.

Special: The P/Administration skill may be used when trying to detect a forgery but suffers a -4 penalty.

FORWARD OBSERVER (INT)

Trained Only

The individual has been trained (in military service) to call on and adjust artillery (projectile, missile, and laser) fire from distant batteries and from ships in orbit. See Indirect Fire (pg. 157) for more information.

GAMBLING (INT)

The individual is well informed on games of chance, and wise in their play. He or she has an advantage over non-experts, and is generally capable of winning when engaged in such games. Gambling, however, should not be confused with general risk-taking.

Non-Competitive Games: Slots, Roulette, Blackjack, Keno, etc. These games are played strictly against the house and the odds are pretty much constant, as are the payoff values. House always wins on a roll of '1' exactly.

Odds of Winning	*DC*	*Payoff*	*Maximum Bet*
Rigged	40	Varies	Varies
Remote	35	1:10	Cr5,000
Small	30	1:8	Cr1,000
Low	25	1:4	Cr500
Average	20	1:2	Cr100
High	15	2:3	Cr50

Competitive Games: If playing against a group of other players, each member of the game will make their Gambling skill check with the highest roll taking the pot. A character may attempt to cheat during a game at any time by stating his or her intent to cheat and making an extra Gambling check. If any other player in the game makes a successful opposing Gambling check against the character's attempt at cheating they are caught red-handed. Otherwise

the player has successfully cheated and takes the pot. If more than one person attempts to cheat during the same round of play the person with the highest roll wins the pot.

Special: When playing games involving bidding, a character with a Bluff skill of 5 or higher may add a +2 synergy bonus to their Gambling skill check.

GATHER INFORMATION (CHA)

You are talented at combing sources and databanks for information.

Check: By succeeding at a skill check (DC 10), the character can get a general idea of what the major news items are on a world, assuming no obvious reasons exist why the information would be withheld. The higher the check result, the better the information.

If the character wants to find out about a specific rumor, specific item, obtain a map, or do something else along those lines, the DC is 15 to 25 or higher.

Retry: Yes, but it takes several hours for each check, and characters may draw attention to themselves if they repeatedly pursue a certain type of information.

Special: A character with the Connections feat gets a +2 synergy bonus on Gather Information checks when using their contacts. Similarly a character with the Research feat will get a +2 synergy bonus when conducting research on a story or project. Also characters with the Carousing feat will earn a +2 synergy bonus when using the Gather Information skill in social situations.

GUNNERY (WIS)

This is skill is used as an attack bonus equal to the character's Gunnery skill rank when making an attack using Field Artillery, Vehicle mounted weapons, or Ship's Weaponry. See Gunner Actions (pg. 162) for more information.

Special: This skill is only gained by selecting an appropriate Weapon Proficiency feat.

HANDLE ANIMAL (CHA)

The character is an experience hand when it comes to dealing with animals, with knowledge of breeding, raising, care and training of them.

Check: The time required to get an effect and the DC depend on what the character is trying to do.

Task	*Time*	*DC*
Handle a domestic animal	Varies	10
"Push" a domestic animal	Varies	15
Teach an animal tasks	2 months	15
Teach an animal unusual tasks	2 months	20
Rear a wild animal	1 year	15 + HD of animal
Train a wild animal	2 months	20 + HD of animal

Time: For a task with a specific time frame, the character must spend half this time (at the rate of 3 hours per day per animal being handled) working toward completion of the task before the character makes the skill check. If the check fails, the character can't teach, rear, or train that animal. If the check succeeds, the character must invest the remainder of the time before the teaching, rearing, or training is complete. If the time is interrupted or the task is not followed through to completion, any further attempts to teach, rear, or train the same animal automatically fail.

Handle a Domestic Animal: This means to command a trained dog, to drive beasts of labor, to tend to tired horses, and so forth.

"Push" a Domestic Animal: To push a domestic animal means to get more out of it than it usually gives, such as commanding a poorly trained dog or driving draft animals for extra effort.

Teach an Animal Tasks: This means to teach a domestic animal some tricks. The character can train one type of animal per rank (chosen when the ranks are purchased) to obey commands and perform simple tricks. The character can work with up to three animals at one time, teaching them general tasks. An animal can be trained for one general purpose only.

Teach an Animal Unusual Tasks: This is similar to teaching an animal tasks, except that the tasks can be something unusual for that breed of animal, such as training a dog to be a riding animal. Alternatively, the character can use this aspect of Handle Animal to train an animal to perform specialized tricks, such as teaching a horse to rear on command or a falcon to pluck objects from someone's grasp.

Rear a Wild Animal: To rear an animal means to raise a wild creature from infancy so that it is domesticated. A handler can rear up to three creatures of the same type at once. A successfully domesticated animal can be taught tricks at the same time that it is being raised, or can be taught as a domesticated animal later.

Train a Wild Animal: This means train a wild creature to do certain tricks, but only at the character's command. The creature is still wild, though usually controllable.

Retry: For handling and pushing domestic animals, yes. For training and rearing, no.

Special: A character with 5 or more ranks of Animal Empathy gets a +2 synergy bonus on Handle Animal checks with animals. A character with 5 or more ranks of Handle Animal gets a +2 synergy bonus on Ride checks. An untrained character can use a Charisma check to handle and push animals but not to teach or rear them.



HIDE (DEX)

Armor Check Penalty

This skill allows a character to use the shadows for concealment from view, slowly approach a position via the cover of dense underbrush, trail a target through a moderately crowded street, or similarly make use of concealment (outside of combat).

Check: The character's Hide check is opposed by the Spot check of anyone who might see them. The character can move up to one-half normal speed and hide at no penalty. At more than one-half and up to the full speed, the character suffers a -5 penalty. It's practically impossible (-20 penalty) to hide while running or charging.

Larger and smaller creatures get size bonuses and size penalties on Hide checks: Fine +16, Diminutive +12, Tiny +8, Small +4, Large -4, Huge -8, Gargantuan -12, Colossal -16.

A character can attempt to camouflage himself in order to blend into the local terrain. Such a camouflaged character may add a bonus equal to 5 + his Intelligence modifier to any Hide checks if the camouflage is appropriate.

If people are observing the character, even casually, he cannot hide. The character can run around a corner or something so that he is out of sight and then hide, but the others then know at least where the character went. If the character's observers are momentarily distracted (as by a Bluff check; see below), the character can attempt a Hide check. While the observers' attention is distracted, the character can attempt a Hide check if he can get to a hiding place of some kind. (As a general guideline, the hiding place has to be within 1 foot per rank the character has in Hide.) This check, however, is at -10 because the character has to move fast.

Creating a Diversion to Hide: A successful Bluff check can provide the momentary diversion the character needs to attempt a Hide check while people are observing him.

INNUENDO (WIS)

Trained Only

The character is able to pass along and understand secret messages while carrying on a conversation about something else. For example the captain of a ship might

use innuendo to pass along orders to the crew to prepare for a boarding action by pirates, all the while speaking to the passengers about some "minor engine difficulties" that have just occurred.

Check: The character can get a message across to another character with the Innuendo skill.

The DC for a basic message is 10. The DC is 15 or 20 for complex messages, especially those that rely on getting across new information. Also, the character can try to discern the hidden message in a conversation between two other characters who are using this skill. The DC is the skill check of the character using Innuendo, and for each piece of information that the eavesdropper is missing, that character suffers a -2 penalty on the check. For example, if a character eavesdrops on people planning to assassinate a visiting diplomat, the eavesdropper suffers a -2 penalty if he doesn't know about the diplomat. Whether trying to send or intercept a message, a failure by 5 or more points means that some false information has been implied or inferred.

The Referee makes the character's Innuendo check secretly so that the character does not necessarily know whether he was successful.

Retry: Generally, retries are allowed when trying to send a message, but not when receiving or intercepting one. Each retry carries the chance of miscommunication.

Special: If the character has 5 or more ranks in Bluff, the character gets a +2 synergy bonus on the check to transmit (but not receive) a message. If the character has 5 or more ranks in Sense Motive, the character gets a +2 synergy bonus on the check to receive or intercept (but not transmit) a message.

INTIMIDATE (CHA)

The character has an uncanny ability to bully, browbeat, insult, threaten, embarrass, or otherwise intimidate others into doing what she wants through force of personality or social position, without actually resorting to violence.

Check: The character can change others' behavior with a successful check. The DC is typically 10 + the target's Hit Dice. Any bonuses that a target may have on saving throws against fear increase the DC.

Retry: Generally, retries do not work. Even if the initial check succeeds, the other character can only be intimidated so far, and a retry doesn't help. If the initial check fails, the other character has probably become more firmly resolved to resist the intimidator, and a retry is futile.

Special: If the character has 5 or more ranks in Bluff, the character gets a +2 synergy bonus on Intimidate checks.

Nobles with the Noble Indignance class feature may use their Social Standing in place of Charisma as the key ability for this skill.

INTUIT DIRECTION (WIS)

Trained Only

The character is rarely disoriented, and has an unnerving knack for always knowing what direction he is facing in relation to the local compass.

Check: By concentrating for 1 minute, the character can determine where true north lies in relation to the character (DC 15). If the check fails, the character cannot determine direction. On a natural roll of 1, the character errs and mistakenly identifies a random direction as true north.

The Referee makes the character's check secretly so that the character doesn't know whether the character rolled a successful result or a 1.

Retry: The character can use Intuit Direction more than once per day. The roll represents how sensitive to direction the character is at that point in the day. Use the most recently rolled number for all other checks in the same day

Special: Untrained characters can't use an innate sense of direction, but they could determine direction by finding clues.

JUMP (STR)

Armor Check Penalty

A character would use this skill when attempting to jump across the gap between two buildings, drop from a second story window, leap to another branch in a tree, or other similar situations.

JUMPING MODIFIERS

Type of Jump	*Minimum Distance*	*Additional Distance*	*Distance*
Running jump*	1.5 meters.	+25 cm./1 point above 10	Height X 6
Standing jump	1 meter.	+25 cm./2 points above 10	Height X 2
Running	50 centimeters.	+25 cm./4 points above 10	Height X 1 1/2
High jump* Standing	50 centimeters.	+25 cm./8 points above 10	Height
High jump Jump back	25 centimeters.	+25 cm./8 points above 10	Height

*The character must move 6 meters before jumping. A character cannot take a running jump in heavy armor.

Check: The character jumps a minimum distance plus an additional distance depending on the amount by which the character's Jump check result exceeds 10. The maximum distance of any jump is a function of the character's height.

The distances listed are for characters with speeds of 10 meters. If the character has a lower speed (from armor, encumbrance, or weight carried, for instance), reduce the distance jumped proportionally. If the character has a higher speed than a standard human, increase the distance jumped proportionally.

Distance moved by jumping is counted against maximum movement in a round normally.

If the character intentionally jumps down from a height, the character might take less damage than if he fell the same distance. If the character succeeds at a Jump check (DC 15), the character takes damage as if the character had fallen 3 meters less than the character actually did.

Special: If the character has 5 or more ranks in Tumble, the character gets a +2 synergy bonus on Jump checks.

A character who has the Run feat and who makes a running jump increases the distance or height he clears by one-fourth, but not past the maximum.

KNOWLEDGE (EDU)

Knowledge is a Cascade Skill, which is actually a general categorization for a number of different skills. Knowledge represents acquired information, learning, and/or education about a specific subject, but not necessarily the practical application of such information. For example, an Academic character might have the K/Vehicles skill representing a study of the design and evolution of vehicles, but this doesn't necessarily mean he knows how to fix a blown fuel cell (which would require the Technical skill T/Mechanical instead).

When this skill is selected, the character immediately must pick a specific area of knowledge that is represented by the skill. This skill may be taken any number of times, but each selection must be in a new area of knowledge.

Check: Answering a question within the character's field of study has a DC of 10 (for really easy questions), 15 (for basic questions), or 20 to 30 (for really tough questions).

Retry: No. The check represents what the character knows, and thinking about a topic a second time doesn't let the character know something the character never learned in the first place.

Special: An untrained Knowledge check is simply an Education check. Without actual training, a character only knows facts that are common knowledge. Note that some "commonly known" facts may be partially or completely (and sometimes deliberately) wrong or false. Untrained Knowledge checks allow the character to remember what facts he or she has encountered. The truth may be harder to come by, though a subject expert may know the truth behind many common fallacies and misconceptions.

In situations where a character has a Knowledge skill useful to a task requiring a related Technical or Professional skill, the character may add a +2 synergy bonus to the skill check. If the character does not possess the required skill, they may still attempt the task as if they did have the skill rank of 0 but they lose the synergy bonus.

DETAILED KNOWLEDGE SKILLS

Below are some detailed areas of knowledge that are commonly used by characters in the ***Traveller*** universe.

K/Interstellar Law

The character is familiar with the general laws and regulations that govern interstellar travel, commerce and relations. This skill does not impart knowledge of the myriad of laws on each individual world, nor does it allow the person to act as an attorney.

Ship Inspections: Typically, when a ship arrives at a new world, it will be inspected by the port authorities to check for compliance with all applicable laws and regulations. It is also not uncommon for patrol ships to stop and board merchant and other ships while in deep space. When such an inspection does occur, the character may make a K/Interstellar Law check (DC10 + the local world Law Level UWP) to be found in compliance and pass inspection. If there is anything illegal on board, the character suffers a -5 penalty to their skill check roll.

Special: A character that also has a P/Administration skill rank of 5 or higher may add a +2 synergy bonus to their skill check rolls when using this skill. K/Interstellar Law may also be used in place of the P/Administration skill in certain appropriate situations, but with a -4 penalty to the skill check roll.

Other Suggested Knowledge Skills

Listed below are additional suggestions for of areas of knowledge that might be use to characters in the Traveller universe. You are free to select from among them or, with your Referee's permission, come up with new areas of knowledge.

- *The Ancients* (their history, known sites, previously found artifacts).
- *Imperial* History (dates, names, important events).
- *Jump Space* (facts, figures, legends, rumors).
- *Architecture and Construction* (buildings, bridges, fortifications, mining).

• *Alien Culture* (the history, important dates, figures, and events of a specific alien society).
• *The Sciences* (specific sciences include: astronomy, biology, botany, chemistry, genetics, physics, zoology, geology, geography, oceanography, planetology, paleontology, archeology).
• *Court Politics* (who's who at the Imperial court, important families and individuals, feuds, rumors)
• *Business* (marketing, financing, organization, important contacts, competitors)
• *Planet* (local leaders, dangerous wildlife and flora, weather patterns, history, important sites)
• *General and local operations of individual Megacorporations* (e.g. Delgado, Hortalez et Cie, etc)
• *A specific topic* (such as Warships of the 3rd Imperium, Ground Vehicles, Smallarms Manufacturers or Famous People Named Steve)

LEADER (INT/CHA)

The character possesses the ability to organize and direct team efforts to ensure the best cooperation and productivity possible.

Check: Whenever a task requires one or more characters to combine their efforts (i.e. Teamwork; each makes a skill or ability check towards a common goal), a successful Leader check allows each team member to make an appropriate skill check vs DC5 rather than the normal DC10.

Task	*DC*
Simple task	5
Moderate task	10
Difficult task	15
Complex task	20

Conditions	*DC Modifier*
Boring, repetitive task	+5
Grueling labor	+10

Retry: A character may try more than once to 'rally' his men, but each additional attempt to do so for the same task will incur a cumulative -2 penalty to the Leader check.

Special: Leader skill rank of 8+ will also give a +2 bonus when attempting to recruit crewman, soldiers, or other hirelings. Unlike the Recruiting skill, Leader skill will tend to attract anyone looking for employment, qualified or not, so personnel found this way will require a bit more of a 'weeding' process to find suitable candidate for a given position.

Nobles with the Noble Presence class feature may use their Social Standing in place of Charisma as the key ability for this skill.

LIAISON (CHA)

The character is trained in the art of dealing with others, including knowledge of proper protocols, manners of address, codes of conduct and other information needed when dealing with a wide range of societal types. Such a character is quite useful when attempting to negotiate a particularly edgy deal, to convince the Duke's secretary to admit the party into the Duke's presence, help settle a dispute between two opposing groups, or other acts of negotiation and diplomacy.

Check: The character can change others' attitudes with a successful check. In negotiations, participants roll opposed Liaison checks to see who gains the advantage. Opposed checks also resolve cases when two diplomats are engaged in negotiations.

Retry: Generally, retries do not work. Even if the initial check succeeds, the other character can only be persuaded so far, and a retry may do more harm than good. If the initial check fails, the other character has probably become more firmly committed to his position, and a retry is futile.

Special: Charisma checks to influence NPCs are generally untrained Liaison checks. If the character has 5 or more ranks in Bluff or Sense Motive, the character gets a +2 synergy bonus on Liaison check. A character with a skill rank of 5 of more in Liaison skill may add +2 to the result when attempting to locate bulk cargos for transport under the Trade and Commerce rules.

Note: This skill is the equivalent of the Diplomacy skill in other d20 games.

Nobles with the Noble Presence class feature may use their Social Standing in place of Charisma as the key ability for this skill.

LISTEN (WIS)

A character might use this skill when trying to overhear another conversation nearby, listen for the approach of someone, or hear a distant noise.

Check: Make a Listen check against a DC that reflects how quiet the noise is that the character might hear or against an opposed Move Silently check.

The Referee may make the Listen check so that the character doesn't know whether not hearing anything means that nothing is there, or that the character rolled low.

DC	*Sound*
0	People talking
5	A person in medium armor walking at a slow pace (3m/round) trying not to make noise.
10	An unarmored person walking at a slow pace (4.5m/round) trying not to make any noise
15	A 1st-level Rogue using Move Silently within 3m of the listener
19	A cat stalking
30	An owl gliding in for a kill
+1	Per 3m from the listener
+5	Through a door
+15	Through a stone wall

In the case of people trying to be quiet, the listed DCs could be replaced by Move Silently checks, in which case the listed DC would be the average result of their checks.

Retry: The character can make a Listen check every time the character has a chance to hear something in a reactive manner. As a full-round action, the character may try to hear something the character failed to hear previously.

Special: When several characters are listening to the same thing, the Referee can make a single 1d20 roll and use it for all the listeners' skill checks.

NAVIGATION COURSE PLOTTING

Task	*DC*	*Time*
Determine Location	10	1 minute
Plot Standard Course	10	10 minutes

Circumstances	*DC Modifier*
Rushed, Under fire	+5
Familiar Destination	+0
Fringe/Frontier region	+5
Uncharted region	+10

MOVE SILENTLY (DEX)

Armor Check Penalty

The character moves with a feline's grace, able to cross various surfaces while making little or no sound.

Check: The character's Move Silently check is opposed by the Listen check of anyone who might hear the character. The character can move up to one-half of his normal speed at no penalty. At more than one-half and up to the character's full speed, he suffers a -5 penalty. It's practically impossible (-20 penalty) to move silently while running or charging.

NAVIGATION (EDU)

Trained Only

The individual has training and expertise in the art and science of land and water navigation.

Check: Whatever means of transport is being used (from shoe leather to starships), the navigator's role is to determine a suitable route that avoids hazards while allowing the travellers to make the best progress they can. On exploratory missions, or when venturing into unexplored territory, Navigation skill may be used to assist in the speedy computation of courses, in the accurate determination of courses, and in the determination of position when lost or strayed, and also to facilitate the accurate recording of progress and the production of charts or maps. The minimum requirement for successful navigation is that the night sky must be visible from the planetary surface, though usually high-technology aids such as radar, beacons and satellite navigation systems are employed. The time required to plat a course depends upon the length of the journey and its complexity.

PILOT (INT OR DEX)

Trained Only

The individual has training and experience in the operation of a given type of grav vehicles, aircraft, spaceship, and/or starships, depending upon the Vehicle feats possessed by the character. A character is qualified for the job of pilot on any type of craft for which they have the appropriate feat (in addition to Pilot skill). Pilot expertise is necessary to handle such craft, though a check is usually only made when circumstances become challenging, such as due to weather conditions or hostile action. See Vehicle and Starship Maneuver Actions (pg. 159) for more information.

Special: This skill is only gained by selecting an appropriate Vehicle feat.

PROFESSION (WIS)

Trained Only

The character is trained in a livelihood or a professional role.

Profession is a Cascade Skill that actually represents a number of separate skills that are used to make one's livelihood in the commercial world. While one could easily make a living through various Craft, Technical, and even Knowledge skills, a Profession skill represents a broader knowledge and familiarity than those more specific skills, the business side of things if you will.

When this skill is selected, the character immediately must pick a specific profession that is represented by the skill. This skill may be taken any number of times, but each selection must be in a new profession.

Check: The character can practice a trade and make a decent living, knows how to use the tools of the trade, how to perform the profession's daily tasks, how to supervise untrained helpers, and how to handle common problems.

Employment: To obtain employment, the character must make a search each week contacting prospective employers and canvassing for job opening. At the end of the week the character makes a skill check against a DC of 10 + the Maintain Employment DC of the position being sought. For example, a character searching for a position as an Administration Manager would need to make a suc-

MAINTAIN EMPLOYMENT OR EARN PROMOTION (PROFESSION)

Position	Maintain Employment	Earn Promotion	Weekly Pay	Example
General Employee	5	25	Cr500	Billing/Filing Clerk
Supervisor	10	30	Cr750	Steward
Manager	15	35	Cr1000	Head Chef
Executive	20	-	Cr2000	Owner, Top Management

cessful P/Administration skill check vs. DC25 to locate a job opening that week.

Note that a character may not Take10 or Take20 when making a Maintain Employment or Earn Promotion check

Maintaining Employment: At the end of each week a character has worked in a job, she must make a Maintain Employment check to see if she maintains the position for another week. If the check fails, she forfeits her pay for that week and must immediately make another skill check at the same DC. If this second check is also failed, she is demoted one level and must make a third check. If she fails this one she loses her job.

If a character wishes to take a short-term "mundane" job in between their travels, they may make a weekly check to find and retain a suitable job. The Referee may, at his or her discretion increase this check to one every month or even every year. For even longer periods of employment, see the Prior History section on the Professional class for more information.

Earning a Promotion: At the end of each month a character has worked in a position, she may make an Earn Promotion check to see if she is promoted to the next pay position. For example, a character who is a general employee and earns a promotion would begin the next month as a supervisor. Executives cannot be promoted.

The Weekly Paycheck: At the end of the week a character will earn a paycheck appropriate to their position.

Retry: An attempt to use a Profession skill to earn an income cannot be retried. The character is stuck with whatever weekly wage the check result brought the character. (Another check may be made after a week to determine a new income for the next period of time.) An attempt to accomplish some specific task can usually be retried. If the Referee wishes, loss of weekly pay for managers and executives may be translated to loss of annual bonus, stock options etc, instead.

Special: In situations where a character has a Profession skill useful to a task requiring a related Technical or Knowledge skill, the character may add a +2 synergy bonus to the skill check. If the character does not possess the required skill, they may still attempt the task as if they did have the skill rank of 0 but they lose the synergy bonus.

DETAILED PROFESSIONAL SKILLS

Listed below are a number of detailed professions that might be use to characters in the Traveller universe. You are free to select from among them, or with your Referee's permission come up with new professions.

P/Administration

The character has experience with bureaucratic agencies, and understands the requirements of dealing with and managing them. When attempting tasks like avoiding police harassment, ensuring the prompt issuance of licenses, approval of applications, avoidance of close inspection of papers, etc, a successful P/Administration skill check (DC10 + the local world Law Level UWP), will provide a positive outcome to the situation.

Bureaucrats and Administrators

Dealing with administrators and bureaucrats is always a time consuming and tedious chore, which somehow seems to play a common part in Traveller adventures. No special skills are needed to deal with bureaucrats, but characters with the P/Administration (or K/Interstellar Law) skill will be familiar with their ways and find the task much smoother and easier.

The following tasks and DCs have been established to give the Referee a basic indication of how she might handle such situations when they arise. Characters with the appropriate listed skill may make a skill check; characters without this skill must make an appropriate ability check with a -4 penalty to the check roll. If the check fails it may not be attempted again on the same official during the same encounter.

The offer of a bribe and a Bribery skill check may also be attempted in place of an ability or P/Administration or K/Interstellar Law skill check. See the Bribery skill description for more information (pg 69).

DEALING WITH BUREAUCRATS

Need	*DC*	*Appropriate Skill or Ability*
Track down records	5	P/Administration or Social Standing
Insure prompt issuance of licenses	10	P/Administration or Social Standing
Approval of applications	10	P/Administration or Social Standing
Avoid close inspection	10	K/Interstellar Law, P/Administration or Social Standing
Avoid police harassment	10	K/Interstellar Law, P/Administration or Social Standing
Get Charges Dropped (Trivial)	15	K/Interstellar Law or Social Standing
Explain discrepancy in paperwork	15	P/Administration or Social Standing
Explain missing paperwork	20	P/Administration or Social Standing
Explain obviously forged documents	30	P/Administration or Social Standing
Get Charges Dropped (Serious)	30	K/Interstellar Law or Social Standing
Get Charges Dropped (Major)	40	K/Interstellar Law or Social Standing
Defend case	Opposed K/Interstellar Law vs. Prosecutor's K/Interstellar Law skill check (interstellar courts only)	
Prosecute case	Opposed K/Interstellar Law vs. Defender's K/Interstellar Law skill check (interstellar courts only)	

Condition/Situation	*Modifier*
World Law Level	+ 1 DC per Law Level UWP rating of the world
Legal Eagle Feat	+2 check bonus
Bluff Skill Rank 5+	+2 check bonus
Liaison or Intimidate Skill Rank 5+	+2 check bonus (one only)

P/Hunting

Hunting is quite common in the far future on many worlds, both for food and sport. Safaris and Big Game Hunts are big business, and a good hunting guide can make an excellent living guiding rich nobles and playboys around the dangers and hazards of a world to let them 'bag a trophy' to impress their friends and peers. Many of the more successful hunters even have their own ships to convey their clients about in comfort.

Laws and Permits: On populated worlds, there may be laws prohibiting hunting or requiring a license be purchased before any hunt may begin depending on the local Law Level. Make a check vs. the Law Level. If the roll is successful, no permit is needed. If the roll is 1-5 points less than the Law Level, but not a 1 or a 2, a permit is required before the hunt may legally commence. If the roll is 6 or more points less than the Law Level, or a 1 or a 2, the animal to be hunted is a protected species and not open for hunting. At least not legally...

Permit Costs: 1d6 x Cr1000, + Cr100 per client

Guides And Supplies: Even if a hunt is headed by a certified hunter, there may be a need or desire to use native guides to help locate the targets of the hunt. These local guides can typically be hired for about Cr10 per day per hunting skill rank. In addition, supplies will be needed to tend to all members of the hunting party (in a manner befitting the status of the clients). The costs listed below are used in place of the normal costs for daily meals (see pg. 214).

Client Type	*Minimum 'Supplies' Cost*
Average	Cr25 per client per day
Rich	Cr50 per client per day
Nobility/Filthy Rich	Cr100 per client per day

The Hunt

Check once per hour (up to 8 time per day) for encounters when hunting. A basic check (DC13) should be made, adding the Hunting skill of the head guide to the roll. If the result is 13 or higher an encounter has occurred.

If an encounter occurs, have the hunter make a skill check. A successful check means the beast is of the type the hunting party is stalking. Otherwise roll normally on the encounter tables to see what type of creature is actually encountered. Guides may be hired or present for the purpose of assisting in the location of specific animals, contributing a bonus of +2 or greater to influence encounter throws for a specific type of animal.

To find tracks or to follow them for one mile requires a Hunting skill check. The character must make another Hunting check every time the tracks become difficult to fol-



low, such as when other tracks cross them or when the tracks backtrack and diverge. The character moves at half normal speed (or at normal speed with a -5 penalty on the check). The DC depends on the surface and the prevailing conditions:

Surface	*DC*
Very soft	5
Soft	10
Firm	15
Hard	20

Very Soft Ground: Any surface (fresh snow, thick dust, wet mud) that holds deep, clear impressions of footprints.

Soft Ground: Any surface soft enough to yield to pressure, but firmer than wet mud or fresh snow, in which the creature leaves frequent but shallow footprints.

Firm Ground: Most normal outdoor surfaces (such as lawns, fields, woods, and the like) or exceptionally soft or dirty indoor surfaces (thick rugs, very dirty or dusty floors). The creature might leave some traces (broken branches, tufts of hair) but leaves only occasional or partial footprints.

Hard Ground: Any surface that doesn't hold footprints at all, such as bare rock or indoor floors. Most streambeds fall into this category, since any footprints left behind are obscured or washed away. The creature leaves only traces (scuff marks, displaced pebbles).

If the character fails a Hunting check, the character can retry after 1 hour (outdoors) or 10 minutes (indoors) of searching. A character without hunting skill can use the Search skill to find tracks, but can only follow tracks if the DC is 10 or less.

Animal Value: Animal encounters constitute the only general possibility of access that characters have to food, furs, or other valuable items. Animals are usually edible (basic check, DC5, modifier of -3 if the atmosphere is tainted) provided the planetary atmosphere is between 2 and 9, and the animal does not have a poison weapon. Otherwise, the animal is inedible. From 5% to 30% (throw 1d6 times 5%) of an animal's weight will be edible meat. A person requires 1 kilogram of meat per day when living off the hunt.

Edible: DC5 (Tainted Atmospheres -3 to the check roll). Animals that use poison, or from worlds with an atmosphere of 10+ are inedible.

Meat: 1d6 x 5% of the weight of the animal is edible meat. A person requires 1kg of food per day to survive. Meat can be sold for Cr0.1 per kg

HUNTING

Condition	*DC Modifier*
Every three creatures in the group being tracked	-1
Size of creature or creatures being tracked:*	
Fine	+8
Diminutive	+4
Tiny	+2
Small	+1
Medium-size	0
Large	-1
Huge	-2
Gargantuan	-4
Colossal	-8
Every 24 hours since the trail was made	+1
Every hour of rain since the trail was made	+1
Fresh snow cover since the trail was made	+10
Poor visibility:**	
Overcast or moonless night	+6
Moonlight	+3
Fog or precipitation	+3
Tracked party hides trail (and moves at half speed)	+5

*For a group of mixed sizes, apply only the modifier for the largest size category.
**Apply only the largest modifier from this category.

P/PROSPECTING

The individual is experienced in searching out mineral deposits on world surfaces and in deep space.

Laws and Permits: On populated worlds, there may be laws prohibiting prospecting or requiring a license be purchased before any work may begin depending on the local Law Level. Make a check vs. the Law Level. If the roll is successful, no permit is needed. If the roll is 1-5 points less than the Law Level, but not a 1 or a 2, a permit is required before work may legally commence. If the roll is 6 or more points less than the Law Level, or a 1 or a 2, the application has been denied.

Permit Costs: 1d6 x Cr1000, + Cr100 per client

In the Field: Make a Prospecting Check vs DC30. Add the Planetary Resources rating to the roll. One check per week may be made to search a hex (up to 20km across). If more than one prospector is working in a team, the highest prospecting score should be used, and add +1 to the roll for each additional prospector in the group. The amount rolled above the required DC may be added to the Prospecting table roll.

P/SURVEY

The individual is trained in the methods and requirements of conducting stellar, system, and planetary surveys.

Surveying a world or system is a process of several stages, moving from the very general to the specific. Points of particular interest noted during the survey may be investigated after the process is complete, or a team may be detached from the general survey to carry out a close investigation.

Each survey task requires a ship with sensors installed, and both a T/Sensor skill check to obtain the data and a P/Survey skill check to interpret the results. The DC for both tasks is the same and based on the Survey task attempted. The required data must be obtained through the successful use of the sensor before the P/Survey skill may be attempted to interpret what has been collected. P/Survey skill can be used in place of the T/Sensor skill, but at a -4 penalty to the skill check roll. The normal tasks (in order) for a system survey are:

Stellar Data: (DC 15) The classification and relevant (size and spectral type) details of the system's star and any companions it may have are observed. Ship must be within 100 diameters of the star, and will take 2d6 hours to complete.

System Data: (DC 5) the general nature of the system (the number and orbits of any gas giants and planetoids, along with the number and orbital placement of any planets) is recorded. A full system survey will take 4d6 hours to complete.

PROSPECTING

1d100	Discovery	Base Refined Value	Monthly Tonnage Output	Limit	Notes
1-25	Rare Earths	1000	1d6 x 10		1d4 months
26-45	Petrochemicals	10,000	1d6 x 5		1d6 months
46-65	Rare Metals	100,000	1d6		1d8 months
66-80	Gemstones	1,000,000	1d6		1d10 months
81-90	Radioactives	1,000,000	1d6		1d12 months
91-95	Fossils	*	*		1d20 months World must have an atmosphere 1+
86-98	Salvage	*	*		1d100 months
99-100	Artifacts	*	*		1d12 years

* See Below
Unrefined materials are only worth 1/10th of their refined value.

Fossils

1d20	Type of Fossils
1-12	Botanical
13-20	Biological

Botanical Fossils

1d100	Age in Years	Value
01-50	1d10 thousand	Cr1d100 x10
51-70	1d100 thousand	Cr1d10 x100
71-85	1d1000 thousand	Cr1d100 x100
86-95	1d10 million	Cr1d10 x1000
98-100	1d100 million	Cr1d100 x1000

Biological Fossils

1d100	Age in Years	Value
01-65	1d10 thousand	Cr1d10 x100
76-80	1d100 thousand	Cr1d100 x100
81-90	1d1000 thousand	Cr1d10 x1000
91-95	1d10 million	Cr1d100 x1000
96-100	1d100 million	Cr1d1000 x1000

Artifacts

Artifacts are the remnants of a previous civilization. The listed value is for each individual artifact found and sold to a collector, museum, etc. Note that in many cases the removal of artifacts from a world without approval (and proper fees, taxes, and other red tape) is prohibited by the local government.

1d100	Age in Years	Value	# Found
01-80	1d10 hundred	Cr1d1000 x100	1d6
81-90	1d10 thousand	Cr1d1000 x1000	1d4
91-95	1d100 thousand	Cr1d1000 x10,000	1d3
96-98	1d1000 thousand	Cr1d1000 x100,000	1d2
99-100	1d10 million	Cr1d10 x10	1

Salvage

Salvage is an item of recent (1-100 years) construction that has forgotten and/or abandoned by its previous owner.

1d100	Salvage Damage
01-50	Equipment* 2d6-2 x 10%
51-75	Vehicle 2d6-2 x 10%
76-90	Small Craft 2d6-2 x 10%
91-100	Starship 2d6-2 x 10%

* -25 to the size roll

1d100	Size
01-10	Tiny
11-35	Small
36-75	Medium
76-90	Large
91-95	Huge
96-98	Gargantuan
99-100	Colossal

Planetary Data: for each world in turn, the following process is used:

Physical UWP: (DC10) Basic world type (size, atmosphere, and hydrographics) is observed and recorded. A failed skill check will cause one or more of the physical UWP stats to be off (Size, Atmosphere, and Hydrographics). This will take 1d6 hours to complete. A failed skill check will result in incorrect information being obtained. Ship must be in orbit around the world.

If the character has a K/Planetology skill rank of 5 or more may add a +2 synergy bonus to the P/Survey portion of this task.

Atmospheric Survey: (DC15) a detailed atmospheric analysis is undertaken. This will take 1d6 hours per Atmosphere UWP rating of the world, and will give the surveyor the climate and temperature data for the planet. A failed skill check will result in incorrect information being obtained. Ship must be in orbit around the world.

If the character has a K/Climatology or K/Meteorology skill rank of 5 or more may add a +2 synergy bonus to the P/Survey portion of this task.

Generate Map: (DC5) create a map of the major terrain features, even through cloud cover. This will take 1d6 hours per Size UWP digit of the world. For example it will take 7d6 hour to map a Size 7 world. A failed skill check will cause one or more of the aspects of the map to be incorrect, or missing. Ship must be in orbit around the world. A more detailed map may be generated (1km scale) but this will take 1d6 days per Size UWP digit of the world.

If the character has a K/Geography skill rank of 5 or more may add a +2 synergy bonus to the P/Survey portion of this task.

Technology Survey: (DC15; DC20 if TL1 or less) Determine the general available TL, of the world and the location of any settlements. This can be done at the same time the map of the world is being generated and takes just as long. Ship must be in orbit around the world. The tech level will be determined as: Very Low (0-3), Low (4-6), Average (7-9), Interstellar (10-12), Very High (13+)

If the character has a K/Anthropology skill rank of 5 or more may add a +2 synergy bonus to the P/Survey portion of this task

Societal Survey: (DC20) determines the Population (and exponent), Government, Law Level, and specific Tech Level UWP statistics for the world. This survey requires detailed study of the subject world over a period equal to 1d6 weeks per Population UWP digit. Thus a world with a Population UWP of 9 requires 9d6 weeks of surveying to determine the required data. This requires study of the communications, electronic emissions, and possibly planetside investigation and research. A failed skill check will cause one or more of the physical UWP stats to be off.

The Liaison skill or K/Anthropology skill may be used in place of T/Sensor skill for this task. If the character has a Liaison skill rank of 8 or higher, or K/Anthropology skill rank of 5 or more, they may add a +2 synergy bonus to the P/Survey portion of this task.

Mineral Survey: (DC25) the surface is surveyed for mineral deposits, determining the Natural Resource rating of the world. This will take 1d6 days per Size UWP digit of the planet. A failed check will result in an inaccurate record for the Natural Resource rating. Ship must be in orbit around the world. The time required for a mineral survey is in addition to the time required for any other survey.

The Geological Survey feat may be used in conjunction with this task. The K/Geology skill or K/Mineralogy skill may be used in place of T/Sensor skill for this task. If the character has a K/Geology skill rank of 8 or higher, or K/Mineralogy skill rank of 5 or more may add a +2 synergy bonus to the P/Survey portion of this task.

Botanical Survey: plant life is collected and analysed. This type of survey requires a physical investigation and research be conducted planetside, exploring and taking samples. This process will normally take 1d6 months per Size UWP digit of the world.

The K/Botany skill may be used in place of T/Sensor skill for this task. If the character has a K/Botany skill rank of 5 or more may add a +2 synergy bonus to the P/Survey portion of this task.

Biological Survey: animal life is studied. This type of survey requires a physical investigation and research be conducted planetside, exploring and taking samples. This process will normally take 1d6 months per Size UWP digit of the world and will generate the encounter table for each climate zone of the world. As less detailed survey may be conducted, taking 1d6 weeks per Size UWP, but will only generate the single most common creature encountered in each climate zone.

The presence of sentient beings on a world complicates this process. Contact is normally avoided until the world has been carefully studied and the nature of the people there is known. Contact procedures vary depending on the circumstances.

The K/Biology skill may be used in place of T/Sensor skill for this task. If the character has a K/Biology skill rank of 5 or more may add a +2 synergy bonus to the P/Survey portion of this task.

READ/WRITE LANGUAGE (NONE)

Trained Only

The character knows how to read and write in a specific language other than their native tongue(s) and/or Galanglic.

This skill doesn't work like normal skills, instead of spending skill points to buy an increase in skill rank, char-

acters spend skill points and learn to read and write a new language. There are no language skill checks; you can either read and write the language or you can't. A character must already have the Speak Language skill for any language they wish to learn to read and write in.

Some languages do not have a written form. Read/write language skill cannot be taken for such languages.

Some languages are long dead with no examples of the spoken form of the language available, and only ancient manuscripts and writings still in existence. In this case, a character may take the read/write language skill without having first learned to speak the language.

Barbarians do not automatically know how to read and write in their native languages. This ability must be taken as a new read/write language skill.

RECRUITING (EDU)

The individual is familiar with the most effective means of approaching individuals and presenting proposals for employment couched in terms most likely to produce acceptance. This skill is also helpful to a ship's crew in locating passengers. Recruiting skill affects the quality and quantity of recruits that will respond to a request for applications.

Check: When searching for passengers, the character may add a +2 bonus to all passenger rolls (see Trade and Commerce-Passengers pg 355) if he has a recruiting skill rank of 5 or greater.

Once per week a check may be made to locate recruits for volunteer work, job openings, or mercenary tickets. The difficulty in locating qualified applicants and the number of them that actually apply are based on the level of expertise sought, and the available population of the world to draw from. If the check is successful, roll to determine the exact number of qualified applicants the character has to choose from.

Character Level Sought	*DC*	*# of Qualified Applicants*
1-4	5	1d8 per open position advertised
5-8	10	1d6 per open position advertised
9-12	15	1d4 per open position advertised
13-16	20	1d3 per open position advertised
17-20	25	1d2 per open position advertised

Circumstance	*DC Modifier*
World Population UWP rating is 3 or less	+10 DC
World Population UWP rating 4 or 5	+5 DC
World Population UWP rating 8	-5 DC
World Population UWP rating 9+	-10 DC

Retry: As often as needed, though no more than one check can be made per position advertised.

Special: Unlike Leader skill, a recruiter is skilled at screening applicants, narrowing down the mass of applicants to the few who are best qualified of. However a Leader skill rank of 8 or higher will earn the character a +2 synergy bonus on all recruiting skill checks.

RIDE (DEX)

When the character selects this skill, choose the type of mount the character is familiar with. For this purpose, "horses" includes mules, donkeys, and ponies. If the character uses the skill with a different mount (such as riding a sand lizard when the character is used to riding horses), the character's rank is reduced by 2 (but not below 0). If the character uses this skill with a very different mount (such as riding a flying mount when the character is used to a land based mount), the character's rank is reduced by 5 (but not below 0).

Check: Typical riding actions do not require checks. The character can saddle, mount, ride, and dismount from a mount without a problem. Mounting or dismounting is a move-equivalent action. Some tasks require checks:

Riding Task	*DC*
Guide with knees	5
Stay in saddle	5
Fight with warhorse	10
Leap	15
Control Mount in Battle	20
Fast mount or dismount	20*
Cover	15
Soft fall	15

*Armor check penalty applies.

Guide with Knees: the character can react instantly to guide a mount with his knees. This allows the use of both hands in combat. Make the check at the start of the character's round. If the check is failed, the character can only use one hand this round because he needs to use the other to control his mount.

Stay in Saddle: The character can react instantly to try to avoid falling when his mount rears or bolts unexpectedly or when either mount or rider takes damage.

Cover: The character can react instantly to drop down and hang alongside the mount, using it as one-half cover. The character cannot attack or use psionic talents while using his mount as cover. If the check is failed, the character doesn't get the cover benefit.

Soft Fall: The character reacts instantly to try to take no damage when he falls off a mount, such as when it is killed or when it falls. If the check is failed, the character takes 1d6 points of falling damage.

Leap: The character can get a mount to leap obstacles as part of its movement. Use the character's Ride skill modifier or the mount's Jump skill modifier (whichever is lower) to see how far the mount can jump. The DC (15) is what the character needs to roll to stay on the mount when it leaps.

Control Mount in Battle: As a move-equivalent action, the character can attempt to control a light horse, pony, or heavy horse while in combat. If the check is failed, the character can do nothing else that round. The character does not need to roll for warhorses or warponies.

Fast Mount or Dismount: The character can mount or dismount as a free action. If the check is failed, mounting or dismounting is a move-equivalent action. (The character cannot attempt a fast mount or dismount unless he or she is already in a position to perform the mount or dismount as a move-equivalent action this round.)

Special: If the character is riding bareback, he suffers a -5 penalty on Ride checks.

If the character has 5 or more ranks in Handle Animal, he gets a +2 synergy bonus to Ride checks.

If the character's mount has a military saddle, it gives a +2 circumstance bonus to Ride checks related to staying in the saddle.

SEARCH (INT)

The character has a knack for finding things at opportune moments, spotting secret compartments, locating hidden recesses, revealing disguised catches, and discovering other forms of concealed, hidden or hard to find objects.

Check: The character generally must be within 3 meters of the object or surface to be searched. It takes 1 round to search a 1.5-meter-by-1.5-meter area or a volume of goods 1.5 meters on a side; doing so is a full-round action.

Task	*DC*
Ransack a chest full of junk to find a certain item	10
Notice a typical secret door or a simple trap	20
Find a difficult trap not of stone*	21+
Notice a well-hidden secret door	30

*While anyone can use Search to find a trap whose DC is 20 or less, only a Rogue can use Search to locate traps with higher DCs. Finding a trap has a DC of at least 20, and the DC is higher if it is well hidden.

Special: A character who does not have the Track feat can use the Search skill to find tracks, but can only follow tracks if the DC is 10 or less. See the Spot skill for more information.

SENSE MOTIVE (WIS)

The character has the ability to know when someone might be lying, withholding information, attempting to pull a con, or is otherwise acting in bad faith or under duress.

Check: A successful check allows the character to avoid being bluffed. The character can also use the skill to tell when someone is trying to hide the fact that they are under stress or hiding something, or to assess someone's trustworthiness. Trying to gain information with this skill takes at least 1 minute, and the character could spend a whole evening trying to determine the motivations of a group of people.

Sense Motive Task	*DC*
Hunch	20
Sense psionic influence	25

Hunch: This use of the skill essentially means making a gut assessment of the social situation. The character can get the feeling from another's behavior that something is wrong, such as when he is talking to an impostor. Alternatively, the character can correctly determine that someone is trustworthy.

Sense Psionic Influence: The character can tell that someone's behavior is being influenced by a Psionic effect (by definition, a mind-affecting effect), even if that person isn't aware of it herself.

Retry: No, though the character may make a Sense Motive check for each bluff directed at him.

Special: In many situations, the Referee will make the Sense Motive roll secretly on behalf of the player, to conceal the degree of success (or otherwise). A drastic failure may cause the character to totally misinterpret the situation.

SPEAK LANGUAGE (NONE)

Trained Only

The Speak Language skill does not work like a standard skill.

The character starts at 1st level knowing one or two languages (according to the character's race) plus an additional number of languages equal to the character's Intelligence bonus.

Instead of buying a rank in Speak Language, the character chooses a new language that the character can speak.

The character doesn't make Speak Language checks. The character either knows a language or the character doesn't.

Retry: Not applicable. (There are no Speak Language checks to fail.)

SPOT (WIS)

The character is skilled at spotting an ambush and noticing people or creatures hiding in nearby shadows, using high brush as cover, or otherwise using concealment. The character is also adept at noticing actions by others that might be missed by most, such as slight of hand or pickpocketing.

Check: The Spot skill is used primarily to detect characters or creatures who are hiding. Typically, Spot is opposed by the Hide check of the creature trying not to be seen. Sometimes a creature isn't intentionally hiding but is still difficult to see, so a successful Spot check is necessary to notice it.

A Spot check result of greater than 20 can generally let the character become aware of an invisible creature near the character (though the character can't actually see it).

Spot is also used to detect someone in disguise.

Condition	*Penalty*
Per 3 meters of distance	-1
Spotter distracted	-5

Retry: The character can make a Spot check every time he or she has the opportunity to notice something in a reactive manner. As a full-round action, the character may attempt to spot something that they failed to spot previously.

Special: When comparing Spot and Search skills, remember that Spot would allow a character to detect someone hiding, without necessarily alerting the other person that they have been seen. A search is more systematic and is almost certain to be obvious to the person hiding, allowing them to creep away before they are discovered.

SURVIVAL (WIS)

The character is skilled in the art of survival in the wild, including locating sources of food and fresh water (if available), producing fires (where possible), finding shelter, avoiding dangerous flora and fauna, and dealing with the dangers of hazardous climates (arctic, desert, etc). If a character with Survival skill has the Armor/Vac Suit or Armor/Battle Dress feats, he is also familiar with the needs of survival in the vacuum of space.

Check: A successful Survival check once per day (DC10 under optimal circumstances), will provide a character with enough of the necessary essentials to survive another day, but only if such resources are realistically available and accessible. Only in the most unusual of situations would a character be able to access a source of fresh water located 300 meters beneath the ground, though she might be able to find a way to extract water from the local vegetation. Nor would a character stranded on a vacuum world be able to come up with a way to produce more oxygen without specialist equipment, though he would know how to best conserve his air to survive as long as possible.

DC	*Task*
10	Get along in the wild. Move up to one-half the character's overland speed while hunting and foraging (no food or water supplies needed). The character can provide food and water for one other person for every 2 points by which the character's check result exceeds 10.
15	Gain +2 on all Fortitude saves against severe weather while moving up to one-half the character's overland speed, or gain +4 if stationary. The character may grant the same bonus to one other character for every 1 point by which the check result exceeds 15.
15	Avoid getting hopelessly lost* or avoid natural hazards, such as quicksand.

* This is not a substitute for Navigation skill, but merely allows a character to move around yet find his way back to a given point (path, cave, wrecked vehicle etc).

Retry: For getting along in the wild or for gaining the Fortitude save bonus, the character makes a check once every 24 hours. The result of that check applies until the next check is made. To avoid getting lost or to circumvent natural hazards, the character makes a check whenever the situation calls for one; in these circumstances, retries are not allowed

Special: If the character has 5 or more ranks of Intuit Direction, he gets a +2 synergy bonus on Survival checks to avoid getting lost.

SWIM (STR)

The character is capable of remaining afloat, swimming along the surface, diving and swimming beneath the surface, and otherwise functioning and surviving for a period in a body of water (or other non-toxic liquid).

Check: A successful Swim check allows the character to swim one-quarter of his speed as a move-equivalent action or one-half his speed as a full-round action. Roll once per round. If the character fails, he makes no progress through the water. If the character fails by 5 or more, he goes underwater and starts to drown unless he is wearing suitable breathing apparatus.

If the character is underwater (whether drowning or swimming underwater intentionally), he suffers a cumulative -1 penalty to his Swim check for each consecutive round the character has been underwater, unless he is equipped with breathing gear.

The DC for the Swim check depends on the water:



Water Conditions	DC
Calm water	10
Rough water	15
Stormy water	20
Very Hot or Cold Water	+2
Icy Water	+5*

* Make the fatigue check (see below) every 10 minutes unless wearing an insulated or heated suit.

Each hour that the character swims, make a Swim check against DC 20 or take 1d6 points of subdual damage from fatigue.

Special: Instead of an armor check penalty, the character suffers a penalty of -1 for each 2kg of gear he is carrying or wearing.

TECHNICAL (EDU)

Trained Only

Technical is actually a number of separate skills. For instance, the character could have the skill T/Electronics. The character's ranks in that skill don't affect any checks he happens to make for Engineering or Gravitics, for example. The character could have several Technical skills, each with its own ranks, each purchased as a separate skill.

A Technical skill is specifically focused on installing, maintaining, repairing and/or creating items of technology such as electronic equipment, vehicles, grav modules, jump drives, etc. When this skill is selected, the character immediately must pick a specific technical field that is represented by the skill. Below are some, but by no means all, of the Technical skills used in the Traveller universe. Others, such as Astrogation, Communications, Computer, and more follow in more detail at the end of this skill entry.

Electronics: Practiced in the use, operation, and repair of electronic devices.

Engineering: Skilled in the operation and maintenance of starship maneuver drives, Jump drives, and power plants.

Gravitics: The individual has skill in the use, operation, and repair of gravitic devices. Such items include air/raft lift modules, grav belts, grav sleds, grav tanks, etc. Gravitics skill deals with the technical details of such vehicles; Pilot skill is required to actually pilot or drive them.

Mechanical: The individual has skill in the use, operation, and repair of mechanical devices. This skill specifically excludes the field of engineering but does include non-energy weapon repair.

Check: The character can practice a trade and make a decent living, earning a paycheck for every week of dedicated work. The character knows how to use the tools of the trade, how to perform routine tasks, how to supervise untrained helpers, and how to handle common problems.

Employment: To obtain employment, the character must make a search each week contacting prospective employers and canvassing for job openings. At the end of the week he makes a skill check against a DC of 10 + the Maintain Employment DC of the position being sought. For example, a character searching for a position as an Electronics Manager would need to make a successful T/Electronics skill check vs. DC25 to locate a job opening that week.

Note that a character may not Take10 or Take20 when making a Maintain Employment or Earn Promotion check.

MAINTAINING EMPLOYMENT OR EARN PROMOTION (TECHNICAL)

Position	Maintain Employment	Earn Promotion	Weekly Pay	Example
General Employee	5	25	Cr500	Technician, Nurse, Drive Hand
Supervisor	10	30	Cr750	Shift Leader
Manager	15	35	Cr1000	Chief Engineer, Shop Foreman
Executive	20	-	Cr2000	Owner, Top Management

Maintaining Employment: At the end of each week a character has worked in a job, she must make a Maintain Employment check to see if she maintains the position for another week. If the check fails, she forfeits her pay for that week and must immediately make another skill check at the same DC. If this second check is also failed, she is demoted to the next lower position, and must make a third check. If she fails this one she loses her job.

A weekly check is called for to allow characters to take occasional mundane jobs in between their travels. The Referee may, at his or her discretion, increase this check to once every month or even every year. For even longer periods of employment, see the Prior History section on the Professional class for more information.

Earning a Promotion: At the end of each month a character has worked in a position, she may make an Earn Promotion check to see if she is promoted to the next pay position. For example, a character that is a general employee and earns a promotion would begin the next month as a supervisor. Executives cannot be promoted.

The Weekly Paycheck: At the end of the week a character will earn a paycheck appropriate to their position.

Creating Items: The basic function of the Technical skill is to allow the character to make and repair items of the appropriate type. The DC depends on the difficulty of the item created. The DC, the character's check results, and the price of the item determine how long it takes to make the item. The item's finished price also determines the cost of raw materials. (In the game world, it is the skill level required, the time required, and the raw materials required that determine an item's price. That's why the item's price and DC determine how long it takes to make the item and the cost of the raw materials.)

All technical personnel require the proper tools to give the best chance of success; if improvised tools are used instead, the check is made with a -2 circumstance penalty. On the other hand, very high-quality tools provide a +2 circumstance bonus.

To determine how much time and money it takes to make an item:

1. Find the DC listed here or have the Referee set one.

2. Pay one-third the item's price in raw materials.

3. Make a skill check representing one time period.

If the check succeeds, find the current "work value" by multiplying the check result by the DC and dividing by 10. If the result equals the price of the item, then the character has completed it. If the work value equals double or triple the price of the item, then the character has completed the task in one-half or one-third the time, and so on.) If the work value doesn't equal the price, then it represents the partial progress the character has made this time period. Record the result and make a check for the next time period. Each time period the character makes more progress until the total work value reaches the price of the item.

If the character fails the check, he makes no progress this time period. If the character fails by 5 or more, he ruins half the raw materials and must pay half the original raw material cost again. Failure by 10 or more indicates that the character has ruined the whole piece and must start over with new materials (paying the entire cost again)

Creating Masterwork Items: The character can make a masterwork item (an item that conveys a bonus to its use through its exceptional craftsmanship). To create a masterwork version of an item, the character creates the masterwork component as if it were a separate item in addition to the standard item. The masterwork component has its own

TECHNICAL CONSTRUCTION

Item	*DC*	*Time Period*
Mechanical		
Basic Personal Equipment	5	Hour
Advanced Personal Equipment	10	Day
Vehicle Chassis	10	Week
Vehicle Subsystem	15+	Week
Electronics		
Basic Personal Equipment	5	Hour
Advanced Personal Equipment	10	Day
Laser Weapons	10	Week
Gauss Weapons	15	Week
Energy Weapons	20	Month
Vehicle Subsystem	30+	Month
Gravitics		
Gravitic Part	15	Day
Gravitic System	20+	Week
Engineering		
Ship's Hull	10	Week
Ship's Power Plant Part	15	Day
Ship's Power Plant or Maneuver Drive Part	20	Week
Maneuver Drive or Jump Drive Part	30 +	Month
Jump-1 Drive	40	Year
Jump-6 Drive	70	Year

price and DC. Once both the standard component and the masterwork component are completed, the masterwork item is finished. (Note: The price the character pays for the masterwork component is one-third of the given amount, just as it is for the price in raw materials.)

Masterwork tools add a +2 circumstance bonus to related skill checks (if any). Masterwork weapons add a +1 bonus to attack rolls. Masterwork items usually sell for at least twice their normal value.

Retrying to Create Items: Yes, but each time the character misses by 5 or more, the character ruins half the raw materials and have to pay half the original raw material cost again. If he fails by 10 or more, he must start over.

Disabling Devices: The character is skilled at disarming alarm systems, picking locks (of mechanical and/or electronic sort), disabling a malfunctioning robot, or similar tasks using their T/Mechanical or T/Electronic skills. The effort requires at least a simple tool of the appropriate sort (a pick, pry bar, saw, file, electronic toolset, etc.). Attempting a disable device check without a set of proper tools carries a -2 circumstance penalty. The Referee makes the skill check so that the character doesn't necessarily know whether the character has succeeded. The amount of time needed to make a check and the DC for the check depends on how tricky the device is. Disabling a simple device takes 1 round (and is at least a full-round action). Intricate or complex devices require 2d4 rounds. The character also can rig simple devices such as vehicle wheels or steering to work normally for a while and then fail or fall off some time later (usually after 1d4 rounds or minutes of use).

Disabling (or rigging or jamming) a fairly simple device has a DC of 10. More intricate and complex devices have a higher DC. The Referee rolls the check. If the check succeeds, the character disables the device. If the check fails by up to 4, the character has failed but can try again. If the character fails by 5 or more, something goes wrong. If it's a trap, the character springs it. If it's some sort of sabotage, the character thinks the device is disabled, but it still works normally.

Device	*Time*	*DC**	*Example*
Simple	1 round	10	Jam a mechanical lock or mechanism
Tricky	1d4 rounds	15	Pick a mechanical lock
Difficult	2d4 rounds	20	Pick a basic electronic lock
Wicked	2d8 rounds	25	Disarm a complex alarm trigger

*If the character attempts to leave behind no trace of the tampering, add 5 to the DC.

DETAILED TECHNICAL SKILLS

The following Technical skills are also available, and while they are not used to 'create' anything, they have quite important uses in a technologically advanced universe.

T/Astrogation

The character is trained in the science of normal and Jump space navigation. The Astrogator on a starship plots the course and ensures that the information needed by the pilot and other crewmembers is available when it is needed.

Determine Location: When a ship enters a new system after a Jump, the Astrogator must determine its exact position before it may decide on another course of action. This task has a base DC of 10. In combat, this is a standard action for crewmembers. Failure of the task will add 3d6 minutes/hours (as appropriate) to the travel time of the ship to its next destination in the system.

Plot a Standard Course: Traveling from point A to point B in space, requires the Astrogator to plot a course and thrust schedule for the pilot to follow. This task has a base DC of 10. In combat it is a standard action. Failure of the task will add 2d6 minutes/hours (as appropriate) to the travel time of the ship to its destination.

Plot a Jump Route: A Jump Plot can be created by a computer, and Plots are available in the form of "course tapes" purchased from major ports and for common destinations. However, the nature of Jump makes electronic systems less than reliable when creating a plot. A computer will throw up dozens of apparently suitable Jump solutions. All of them will of course work, but minor variations in the plot will cause large variance in flight time and emergence point. A good Astrogator develops a "feel" for his calculations that borders upon black magic. He or she can somehow predict the variance in the system to shave a few minutes off average Jump time and to give an emergence point as close as possible to the destination. This task has a base DC of 15. In combat this is a full action. Failure in this task will result in a Misjump (pg. 353).

Astrogation Tasks

Task	*DC*
Determine Location	10
Plot Standard Course	10
Plot Jump Course	15

Circumstances	*DC Modifier*
Rushed, Under fire	+5
No Functioning Ship's Computer	+5
Familiar Destination	+0
Fringe/Frontier region	+5
Deep space (empty hex)	+5
Uncharted region	+10

T/Communications

The character is trained in the use, repair, and maintenance of communications devices. While anyone can press the button and make a communicator function, this skill is necessary to understand why the device does not work, or how to use the device for purposes other than open transmission.

Boost Signal: A comm. officer can attempt to boost an incoming or outgoing signal in an attempt to punch through jamming or natural signal degradation. When attempting to boost through active jamming, the comm. officer makes a T/Communications skill check vs. the Com Jamming rating for the opposing ship this round. If successful, the signal gets through the opponents attempt to jam it. When attempting to boost a naturally degraded signal, the Referee should set a DC appropriate to the situation.

Break a Secure Channel: Just as they can establish them, a comm. officer can attempt to break a secure channel and monitor any transmissions. Every secure channel has a set Encryption rating. To break the channel, the comm. officer must make a successful T/Communications skill check using the Encryption rating as the DC. This is a full combat action, and if unsuccessful, may be attempted again as long as the signal is still active.

Detect a Signal: Any signal directed to another comm. unit will automatically be detected. This task is used when trying to detect signals meant for other comm. units. Open and unsecured signals can automatically be detected (base DC of 0) if someone is looking for them. It is just a matter of scanning frequencies. Secure signals can also be automatically detected (base DC of 0) if being watched for, but as they are encrypted this will do no good unless someone can break the encryption. Detecting hidden or piggybacked signals required a keen comm. operator to detect, and have a base DC of 20. In combat this is a full action.

Establish Basic Comm. Channel: The most rudimentary of tasks (DC0), this will establish an open, unsecure communication channel between two communicators. In combat, this is a standard action.

Establish a Secure Channel: A secure channel offers some protection from a conversation/data transfer from being monitored by encrypting the signal. The comm. officer establishing the channel makes a T/Communications skill check to establish the Encryption level of the transmission. Anyone attempting to monitor the channel must break this encryption first. This is a full combat action.

Hide or Piggyback a Signal: A comm. officer can attempt to hide a transmission by using an exotic frequency or attempting to piggyback the transmission on top of another signal source (such as a laser). Unless someone is expecting such a signal, or actively searching for such signals, the probability of such a transmission being detected is very low. Such a task has a base DC of 20. In combat, this is a full action. If this task fails, the signal is not hidden and may be detected normally.

Jam Local Communications: A communications officer can spend each combat round attempting to jam any incoming or outgoing communication signals within the range of his own comm. systems. At the beginning of each round, the character should make a T/Communications skill roll to set the Com Jamming rating for the round. Any other ship within range must make a successful T/Communications skill check of their own vs. this Com Jamming rating for their signal to get through. If more than one ship is Com Jamming, each must be defeated in turn before a signal may be pushed through. In combat, this is a full action.

Communication Tasks

Task	*DC*
Break a Secure Channel	Encryption rating
Detect a Signal	0
Establish Basic Channel	0
Establish Secure Channel	special
Hide/Piggyback Signal	20
Jam Communications	special

Circumstances	*DC Modifier*
Hidden/Piggybacks (detection only)	+20
Minor Noise and Static	+5
Considerable Noise and Static	+10
Heavy Noise and Static	+20
Weak	+5
Faint	+10
Very Faint	+20
Active Jamming	Com Jamming rating
Communication System	-Model Number

T/Computer

The character is skilled in the programming and operation of electronic and fiber optic computers, both ground and shipboard models. Computers can be found on any world with a TL of 8 or higher, becoming exponentially more common at higher technology levels. A character without at least some computer training might find himself at disadvantage in the highly technical Traveller universe.

Basic Tasks: The following are all the most basic of tasks that anyone with a skill rank of 1 or more will be able to accomplish automatically (base DC of 0); Log on to a Datanet, send and receive messages, search for non-classified information, retrieve data and files

Data Encryption/Decryption: Standard encryption programs are readily available and are supplied as standard software on most new computers. Unfortunately, they only

COMPUTER TASKS

Task	*DC*	*Time Required*	*Checks*
Basic Tasks	0	1 minute	n/a
Break System/Network Security	Security Rating	1 day	n/a
Data Mining	10	1 hour	n/a
Decrypt Data	Encryption Rating	1 hour	n/a
Encrypt Data	*	1 month	n/a
Layering	*	x2	n/a
Programming			
Basic (hello world)	0	5 minutes	once
Simple (simple games)	5	1 hour	once
Minor (personal organizational programs)	10	1 day	once
Average (basic commercial software)	15	1 week	once
Advanced (advanced commercial software)	20	1 month	4 (once per week)
Sophisticated (specialized commercial software)	25	1 year	12 (once per month)
Leading Edge (security software, advanced robotics)	30	2 years	24 (once per month)
Experimental	40	varies	varies
System/Network Security	*	1 year	n/a

Modifiers	*DC*
Double the time required	Take 10
Increase the time required by 1 level (maximum of 2 years)	Take 20
Hurry (halve the time required)	+10
Rush (reduce time required by 1 level (minimum of 1 minute)	+20
Infrequent subject, old (few years) topic	+2
Uncommon subject, very old topic (hundreds of years)	+5
Esoteric Subject, extremely old topic (thousands of years), classified	+10
Rare Subject, ancient topic (tens of thousands of years), top-secret	+20

Time Levels

6 Seconds (1 round)
30 Seconds (5 rounds)
1 Minute (10 rounds)
5 Minutes
1 Hour
1 Day
1 Week
1 Month
1 Year
2 Years

offer the most minimal of protection (Encryption Rating of 10) against anyone with computer experience. Those with computer training may wish to handle their own encryption needs. When encrypting data, the programmer must make a T/Computer skill check to set the Encryption Rating of the data. Anyone other than the programmer who attempts to access the data will have to make their own successful T/Computer skill check vs. the Encryption Rating to decrypt the data first. This is an Advanced programming task.

If the character attempting the Encryption or Decryption has a Decipher Script skill rank of 5 or more, they may add a +2 synergy modifier to this task check roll.

Data Mining: Basic searches on a network will only turn up common and generally available data such as Library Data from an electronic encyclopedia. Data mining is when a computer operator begins to look for specific information on a particular subject. This task has a base DC of 10, and Minor programming task modified by the scarcity of the information being sought.

Data/Network Security: Also included with most new computers is a standard security package offering minimal security (Security Rating of 10) from outside access. As with encryption, a skilled computer programmer can develop their own security software to better fit their needs. The programming makes a T/Computer skill check to set the Security rating for the system. Anyone other than the programmer, or those he authorizes, who attempts to access any data on the system will have to make their own successful T/Computer skill check vs. the Security rating to bypass the security. This is a sophisticated programming task.

Layering: To add to the security of systems and specific data, encryption and system security can be 'layered', providing multiple lines of defense against unwanted intrusion. Adding each layer is a separate task check, and doubles the time required to implement the program. Each layer of encryption or security must be subsequently broken before unauthorized access can be gained to the protected system or data.

MEDICAL TASKS

Task	*DC*
Emergency Care	15
Short-term care	15
Long-term care	15
Wounds Affecting Base Speed	15
Treat poison	Poison's DC
Treat disease	Disease's DC
Minor surgery (stitches)	15
Routine surgery (remove bullet, appendicitis, tonsillectomy)	20
Serious surgery (amputation, heart surgery)	30
Major surgery (brain surgery)	40+
Modifiers	*DC*
Under fire or similar stress	+15
Rushed +10	
Anti-toxin Available	-10
Chronic Condition	+5
Tools	
None	+10
K/Herbal Lore	+5
First Aid Kit	
TL0-3	+2
TL5-7	+/-0
TL8-12	-2
TL13-15	-4
TL16+	-6
Field Medical Kit	
TL5-7	-2
TL8-12	-4
TL13-15	-6
TL16+	-8
Hospital	
TL5-7	-6
TL8-12	-8
TL13-15	-10
TL16+	-12

General Programming: Computers can be programmed for so many different tasks of varying levels of sophistications and capabilities as to make it impossible to detail even a fraction of the possibilities here. We offer a few general guidelines for the Referee to use when needing to set a specific DC to a program a character may wish to attempt to write. The player should specify all of the capabilities they wish the program to be capable of accomplishing, any security precautions, and other pertinent information the Referee might need to determine the difficulty of the task.

In most cases, a single skill check is needed to see if the final version of the program runs as expected. If the check fails, the program fails to perform properly. For tasks requiring multiple successful checks, any failure of a check results in a lack of any progress for that period.

Once the program is finished, the Referee should make a secret check (DC20) to see if a hidden bug lies within the code that has not appeared to the programmer in testing. Each time a 'buggy' program is run, the Referee should make another check (DC20) to see if the bug pops up and crashes the program unexpectedly, or otherwise results in some error (this will usually be something catastrophic...).

T/Medical

The individual has training and skill in the medical arts and sciences. Unless a character has the Xeno-Medicine feat, they may only safely apply their Medical skill to member of their own race.

The DC and effect depend on the task the character attempts.

Emergency Care: Emergency care usually means saving a dying character. If a character has negative lifeblood and is losing lifeblood points (at 1 per round, 1 per hour, or 1 per day), the tending character can make her stable. The injured character regains no hit points, but she does stop losing them. The check is a standard action.

Short-term Care: Short-term care is dealing with more minor injuries throughout the course of a day. If successful, the character lets the patient recover Stamina at twice the normal rate: 2 stamina per level for each hour of light activity, and 3 stamina per level for each hour of complete rest. The patient's Constitution modifier is not doubled, but is added to the recovery rate.

Long-term Care: Providing long-term care means treating an injured or sick person for a day or more. If successful, the character lets the patient recover hit points or ability score points (lost to temporary damage) at twice the normal rate: 2 lifeblood for each week of light activity, 3 lifeblood for each week of complete rest, and 2 ability score points per week. The character can tend up to six patients at a time. The character needs at least a field medical kit to perform this task.

Once during each week of recovery the patient makes a Fort save (DC15) to see if he recovers an extra point of during that week. The attending medical character makes a Medical check. The patient uses the character's result in place of her saving throw if the character's Medical result is higher.

Giving long-term care counts as light activity for the care giver. The character cannot give long-term care to him or herself.

Treat Wounds that Reduces Base Speed: A creature that has its speed reduced can be treated by the Medical skill. A successful Medical check removes this movement penalty. Treating such a wound is a standard action.

Treat Poison: To treat poison means to tend a single character who has been poisoned and who is going to take more damage from the poison (or suffer some other effect).

Every time the poisoned character makes a saving throw against the poison, the character makes a Medical check. The poisoned character uses the character's result in place of her saving throw if the character's Medical result is higher.

Treat Disease: To treat a disease means to tend a diseased character. Every time the diseased character makes a saving throw against disease effects, the character makes a Medical check. The diseased character uses the character's result in place of his or her saving throw if the character's Medical result is higher.

Special: If the character has 5 or more ranks in Knowledge (Pharmacology), the character gets a +2 synergy bonus on Medical checks.

Notes: The fact that a character has a medical skill rank of 1 or greater does not automatically allow him to call himself a doctor. Use the following guidelines for how a character may label himself through this skill based on his actual formal training.

First Aid: The first aid feat allows a character to perform any medical task as if they had a Medical skill rank of 0.

Paramedic: A person may be considered a paramedic or 'medic' if they have a Medical skill rank of 1 or more and no formal training.

Nurse: A nurse is someone with a Bachelors degree in Medicine from the University, and a Medical skill rank of 5 or greater.

Physician's Assistant (PA): A PA has a Masters degree in Medicine from the University, and a Medical skill rank of 5 or greater.

Physician or Doctor (MD): To be legally considered a doctor (MD), one must have a Doctorate in Medicine from the University and a Medical skill rank of 5 or greater.

Surgeon: A surgeon must of course be a qualified MD, and have the Surgery feat. Of course it is quite possible for a character to have the surgery feat and be perfectly capable of performing surgery even though they do not have a degree. In the field that would not matter so much as the actual result, but the character could not legally perform surgery in a civilized locality.

T/Sensors

The character is familiar with the operation and basic maintenance of sensor equipment installed in vehicles and ships. It is the sensor operator who interprets the long-range data by the ship's sensors and scanners.

Passive Scans: Encounter-related sensor scans are done as 'active' scans, which basically means the target of the scan will know it is happening. Conducting an active sensor scan against commercial and civilian ships (by anyone other than the appropriate authorities) is frowned upon, and may even be considered a hostile act under some circumstances. Passive sensor scans on the other hand will go undetected, but make the task much harder.

All a sensor operator has to do to perform a passive scan is notify the referee in advance of the skill check itself. Using only passive sensors will add +10 to the DC of the task however. If the target of the scan is expecting such an action, it may make a T/Sensor skill check (DC20) to spot it if suitable clues are visible such as the realignment of antennae etc. If the target is wary but not actively expecting the scan, increase the DC to 30.

Ship Detection: The sensor operation can attempt to detect any ships or other objects with the range of her sensor systems that are not shielded by a planet, moon, or other planetoid.

All commercial vessels operating within most interstellar civilizations are required by law to carry a transponder that must be fully functional and in operation (this does not mean actually broadcasting) at all times while the ship is in motion. A transponder is really nothing more than a specialized radio system and computer within a completely self-contained, security sealed, and (supposedly) tamperproof container. It can only be legally opened, repaired, or reprogrammed at an authorized facility located at any Class A, B, or C starport.

The transponder does not continually broadcast, as this would make ships very vulnerable out on the frontiers, but will automatically respond to an interrogative signal (a "Squawk") from another vessel or installation, supplying the ship's ID codes and registration on a specific frequency band that will be automatically detected and identified at Very Long range by even the most rudimentary of sensor systems. All ships - including military vessels - carry transponders and generally run them when operating among civilian traffic. The transponder will broadcast the ship's flag of registration (Imperial, Hive Federation, Two Thousand Worlds, etc.), its port of origin (the planet and system where the ship was registered), the registration number, the name of the registered owner, documented tonnage, and classification.

Close to a starport or other installation, beacons (and indeed, most vessels) broadcast a continuous squawk; so all vessels in the area are continuously "lit up" unless they are a military vessel that has turned off its transponder, or something that is not supposed to be there...

It is when confronting a military or other type of ship that is not operating a transponder that the sensor operator must actively watch for contacts. A successful T/Sensors skill check (DC10 or the current Jamming rating of any ship in range) will reveal the presence of any ships within range as a blip on the sensor display. No other information is available other than its mere existence, range, and general heading.

Detect a Communication Signal: Any signal directed to another comm. unit will automatically be detected. This task is used when trying to detect signals meant for other comm. units. Open and unsecured signals can automatically be detected (base DC of 0) if someone is looking for them. It is just a matter of scanning frequencies. Secure signals can also be automatically detected (base DC of 0) if being watched for, but as they are encrypted this will do no good unless someone can break the encryption. Detecting hidden or piggybacked signals requires a skilled and alert sensor or comm. operator to detect, and have a base DC of 20. In combat this is a full action.

Displacement Scan: A successful T/Sensors skill check (DC10 or the current Jamming rating of any ship in range) will reveal the tonnage of a detected ship. While civilian and commercial vessels are required to carry a functioning transponder that broadcasts this information, there are some unscrupulous individuals in the universe who have been known to alter this data. A specific tonnage sensor check can verify the veracity of the transponder data.

Configuration Scan: A successful T/Sensors skill check (DC10 or the current Jamming rating of any ship in range) will reveal the probable configuration (scout, liner, patrol cruiser, far trader, etc.) of a detected ship. As with tonnage, civilian and commercial transponders are required to broadcast this information, but glitches and tampering have been known to happen. A specific configuration sensor check can verify the veracity of the transponder data.

Threat Assessment: A successful T/Sensors skill check (DC10 or the current Jamming rating of any ship in range) will reveal a general idea of the armament and defensive capabilities available to a detected ship.

Target Size: The size of a target also has a bearing on how easily it may be scanned. Small objects are harder to deal with than larger ones. Add the size modifier of the ship to the DC for any sensor task. Size modifiers are as follows: Colossal -8, Gigantic -4, Huge, -2, Large -1, Medium +0, Small +1, Tiny +2, Diminutive +4, Fine +8.

Running Silent: A ship may attempt to avoid detection and scanning by reducing its emissions to a bare minimum. If a ship takes no obvious actions, broadcasts no communications, attempts no active sensor checks (passive scans are allowed), fires no weapons, and otherwise ensures that it performs nothing that might reveal its presence, it is considered to be "running silent". Add +15 to any DC when another ship is attempting to use their sensors on the silent vessel.

Jamming: The sensor operator may attempt to spend the round providing defensive sensor jamming against incoming targeting lock attempts by enemy vessels, hopefully decreasing their chance of getting hit. Jamming will also aid in foiling attempts at detection, tonnage and classification estimations, and identification by other ships. This is a Full Action.

The sensor operator must make a T/Sensors skill roll and add the sensor system model number to this result. This

SENSOR TASKS

	Range by Sensor System Model Number									Task
Task	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*DC*
Ship Detection	VL	X1	X2	X3	X4	F	SW	SW	SW	10
Detect Comm Signal	VL	X1	X2	X3	X4	F	SW	SW	SW	10
Displacement Scan	L	VL	X1	X2	X3	X4	F	SW	SW	10
Configuration Scan	M	L	VL	X1	X2	X3	X4	F	SW	10
Threat Assessment	S	M	L	VL	X1	X2	X3	X4	F	10

S = Short, M = Medium, L = Long, VL = Very Long, X1 = Extreme 1, X2 = Extreme 2, X3 = Extreme 3, X4 = Extreme 4, F = Far, SW = System Wide

total will establish the ship's Jamming rating for the round. Any other ship attempting to target or otherwise scan the ship must use the ship's Jamming rating as the DC for these tasks rather than the standard DC for the current round.

Note that a ship which is broadcasting a powerful jamming signal can be detected very easily. Actually determining what is doing the broadcasting is difficult, but any vessel within Very Long range will be aware of the jamming signal, and all sensor operators will know what it is.

TRADER (WIS)

The character is familiar with the fine art of bartering and haggling price with other individuals. This is useful in many kinds of transaction, whether buying a used vehicle, starship, or equipment from an individual or selling a cargo in the Starport. Note that the use of Trader skill does not allow a character to walk into a local department chain store and negotiate the price of a set of clothes, or the cost of a set of tools. It would however allow a character to negotiate directly with a tailor on the price of a custom outfit, or negotiate price with a little old alien selling a used air/raft that was only driven to the market once a week.

Bartering and Haggling: This is normally an opposed skill check. If the buyer or seller appears rushed, or otherwise anxious to buy or sell the goods the opposing trader may add +2 to his skill check roll. If the goods are obviously stolen or otherwise illegal, the buyer may add +2 to his skill check roll.

If the seller wins the opposed check with a standard success (0-9 points higher than the opposing roll), the price to be paid will be 110% of the list or standard price of the item. If the result is a greater success (10-19 points higher), the price to be paid will be 120%. A complete success (20+ points higher) will set the price at 130%.

If the buyer wins the opposed check with a standard success (0-9 points higher than the opposing roll), the price to be paid will be 90% of the list or standard price of the item. If the result is a greater success (10-19 points higher), the price to be paid will be 80%. A complete success (20+ points higher) will set the price at 70%.

Retry: Yes, but the price begins at the last negotiated level, and the character incurs a -2 penalty to the new skill check roll.

Special: If the trader has a skill rank of 5 or better in Bluff, she may add a +2 synergy bonus to all Trader skill checks.

Notes: Unlike the Broker skill, which is used when dealing with companies, governments, and megacorporations for large cargos, the Tader skill is used when interacting with individuals for specific items or specialized cargos.

TUMBLE (DEX)

Trained Only; Armor Check Penalty

The character is skilled in performing somersaults, flips, handstands, cartwheels, dives, rolls, and similar acts, along with lessening the effects of falls.

Check: The character can land softly when the character falls or tumbles past opponents. The character can also tumble to entertain an audience (as with the Entertain skill). The character can't use this skill if the character's speed has been reduced by armor, excess equipment, or other objects.

DC	*Task*
15	Treat a fall as if it were 3 meters shorter when determining damage.
15	Tumble up to 6 meters (as part of normal movement), suffering no attacks of opportunity while doing so. Failure means the character tumbles 6 meters but suffers attacks of opportunity normally.
25	Tumble up to 6 meters (as part of normal movement), suffering no attacks of opportunity while doing so and moving through areas occupied by enemies (over, under, or around them). Failure means the character tumbles 6 meters and can move through enemy-occupied areas but suffers attacks of opportunity normally.

Retry: An audience, once it has judged a tumbler as uninteresting, is not receptive to repeat performances. The character can try to reduce damage from a fall as an instant reaction but only once per fall. The character can attempt to tumble as part of movement but only once per round.

Special: A character with 5 or more ranks in Tumble gains a +3 dodge AC bonus when executing the Fight Defensively standard or full-round action, instead of a +2 dodge AC bonus.

A character with 5 or more ranks in Tumble gains a +6 dodge AC bonus when executing the total defense standard action instead of a +4 dodge AC bonus.

If the character has 5 or more ranks in Jump, the character gets a +2 synergy bonus on Tumble checks.

If the character has 5 or more ranks in Tumble, the character gets a +2 synergy bonus on Balance checks.

USE ALIEN DEVICES (WIS)

Academics and Travellers Only

The character is familiar with numerous examples of alien technology and design, allowing a better chance of figuring out the use and function of unknown or unfamiliar alien equipment and devices. Anyone can attempt to use this skill untrained, but only Academics and Travellers may earn ranks in this skill.

Check: When confronted with an alien or higher-technology device of unknown function, the character may attempt to figure out how it works. Using the Alien Races and Technology table below as a guideline, the Referee should set a secret Research DC to figure out how to use a single function of the device. Note that once a device's function is understood, a character can be shown how to use that function, provided it is relatively simple. Thus a TL 4 character can be taught how to operate a TL 12 coffee machine or alien direction-finding device, but not a computer or air/raft, which would require lengthy training (as represented by the acquisition of a skill.)

The character heading the investigation should make a skill check. If successful, reduce the Research DC by the amount equal to the skill check roll - exceeded the current Research DC. This will be the new DC the character must make a skill check against to continue the investigation. This will continue until the character gives up, or the Research DC is reduced to 0 or less, at which point the character has figured out one of the functions of the device.

A failed skill check requires the character to make an immediate additional skill check (same DC) to determine if anything untoward happens. If this second check fails, roll 1d20 and consult the Catastrophic Results table below. A roll of a 1 is always an automatic failure with a Catastrophic Result.

A roll of 20 is always an automatic success, and earns a 1d100 roll on the Beneficial Result table below. For purposes of Research DC reduction, consider an automatic success as a roll equal to the DC + 10.

If the device has multiple functions, a separate set of Use Alien Devices skill checks must be made for each function. Once a function's use has been determined, the character may activate that function without trouble in the future.

Alien Races and Technology

Race	*DC*
Luriani, Solomani, Vilani, Other Human	0
Ursa, Sydite, Vargr, Aslan	5
Virushi, K'Kree, Zhodani	10
Wanderer, Droyne	15
Hiver	20
Unknown Race	30
Ancients	50
For each TL of device over current TL*	+5

* Does not apply to Ancients devices

Catastrophic Results

1d20	*Result*
1	Device explodes causing damage (how much should be determined by the Referee).
2-5	Device is rendered inoperable. Can never be repaired.
6-10	Device is rendered inoperable, but can possibly be repaired in the future if another can be obtained and its function figured out.
11-15	Reached dead end, must start completely over. Research DC returns to its initial value.
16-20	Device is baffling. Add 5 back onto the Research DC.

Beneficial Results

1d20	*Result*
1-5	A moment of inspiration! Add +1 to the next check roll.
6-10	Device activated in a minor and benign manner giving a further clue to its operation. Add +2 to the next check roll.
11-15	Add Int modifier (treat any zero or negative modifier as +1) to the amount by which DC is reduced.
16-19	Double the amount by which the Research DC is reduced this round.
20	Deduce how to use the function currently being studied. Research DC is set to 0.

Retry: This skill may be attempted on a device until the character gives up, all functions have been determined, or the device is rendered inoperable or destroyed.

FEATS

Feats are the special abilities that really set a character apart from the everyday, run-of-the-mill citizen. Feats provide your character with special bonuses when using certain skills, special abilities, and other advantages that you would otherwise not normally have. Unlike skills, there are no ranks; you either have a feat and its benefits or you don't.

In addition to the basic feats introduced in the Core Rules book, Traveller introduces a number of additional feats with which to develop your characters. While these new feats were designed with the Traveller universe in mind, they can easily be adapted for use in any d20 Science-Fiction campaign setting.

Acrobatics	Override Ship Security
Acting Prodigy	Point Blank Shot
Alertness	Precise Shot
Ambidexterity	Primary Military Occupational Specialty
Armor Proficiency (Battle Dress)	PSI Training
Armor Proficiency (Heavy)	Quick Draw
Armor Proficiency (Light)	Rapid Shot
Armor Proficiency (Medium)	Research
Armor Proficiency (Vac Suit)	Ride-By Attack
Assassin	Run
Athletic	Shield Proficiency
Barter	Ship Tactics
Brawling	Shot on the Run
Carousing	Sixth Sense
Combat Reflexes	Skill Focus
Connections	Sniper
Credit Line	Spirited Charge
Dodge	Spring Attack
Dumb Luck	Stealthy
EW Specialist	Strategy
Endurance	Surgery
Far Shot	Tactics
Fast Talk	Tolerance
First Aid	Toughness
Fleet Tactics	Tracker
Gearhead	Trample
Geological Survey	Trapping
Great Fortitude	Trustworthy
Hacker	Two-Weapon Fighting
Heavy Gravity Adaptation	Vessel/Ground
Heavy Metal	Vessel/Grav
Hobby	Vessel/Watercraft
Improved Critical	Vessel/Aircraft
Improved Initiative	Vessel/Ship's Boats
Improved Two-Weapon Fighting	Vessel/Starships
Improved Unarmed Strike	Vessel Specialization
Improved Zero-G/Low Gravity Adaptation	Weapon Proficiency (Archer)
Interrogation	Weapon Proficiency (Armsman)
Iron Will	Weapon Proficiency (Combat Rifleman)
Jury Rig	Weapon Proficiency (Field Artillery)
Legal Eagle	Weapon Proficiency (Heavy Weapons)
Lightning Reflexes	Weapon Proficiency (High Energy)
Martial Training	Weapon Proficiency (Lasers)
Medical Specialization	Weapon Proficiency (Marksman)
Miracle Worker	Weapon Proficiency (Ship's Weaponry)
Mobility	Weapon Proficiency (Swordsman)
Mounted Accuracy	Weapon Focus
Mounted Combat	Weapon Specialization
Natural Born Leader	Xeno-Empathy
Natural Compass	Xeno-Medicine
Natural Talent	Zero-G Combat
Naval Architect	Zero-G/Low Gravity Adaptation
Nerves of Steel	



For information on acquiring feats, see the Core Rules book (Feats - Acquiring Feats) for more information.

FEAT DESCRIPTIONS

Here is the format used to describe each of the available feats:

FEAT NAME

A brief description of the feat and its benefits.

Prerequisites: If any specific requirements are listed, a character must meet them before gaining this feat. If there are no prerequisites listed and the character otherwise meets any Service and Class requirements, they may take the feat.

Benefits: The specific benefits gained by a character that acquires this feat.

Normal: What happens if someone without this feat tries to do the same thing.

Special: Any special notes on limitations or other effects and variables related to this feat.

ACROBATICS

The character is very agile, allowing her to take falls and difficult landings better than the average person.

Benefit: Add +2 to all Balance, Jump and Tumble checks.

ACTING PRODIGY

The individual has a special gift for acting and portraying roles.

Benefit: Add +2 to all Disguise and E/Acting checks when the character is playing a part.

Special: This feat does not stack with the Performance Prodigy feat when using the E/Acting skill.

ALERTNESS

The individual has 'eyes in the back of their head', so to speak, and is rarely surprised.

Benefit: The character gets a +2 bonus on all Listen checks and Spot checks.

AMBIDEXTERITY

The character is equally proficient in using tools and weapons with either hand.

Prerequisite: Dex 15+.

Benefit: The character ignores all penalties for using an off hand. The character is neither left-handed nor right-handed.

Normal: Without this feat, a character who uses his or her off hand suffers a -4 penalty to attack rolls, ability checks, and skill checks. For example, a right-handed character wielding a weapon with her left hand suffers a -4 penalty to attack rolls with that weapon.

Special: This feat helps offset the penalty for fighting with two weapons.

ARMOR PROFICIENCY (BATTLE DRESS)

The character is familiar with the use of powered Battle Dress armor and the weapon systems normally associated with it.

Prerequisites: Armor Proficiency (Vac Suit) feat.

Benefit: Can work normally while wearing Battle Dress, only suffering the armor check penalty when attempting to Climb, Hide, Jump, Move Silently, and Tumble.

Normal: Untrained characters wearing armor suffer the listed armor check penalty for their armor when performing all tasks and activities.

ARMOR PROFICIENCY (HEAVY)

The character is familiar with wearing and using heavy armor.

Prerequisites: Armor Proficiency (Medium).

Benefit: Can work normally while wearing heavy armor, only suffering the armor check penalty when attempting to Climb, Hide, Jump, Move Silently, and Tumble.

Normal: Untrained characters wearing armor suffer the listed armor check penalty for their armor when performing all tasks and activities.

ARMOR PROFICIENCY (LIGHT)

The character is familiar with wearing and using light armor.

Benefit: Can work normally while wearing light armor, only suffering the armor check penalty when attempting to Climb, Hide, Jump, Move Silently, and Tumble.

Normal: Untrained characters wearing armor suffer the listed armor check penalty for their armor when performing all tasks and activities.

ARMOR PROFICIENCY (MEDIUM)

The character is familiar with the wearing and using medium armor.

Prerequisites: Armor Proficiency (Light)

Benefit: Can work normally while wearing medium armor, only suffering the armor check penalty when attempting to Climb, Hide, Jump, Move Silently, and Tumble.

Normal: Untrained characters wearing armor suffer the listed armor check penalty for their armor when performing all tasks and activities.

ARMOR PROFICIENCY (VAC SUIT)

The individual has been trained in the wearing, care, and maintenance of all types of Vacuum Suits and Combat Armor.

Benefit: Can work normally while wearing a Vac Suit or Combat Armor, only suffering the armor check penalty when attempting to Climb, Hide, Jump, Move Silently, and Tumble.

Normal: Untrained characters wearing armor perform suffer the listed armor check penalty for their armor when performing all tasks and activities.

ASSASSIN

The character is trained in taking down an opponent with a single melee weapon attack.

Benefit: As a full round action the attacker may attempt to hit the target in a critical area. This attack is at a -4 penalty to hit. If the shot hits, it is treated as a critical hit. The target must be flat-footed to take advantage of this feat.

ATHLETIC

The character is a true jock, excelling at most athletic endeavors.

Benefit: Add +2 to all Climb and Swim checks.

BARTER

The character is a hard bargainer and relishes haggling over the price of an item.

Benefit: Add +2 to all rolls on Trader and Broker checks.

BRAWLING

The character is familiar with fighting without weapons (i.e. using punches, head butts, kicks and other natural weapon attacks), or makeshift weapons (bottles, pool cues or chairs).

Benefit: When fighting unarmed, the character may add +1 to attack rolls and will inflict 1d4 damage, or may use makeshift weapons without the normal penalty (see below).

Normal: Without this skill characters only inflict 1d3 damage when fighting unarmed, and 1d4 damage when armed with a makeshift weapon. When a character without this feat uses a makeshift weapon, he suffers a -2 penalty to any attack rolls.

CAROUSING

The character is talented at interacting and socializing with others, skilled in the art of small talk and making others feel at ease in their presence.

Benefit: Add +2 to all Gather Information checks when in most social situations such as a party, ball, inauguration, bar hopping, etc.

COMBAT REFLEXES

The individual has the reflexes of a seasoned veteran; able to spot and take advantage of the openings an opponent may present in combat.

Benefit: When foes leave themselves open, the character may make a number of additional attacks of opportunity equal to his or her Dexterity modifier. The character still may only make one attack of opportunity per enemy. The character may also make attacks of opportunity while flat-footed.

CONNECTIONS

The individual has established a number of useful and helpful contacts among a selected community of people. (Determined in agreement with the Referee).

Benefit: Add +2 to all Gather Information checks when utilizing these contacts for information.

Special: This feat is specialized, meaning that it will normally specify what community or types of people the character has connections among. For example Connections (Law Enforcement) would mean the character had contacts among police and other law enforcement agencies, and be familiar with the type of people that are part of that community. Listed below are a number of different ideas that might be useful to characters in the Traveller universe. The character is free to select from among them, or with your Referee's permission come up with new ones.

Connections (Scouts): Contacts among the active duty Scout Service personnel, at Scout bases, etc.

Connections (Streetwise): The individual has contacts with and knowledge of dealing with people from lower levels of society (SOC 7 or less).

Connections (Underworld): The individual has connections and contacts within the criminal underworld and black markets, and is familiar with dealing with people from this element of society.

Connections (Class): The individual has a number of contacts and acquaintances among members of their own specific character class.

CREDIT LINE

Because of family ties, business associates, friends, or other connections, the individual has access to a fairly sizable line of credit that may be borrowed against at very low interest rates (5%).

Benefit: The character may borrow an amount up to the equivalent of (character level times the results of a Social Standing check) times Cr1000. This loan must be repaid within a number of years equal to the character's level when the loan is initially taken. Interest must be paid even if the loan is settled almost immediately. No additional loans from this source may be taken while a balance from a previous loan still remains unpaid.

DODGE

The character is naturally adept at dodging and avoiding blows in combat.

Prerequisite: Dex 13+.

Benefit: During the character's action, he designates an opponent and receives a +1 dodge bonus to Armor Class against attacks from that opponent. The character can select a new opponent on any action. Note: A condition that makes the character lose his or her Dexterity bonus to Armor Class (if any) also makes the character lose dodge bonuses. Also, dodge bonuses stack with each other, unlike most other types of bonuses.

DUMB LUCK

The character is unnaturally lucky.

Benefit: +1 to all Gambling checks. Once per day the character may retry a failed check, attack roll, or saving throw. He or she may also turn any one successful check, attack roll, or saving throw into a critical success but this may be done only once per week and during the next week the character may not attempt to use this feat at all.

The two features of the feat cannot be used together. For example this feat could not be used to reroll an unsuccessful attack and then, if the reroll were successful, increase the success into a critical hit.

ENDURANCE

The character is 'long winded' and able to endure strenuous physical exertion far longer than most others.

Benefit: Whenever the character makes a check for performing a physical action that extends over a period of time (running, swimming, holding his breath, and so on), the character gets a +4 bonus to the check.

EW SPECIALIST

The individual is an electronic warfare expert, and has an incredible talent when it comes to sensors and communications.

Benefits: The character gains a +2 to all T/Communications and T/Sensors skill checks when attempting to detect, defeat, or establish a communications or sensor lock, or when trying to descramble a garbled or encoded comm. signal.

FAR SHOT

The character is a crack shot when aiming at distant targets.

Prerequisite: Point Blank Shot.

Benefit: When the character uses a projectile weapon, such as an autopistol, its range increment increases by one-half (multiply by 1.5). When the character uses a thrown weapon, its range increment is doubled.

FAST TALK

The character is able to come up with plausible comments, answers, and other bit of small talk at the drop of a hat, enabling them to somewhat direct and control the course of a conversation.

Benefit: Add +2 to all Bluff and Innuendo checks.

FIRST AID

The individual has been trained in the administration of first aid and basic medical care.

Benefit: While this does not impart T/Medical skill, it does allow a character to function as if he had a T/Medical skill rank of 0.

FLEET TACTICS

The character is trained in the art of large-scale space warfare and the handling of groups of ships (fleets) in combat.

Prerequisites: Ship Tactics feat.

Benefit: Add Wis or Int bonus (whichever is higher; treat any penalties as +0) to all fleet attack and defense rolls.

Normal: Untrained individuals attempting to use Fleet Tactics suffer a -4 penalty to the roll.

GEARHEAD

The character enjoys and is quite skilled at tinkering and working with mechanical and electronic equipment and systems.

Benefit: Add +2 to all T/Mechanical and T/Electronics checks when attempting to repair, construct, or sabotage a piece of equipment. This bonus does not apply to the actual operation of the equipment itself.

GEOLOGICAL SURVEY

The character is skilled at carrying out sample collection and analysis, and can operate appropriate sensors and equipment.

Prerequisites: P/Prospecting skill rank 5+ or K/Geology skill rank 5+.

Benefit: Add +2 to any K/Geology skill checks when attempting field analysis of a geological formation or attempting to extrapolate possible geological information about a region based on available maps and surveys. Also adds a +2 synergy bonus to all P/Survey skill checks when performing planetary mapping and mineral surveys.

GREAT FORTITUDE

The character is capable of withstanding unusual levels of pain and fatigue, and can (at least for a while) hold at bay the effects of shock.

Benefit: The character gets a +2 bonus to all Fortitude saving throws.

HACKER

The character is adept at hacking computer systems and defeating security measures.

Prerequisites: T/Computer skill rank 5+

Benefit: Add +2 to all T/Computer and T/Communications checks when attempting to bypass or circumvent computer or communication security features.

HEAVY GRAVITY ADAPTATION

The character is comfortable and familiar with working and living in a heavy gravity (1.1G+) environment.

Prerequisites: May not already have the Zero-G/Low Gravity Adaptation feat.

Benefit: The character may reduce the penalty for heavier than normal gravity by -2 when using skills in a heavy gravity environment, except for combat skills.

Normal: Untrained characters suffer the full penalty on any skill use in a heavy gravity environment.

HEAVY METAL

The individual has a natural ability with ballistics, trajectories, and targeting of heavy weapons such as field artillery and ship's weaponry.

Benefit: Reduce the effective range to a target by one range increment, or ignore one level of cover and/or concealment.

HOBBY

The individual has developed a specific skill as a favorite hobby.

Benefit: May make one cross-class skill a permanent class skill.

Special: This feat may be taken a number of times equal to a character's INT bonus or a minimum of once, whichever is higher.

IMPROVED CRITICAL

The character has an affinity for a specific type of weapon, such as an autopistol or dagger, which must be specified when the feat is taken. When wielding this type of weapon, he or she is much more likely to inflict a critical hit on an opponent.

Prerequisites: Proficient with weapon, base attack bonus +8 or higher.

Benefit: When using a weapon of the selected type, the character's threat range is doubled.

Special: This feat can be taken multiple times. The effects do not stack. Each time the character takes the feat, it applies to a new type of weapon (autopistol, submachinegun, dagger, etc).

IMPROVED INITIATIVE

The character has fast or highly trained reflexes, allowing her to react more quickly than others in combat.

Benefit: The character gets a +4 bonus on initiative checks.

IMPROVED TWO-WEAPON FIGHTING

The character is highly trained in the art of two-weapon combat.

Prerequisites: Two-Weapon Fighting, Ambidexterity, base attack bonus +9 or higher.

Benefit: In addition to the standard single extra attack the character gets with an off-hand weapon, he or she also gets a second attack with the off-hand weapon, albeit at a -5 penalty.

Normal: Without this feat, the character can only get a single extra attack with an off-hand weapon.

IMPROVED UNARMED STRIKE

The character has achieved a very high level of skill in unarmed combat.

Benefit: The character is considered to be armed even when unarmed - that is, armed opponents do not get attacks of opportunity when he or she attacks them while unarmed. The character still gets an opportunity attack against any opponent who makes an unarmed attack on him.

IMPROVED ZERO-G/ LOW GRAVITY ADAPTATION

The character is totally acclimated to working and living in a low or zero gravity environment.

Prerequisites: Zero-G/Low Gravity Adaptation

Benefit: The character will suffer NO penalty when using skills in a zero-g or low gravity environment, except for combat skills. These require the Zero-G combat feat.

Normal: Untrained characters suffer the full penalty on any skill use in a low or zero-g environment.

INTERROGATION

The character is skilled at questioning and interrogating people. She can pick up subtle clues from their body language and choice of phrases and spot inconsistencies in their story.

Benefit: Add +2 to all Sense Motive and Intimidate checks when performing an interrogation or questioning a suspect. In situations where the character is being interrogated, a negative -2 modifier may be applied to the interrogator's skill checks when attempting to obtain information from the character.

Special: This feat is a bit more heavy-handed than just using the Sense Motive skill. The person being question will realize that the character is after information from them.

IRON WILL

The individual has an unusually high reservoir of willpower, grit, and determination.



Benefit: The character gets a +2 bonus to all Will saving throws.

JURY RIG

The character is quite handy at jury-rigging, makeshift repairs and cobbling together unusual gadgets and gizmos.

Benefit: When attempting a fast, temporary repair, the character must make an appropriate skill check (DC 12 + Required RP per Block). If successful, the system is automatically repaired by 1 factor. This feat can only be used once per damaged system until fully repaired. Add +1 to the skill check roll if there are sufficient vehicle or engineering workshops available to support the job.

LEGAL EAGLE

The character is intimately familiar with Interstellar laws and customs.

Prerequisites: K/Interstellar Law skill rank of 5+.

Benefit: Add +2 to all K/Interstellar Law and P/Administration checks.

Special: This feat applies only to the laws governing interstellar trade, travel, commerce, diplomacy, etc. It does not apply to the laws of individual worlds and governments.

LIGHTNING REFLEXES

The individual has the reflexes of a hunting cat.

Benefit: The character gets a +2 bonus to all Reflex saving throws.

MARTIAL TRAINING

The individual has more than the typical experience in combat situations through training, real life experience, or more typically through previous military service.

Prerequisites: Must be a minimum of 4th level and have served at least one term in the Army, Navy, Marines, or Scout service (see Prior History, pg. 120), or have a Strength and Dexterity ability score of 12 or higher. May not be taken by Barbarians, Mercenaries, or (Active-Duty) Marines.

Benefit: May add +1 to BAB for every 4 character levels attained (i.e. at 4th, 8th, 12th, 16th, and 20th levels).

Special: This feat may only be taken once.

MEDICAL SPECIALIZATION

The individual has specialized in a specific field of medicine such as cardiology, neurology, or orthopedics.

Benefit: Add +2 to all T/Medical checks when diagnosing or treating injuries/illnesses related to the field specialty.

Special: This feat may be taken more than once, but each time a new field of specialization must be selected. It does not stack.

MIRACLE WORKER

The individual has an uncanny knack with machinery and gadgets. He or she can wring out just a little more performance than specifications suggest, maintain a system well beyond its rated capacity without disaster, etc.

Prerequisites: Gearhead feat.

Benefit: When attempting a temporary repair the character must make an appropriate skill check (DC 22 - System RP requirements). If successful the damaged system is automatically repaired to its original rating less one factor. This feat can only be used once per damaged system until fully repaired. Add +1 to the skill check roll if there are sufficient vehicle or engineering workshops available to support the job. Add +2 to the skill check roll if the chief mechanic/engineer has the Damage Control feat.

MOBILITY

The individual has the ability to dodge, dance, and otherwise move past opponents while avoiding their blows.

Prerequisites: Dex 13+, Dodge feat.

Benefit: The character gets a +4 dodge bonus to Armor Class against attacks of opportunity caused when the character moves out of or within a threatened area. Note: A condition that makes the character lose the Dexterity bonus to Armor Class (if any) also makes the character lose dodge bonuses. Also, dodge bonuses stack with each other, unlike most types of bonuses.

MOUNTED ACCURACY

The character is skilled at firing ranged weapons from a moving platform such as a vehicle or animal.

Prerequisite: Ride or Drive skill.

Benefit: The penalty the character suffers when using a ranged weapon from a moving platform is halved: -2 instead of -4 if the character's platform is taking a double move, and -4 instead of -8 if the character's platform is running or moving at fast speed or higher.

MOUNTED COMBAT

The character is trained in handling an animal mount in combat.

Prerequisite: Ride skill.

Benefit: Once per round when the character's mount is hit in combat, the character may make a Ride check to negate the hit. The hit is negated if the character's Ride check is greater than the attack roll (essentially, the Ride check becomes the mount's Armor Class if it's higher than the mount's regular AC).

NATURAL BORN LEADER

The individual has the type of attitude, confidence and natural leadership that draws attention and inspires loyalty.

Benefit: Add +2 to all Leader and Recruiting checks.

NATURAL COMPASS

The individual has an innate, almost unnatural ability to determine his or her location nearly anywhere on a world or planetoid, beyond what is natural.

Benefit: Add +2 to all Intuit Direction and Navigation checks.

NATURAL TALENT

The character is a raw psionicist, capable of minor feats of psionics without the normal training required.

Benefit: The character rolls 1d20 and consults the Natural Affinity table below to determine which psionic Sphere of Influence he will be capable of manipulating.

The character has no formal training, but is such a strong natural talent that he may always act as if his skill rank in his natural sphere were 2 points higher than normal when using talents from his natural sphere of influence. Until formally tested the character may act as if he had a PSI rating of 2. If finally tested, the character may add +2 to the final exam result. If a human character takes this as their free racial bonus feat, he may ignore the age penalty when being examined at the Institute

Note that the features of this feat make it possible for the character to later take any talent feat within his sphere that has a rank requirement of 2 or less.

See Psionics (pg. 186) for more information.

Natural Affinity

d20	*Sphere*
1-10	Telepathy
11-14	Clairvoyance
15-17	Telekinesis
18-19	Awareness
20	Teleportation

NAVAL ARCHITECT

The individual has been trained in the techniques and methods of spaceship and starship design, and producing the blueprints and plans necessary for their construction.

Prerequisites: T/Engineering

Benefit: May design starships and small craft for construction.

Special: This feat may be selected up to four times with the following additional capabilities with each selection:

1) The character is capable of designing small starships and small craft (up to 400 tons). Takes 16 weeks

2) The character is capable of designing medium sized starships (up to 1000 tons). Takes 10-12 weeks.

3) The character is capable of designing large starships (up to 10,000 tons). Takes 6-8 weeks.

4) The character is capable of designing any type of starship regardless of tonnage, at normal pace.

NERVES OF STEEL

The character is cool as ice when dealing with demolition charges and attempting to disarm or disable explosives and similar devices.

Benefit: Add +2 to all Demolitions, T/Mechanical, or T/Electronic skill checks when attempting to disable a device or demolitions.

OVERRIDE SHIP SECURITY

The individual has been trained in how to override and defeat the anti-hijacking and boarding security systems on most types of starships.

Prerequisite: Hacker.

Benefit: Add +2 to any T/Computer checks when attempting to override an anti-hijacking program.

POINT BLANK SHOT

The character knows how to make proper use of a ranged weapon while in close combat.

Benefit: The character gets a +1 bonus to attack and damage rolls with ranged weapons at ranges of up to 10 meters.

PRECISE SHOT

The character is able to more accurately hit a target involved in a melee or surrounded by a crowd of people.

Prerequisite: Point Blank Shot.

Benefit: The character can shoot or throw ranged weapons at an opponent engaged in melee without suffering the standard -4 penalty.

PRIMARY MILITARY OCCUPATIONAL SPECIALTY (PMOS)

The character was highly trained in one specific skill while he or she was in the military.

Prerequisites: Skill rank 5+, Skill Focus Feat in the specified skill

Benefit: Select one skill as PMOS. Whenever using this skill, the character may always elect to Take10, even in situations where they normally could not.

Special: May only be selected once.

PSI TRAINING

The character has located a Psionics Institute and been offered free testing and training.

Benefit: See Psionics Institute, (pg. 186) for more information.

Special: If a character takes this as their free 1st (character) level feat, they may ignore the age penalty when being examined at the Institute.

QUICK DRAW

Few can draw and bring to bear a weapon faster.

Prerequisite: Base attack bonus +1 or higher.

Benefit: The character can draw a weapon as a free action instead of as a move-equivalent action.

RAPID SHOT

The character is very quick on the trigger.

Prerequisites: Point Blank Shot, Dex 13+.

Benefit: The character can get one extra attack per round with a ranged weapon. The attack is at the character's highest base attack bonus, but each attack (the extra one and the normal ones) suffers a -2 penalty. The character must use the full attack action to use this feat.

RESEARCH

The character is skilled at sifting and analyzing data and information from various sources for the clues and evidence needed to close a case. Allows the synergistic use of Knowledge and other information-related skills together with Gather Information skill.

Benefit: Add +2 to all Gather Information checks when conducting research.

Circumstances	*Gather Knowledge Roll Adjustment*
Multiple Sources	-1 per Knowledge or other skill used, if more than one is involved.
Per Research bonus	+1
Per successful Source Skill check	+5

Special: This skill may be taken more than once, but each time it is selected a new area of research specialization must be specified. For example a character might take Research/Ancients, Research/Ziru Sirka, or Research/Anthropology.

RIDE-BY ATTACK

The character is trained in fast (animal) mounted skirmishing.

Prerequisites: Ride skill, Mounted Combat.

Benefit: When the character is mounted and uses the charge action, the character may move and attack as with a standard charge and then move again (continuing the straight line of the charge). The character's total movement for the round can't exceed double the character's mounted speed. The character does not provoke an attack of opportunity from their opponent.

RUN

The character is faster than normal when running.

Benefit: When running, the character moves five times normal speed instead of four times normal speed. If

the character makes a running jump, increase the distance or height cleared by one-fourth, but not past the maximum.

SHIELD PROFICIENCY

The character is trained in the proper use of a shield in melee combat.

Benefit: The character can use a shield and suffer only the standard penalties.

Normal: A character using a shield with which he or she is not proficient suffers the shield's armor check penalty on attack rolls and on all skill rolls that involve moving, including Ride.

SHIP TACTICS

The individual has had advanced training in operating, fighting, and surviving with an individual ship in combat.

Prerequisites: Vessel/Starships or Vessel/Ship's Boat feat

Benefit: Add Wis or Int bonus (whichever is higher, treat any penalties as +0) to all ship or small craft attack and defense rolls.

SHOT ON THE RUN

The character is familiar and skilled at using ranged weapons while moving.

Prerequisites: Point Blank Shot, Dex 13+, Dodge, Mobility.

Benefit: When using the attack action with a ranged weapon, the character can move both before and after the attack, provided that the character's total distance moved is not greater than the character's speed.

SIXTH SENSE

The individual has an uncanny knack for noticing what most would overlook.

Benefit: Add +2 to all Search checks.

SKILL FOCUS

The character has a natural talent. She may select a specific skill such as T/Electronics, with which she has a higher than average capability.

Benefit: The character gets a +2 bonus on all skill checks with the selected skill.

Special: The character can gain this feat multiple times. Its effects do not stack. Each time the character takes the feat, it applies to a new skill.

SNIPER

The character is trained in taking down an opponent at range with a single shot

Benefit: As a full round action the shooter may attempt to hit the target in a critical area. This shot is at a -4 penalty to hit, though this penalty can be reduced by 1 (to a minimum of a -1 penalty to hit) for each additional round spent targeting. If the shot hits, it is treated as a critical hit. The target must be unaware of the presence of the sniper to take advantage of this feat.

SPIRITED CHARGE

The character is exceptionally skilled at using a (animal) mount to deliver a more powerful than normal melee attack during a charge.

Prerequisites: Ride skill, Mounted Combat, Ride-By Attack.

Benefit: When mounted and using the charge action, the character deals double damage with a melee weapon (or triple damage with a spear).

SPRING ATTACK

The character knows how to apply 'hit and run' tactics while in melee combat.

Prerequisites: Dex 13+, Dodge, Mobility, base attack bonus +4 or higher.

Benefit: When using the attack action with a melee weapon, the character can move both before and after the attack, provided that their total distance moved is not greater than their speed. Moving in this way does not provoke an attack of opportunity from the defender. This feat cannot be used while wearing heavy armor.

STEALTHY

The character is particularly good at blending into the background, and generally remaining unnoticed.

Benefit: Add +2 to all Hide and Move Silently checks.

STRATEGY

The individual has mastered the art of war, and is capable of orchestrating and organizing large-scale battles.

Prerequisites: Tactics feat.

Benefit: Add Wis or Int bonus (whichever is higher, treat any penalties as +0) to all large group/unit attack and defense rolls.

Normal: Untrained individuals attempting to use Strategy suffer a -4 penalty to the roll.

SURGERY

The character is trained and qualified to perform most types of surgery.

Requirements: T/Medical skill rank of 8+

Benefit: May perform surgery competently.

Normal: Anyone may perform surgery without this feat. The Surgery feat gives the patient a chance of surviving the experience.

TACTICS

The character is trained in organizing and commanding small combat units, up to company size.

Benefit: Add Wis or Int modifier (whichever is higher, treat any penalties as +0) to all small-unit attack and defense rolls.

Normal: Untrained individuals attempting to use Tactics suffer a -4 penalty to the roll.

TOLERANCE

Aslan find it difficult to interact with cultures that do not share their values. Tolerance allows an Aslan to get along with "foreign barbarians".

Benefit: The ability to tolerate and operate within non-Aslan cultures. It also allows Aslan to respond to aliens by their physical gender rather than their job-apparent gender. For male Aslan this feat also allows them to take "Female" skills and the ability to comprehend the value of money; Aslan females often have (but seldom use) many of the "Male Skills".

Normal: Without this feat, Aslan characters must make Will saves to avoid challenging to a duel those who insult them. Saves are made with DCs varying from 10 (trivial things) to 30 (direct insult or accusation of crime). Additionally, gunners, pilots, law enforcement personnel, commanding officers, and people with other "action oriented" jobs will be referred to in the masculine only, and navigators, businesspersons, executive officers, engineers, repair technicians, and those undertaking other intensely educated or 'thinking' tasks will be referred to as female. Stewards, entertainers, reporters, and artists will be referred to by physical gender. The Tolerance feat allows a DC10 Wis check to get things right; not having the feat makes this DC18.

Special: Aslan only

TOUGHNESS

The character is exceptionally tough.

Benefit: The character gains +1 Lifeblood points and +3 Stamina points.

Special: A character may gain this feat multiple times.

TRACKER

The character is unusually gifted at locating, identifying and following the tracks and trails of people, animals, and vehicles.

Benefit: Add a +2 bonus to any P/Hunting skill checks when attempting to track someone or something.

Normal: A character without this feat can use the Search or Survival skill to find tracks, but can only follow tracks if the DC is 10 or less.

TRAMPLE

The character is trained in using their mount to knock down an opponent, offering the opportunity for the mount to trample him.

Prerequisites: Ride skill, Mounted Combat.

Benefit: When the character attempts to overrun an opponent while mounted, the target may not choose to avoid the attempt. If the character knocks down the target, his mount may make one hoof attack against the target, gaining the standard +4 bonus on attack rolls against prone targets.

TRAPPING

The character is trained in designing, constructing, and setting mechanical traps and snares.

Benefit: The character can set up traps that do increasing amounts of damage, are capable of holding larger creatures, and are better camouflaged, depending upon P/Hunting skill rank.

Once per week the Referee will check to see if anything has been caught in the trap. If the result or a 1d20 roll is less than the DC of the trap, something has been caught. If the result is higher than the DC, nothing has triggered the trap during the past week. If attempting to trap animals in the wilderness, the Referee should roll on the appropriate animal encounter table for the local terrain to see what has stumbled into the trap. If the animal is larger than the maximum size for the trap, the trap has been destroyed and the prey has escaped.

A trap does not have to inflict damage at all. It can inflict only Stamina damage or it can inflict both Stamina and Lifeblood damage. The trapper must specify the type of damage the trap will inflict when it is first set. Damage is inflicted once.

Skill Rank	*Size*	*Damage*	*Spot DC*
1	Tiny	1d4	5
4	Small	1d6	10
7	Average	1d8	15
11	Large	1d10	20
15	Huge	1d12	25
19+	Gigantic	1d20	30

Special: Survival skill may be used in place of P/Hunting skill, but add +2 to the minimum skill ranks required.

TRUSTWORTHY

The individual has that down-home, all-around good guy, honest look about you. Folks just feel comfortable around him and are more willing to confide in him.

Benefit: +2 bonus on all Liaison and Gather Information checks when interacting with others.

Special: This feat will stack with the Carousing and Trustworthy feats when Gather Information from other individuals, but will not stack with the Research feat.

TWO-WEAPON FIGHTING

The individual has been trained in fighting with two weapons at the same time.

Benefit: The character's penalties for fighting with two weapons are reduced by 2.

VESSEL

The character is familiar with the operation and handling of a specific group of vessels.

Benefit: The character may use Driving or Pilot skill (whichever is appropriate) when operating a vessel of the specified group.

Special: If the character does not already have at least a skill rank of 1 in Driving or Pilot, depending on the vessel group, he or she automatically gains the skill (as a class skill) with a rank of 0. If a vessel group has subgroups, the character must specify which subgroup she will have familiarity with. For example, a character selects the Vessel/Ground feat group. She must then select one of the four subgroups under Vessel/Ground.

Normal: Any attempt to pilot or drive a vessel that a character has no familiarity with suffers a penalty of -4 to all piloting or driving skill rolls. If a character is familiar with a class of vessel within the same subgroup, the penalty is only -2. For example, a character who already possesses the Vessel/Ground/Wheeled feat may attempt to drive a tracked vehicle suffering only a -2 penalty to their driving skill roll. If the same character attempted to drive any watercraft they would do so at a -4 penalty to any driving skill rolls.

VESSEL SPECIALIZATION

The character is highly trained in the operation of a specific type of vessel such as a ground car, motorcycle, tank, helicopter, propeller aircraft, air/raft, speeder, shuttle, scout/courier, or any other type or class of vessel.

Benefit: Add +2 to all drive or pilot checks when operating this type of vehicle.

Special: The character can gain this feat multiple times. Its effects do not stack. Each time the character takes the feat, it applies to a new type of vessel.

WEAPON FOCUS

The individual has studied, practiced, and practically lived with a specific type of weapon (Laser Pistol, Cutlass, Autopistol, etc.) long enough to become highly proficient with its use.

Prerequisites: Proficient with weapon, base attack bonus +1 or higher.

Benefit: The character adds +1 to all attack rolls when using the selected weapon.

Special: The character can gain this feat multiple times. Its effects do not stack. Each time the character takes the feat, it applies to a new weapon. Note that "Brawling", "Unarmed Strike" or "Grapple" can be chosen as the character's weapon for purposes of this feat.

VESSEL GROUPS

Group	*Skill*	*Examples*
Vessel (Ground)	Driving	
Wheeled Vehicles		Ground cars, Wheeled ATV, Motorcycles
Tracked Vehicles		Tracked ATV, Tracked AFV, Tank
Legged Vehicles		Mechs, Walkers
Hovercraft		Air Cushion Vehicles
Vessel (Grav)	Pilot	
Grav Vehicles		Air/raft, GCarrier, Speeder, Grav Bike, Grav Belt
Vessel (Watercraft)	Driving	
Small Boats		Jetski, Skiboat
Large Boats		Fishing Boat, Yacht
Ships		Tanker, Steamship, Cargo Vessel
Vessel (Aircraft)	Pilot	
Lighter than Air Craft		Hot Air Balloon, Dirigible
Propeller Aircraft		Propeller-driven heavier-than-air craft (not helicopters)
Jet Aircraft		Jet-propelled heavier than-air-craft
Helicopters		VTOL craft or Helicopters
Vessel (Ship's Boats)	Pilot	Shuttles, Pinnaces, Cutters
Vessel (Starships)	Pilot	All types of starships

WEAPON PROFICIENCY (ARCHER)

The character is familiar with the use of all forms of bows including slings, short bows, long bows, sporting crossbows, military crossbows, and repeating crossbows.

Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: An untrained character using one of these types of weapons suffers a -4 penalty on attack rolls.

WEAPON PROFICIENCY (ARMSMAN)

The character is familiar with the use of all forms of polearms including bayonets, spears, halberds, pikes, and cudgels.

Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: An untrained character using one of these types of weapons suffers a -4 penalty on attack rolls.

WEAPON PROFICIENCY (COMBAT RIFLEMAN)

The character is familiar with the use of the following types of weapons: rifle, carbine, assault rifle, auto-rifle, advanced combat rifle, accelerator rifle, light machinegun, light assault gun, grenade launcher, RAM launcher, and gauss rifle.

Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: An untrained character using one of these types of weapons suffers a -4 penalty on attack rolls.

WEAPON PROFICIENCY (FIELD ARTILLERY)

The character is trained in the maintenance and operation of field artillery pieces including mortars, artillery pieces, mass drivers, high-energy weapons, meson accelerators, and MRLs.

Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: Untrained characters are not able to operate these types of weapons.

Special: If the character does not already have at least a skill rank of 1 in Gunnery, he or she automatically gains the skill (as a class skill) with a rank of 0.

WEAPON PROFICIENCY (HEAVY WEAPONS)

The character is trained in the maintenance and operation of field lasers, mortars, autocannon, and VRF gauss guns.

Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: Untrained characters are not able to operate these types of weapons.

Special: If the character does not already have at least a skill rank of 1 in Gunnery, he or she automatically gains the skill (as a class skill) with a rank of 0.

WEAPON PROFICIENCY (HIGH ENERGY WEAPONS)

The character is trained in the use of high-energy weapons including all man-portable plasma and fusion guns (PGMP or FGMP).

Prerequisites: Battle Dress feat.

Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: An untrained character using a high-energy weapon attacks at a -4 penalty.

WEAPON PROFICIENCY (LASERS)

The character is familiar with the use of the following types of laser weapons: rifle, carbine, and pistol.

Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: An untrained character using one of these types of weapons suffers a -4 penalty on attack rolls.

WEAPON PROFICIENCY (MARKSMAN)

The character is familiar with the operation and maintenance of most forms of modern non-military firearms including the following weapons: snub pistol, revolver, auto-pistol, rifle, submachinegun, carbine and shotgun.

Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: An untrained character using one of these types of weapons suffers a -4 penalty on attack rolls.

WEAPON PROFICIENCY (SHIP'S WEAPONRY)

The character is skilled in the operation of turret mounted weapons aboard a spacecraft, including lasers, sandcasters, energy weapons, missiles, and particle accelerators.

Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: Untrained characters are not able to operate these systems.

Special: If the character does not already have at least a skill rank of 1 in Gunnery, he or she automatically gains the skill (as a class skill) with a rank of 0.

WEAPON PROFICIENCY (SWORDSMAN)

The character is skilled in the use of all forms of bladed weapons including daggers, blades, foils, swords, cutlasses, and broadswords.



Benefit: Characters make attack rolls with weapons they are proficient in normally, without penalty.

Normal: An untrained character using one of these types of weapons suffers a -4 penalty on attack rolls.

WEAPON SPECIALIZATION

The character is an expert with a single weapon type, and is especially good at inflicting damage with it.

Benefit: The character adds +2 to all damage inflicted with the chosen weapon. If this is a ranged weapon, the target must be within the weapon's first range band or 10 meters (whichever is greater).

Special: The character can gain this feat multiple times. Its effects do not stack. Each time the character takes the feat, it applies to a new weapon.

XENO-EMPATHY

The individual has a natural affinity and understanding of alien lifeforms and their cultures.

Benefit: Add +2 to all Decipher Script and Use Alien Device checks.

XENO-MEDICINE

The character is familiar with the unusual medical needs and requirements of certain alien races.

Prerequisite: T/Medical

Benefit: The character may apply his T/Medical skill normally towards treating patients not of his own race.

Normal: Without xeno-medicine a doctor or medic suffers a penalty of at least -4 (as determined by the Referee) when treating a patient of a race other than their own.

Special: This feat can be selected more than once. When choosing this feat the character must specify the alien race he will be familiar with.

ZERO-G COMBAT

The character is trained and familiar with the use of weapons and combat in a zero or low gravity environment.

Prerequisites: Vacc Suit feat

Benefit: May conduct combat in a low or zero gravity environment without penalty.

Normal: Firing a weapon in zero-g is at a -4 penalty (blades and polearms attack at -5), and when using any weapon the user must make a Dexterity check (DC 15) or lose control of their orientation.

ZERO-G/LOW GRAVITY ADAPTATION

The character is comfortable and familiar with working and living in a low or zero gravity environment.

Prerequisites: Armor (Vac Suit) feat. Must not already have the Heavy Gravity Adaptation feat.

Benefit: The character may reduce the penaly for zero-g or low gravity by -2 when using skills in such an environment, except for combat skills, which require the Zero-G Combat feat.

Normal: Untrained characters suffer the full penalty on any skill use in a low or zero-g environment.

FINAL DETAILS

HEIGHT AND WEIGHT

You may choose your character's height and weight based on the ranges presented in the race descriptions, or you may determine this randomly using the Random Height and Weight table.

Base Height: The base height of the race in centimeters.

Height Modifier: Roll the listed dice and multiply the result by 5 as shown in the table. Add this to the base height in centimeters. For example, a male human character has a base height of 140cm. The player rolls 2d6 for a roll result of 7. Multiplying the roll by 5 the player determines that he should add 35cm to the character's base height for a total height of 170cm.

Base Weight: The base weight of the race in kilograms.

Weight Modifier: Roll the listed dice and multiply the roll result by the Height Modifier roll result. Add this to the base weight in kilograms. For example a female human character has a base weight of 44kg. The player rolls 1d6 for a roll result of 3. Multiplying this against a previous height roll of 7, the player determines that she should add 21kg to her character's base weight for a total of 65kg.

RANDOM HEIGHT AND WEIGHT

	Base Height	*Height Modifier*	*Base Weight*	*Weight Modifier*
Vilani, male	140	+2d6 (x5)	54	x (1d8) kg
Vilani, female	130	+2d6 (x5)	49	x (1d6) kg
Zhodani, male	158	+2d6 (x5)	49	x (1d8) kg
Zhodani, female	148	+2d6 (x5)	44	x (1d6) kg
Human, male	140	+2d6 (x5)	49	x (1d8) kg
Human, female	130	+2d6 (x5)	44	x (1d6) kg
Vargr, male	130	+2d6 (x5)	46	x (1d4) kg
Vargr, female	120	+2d6 (x5)	41	x (1d4) kg
Aslan, male	170	+2d6 (x5)	60	x (1d8) kg
Aslan, female	160	+2d6 (x5)	55	x (1d8) kg
Sydite, male	190	+2d6 (x5)	80	x (2d6) kg
Sydite, female	180	+2d6 (x5)	75	x (2d6) kg
Ursa, male	200	+4d6 (x5)	300	x (4d6) kg
Ursa, female	180	+4d6 (x5)	250	x (4d6) kg
Virushi, male	170	+4d6 (x5)	230	x (10d10) kg
Virushi, female	160	+4d6 (x5)	200	x (10d10) kg

AGING MODIFIERS

Age Range	*Modifiers*
Adult:	No aging modifiers.
Middle Age:	-1 to Strength, Dexterity, and Constitution. +1 to Education and Wisdom.
Old Age:	-2 to Strength, Dexterity, and Constitution. +1 to Education and Wisdom.
Venerable Age:	-3 to Strength, Dexterity, and Constitution. +1 to Education and Wisdom.

THE EFFECTS OF AGING

When a character reaches middle age for their race, they begin to suffer

AGING BY RACE

Race	*Middle Age*	*Old Age*	*Venerable Age*	*Maximum Age*	*Maximum Terms*
Human (Solomani)	35-52 Years	53-79 Years	80+ Years	80+2d10 Years	7
Mixed Vilani	40-57 Years	58-85 Years	86+ Years	86+4d10 Years	8
Vilani	45-62 Years	63-90 Years	91+ Years	92+6d10 Years	10
Aslan	56-59 Years	60-69 Years	70+ Years	70+1d10 Years	13
Vargr	35-52 Years	53-69 Years	70+ Years	70+2d10 Years	7
Luriani	35-52 Years	53-69 Years	70+ Years	70+2d10 Years	7
Sydite	30-47 Years	48-64 Years	65+ Years	65+2d8 Years	6
Ursa	25-42 Years	43-59 Years	60+ Years	60+2d6 Years	5
Virushi	35-52 Years	53-69 Years	70+ Years	70+2d10 Years	7





from the effects of aging. At middle age a character will lose one point each from their Str, Dex, and Con ability scores, but at the same time they will gain one point of Education and Wisdom. Upon reaching old age, a character loses two additional points each from their Str, Dex, and Con scores, and gains one point to each of their Education and Wisdom. A character surviving to a venerable age suffers even further, losing three more points from their Str, Dex, and Con scores, but gains an additional point of Education and Wisdom.

The actual rate at which a character ages is based on their race. Full-blooded Vilani are longer-lived than most other races, living to an average age of 122, while the genetically uplifted Ursa fare the worst in the longevity department, living to an average age of just 66-67 years. Each race also reaches the various stages of maturity at different intervals. Aslan, for example, reach middle age at 50, long after most other races, while the Ursa (again the worst of the pack) reach middle age at a mere 25 years.

Maximum Age represents the end of the normal lifespan, and a gradual decline until death from the affects of ageing. This can be offset by certain methods; notably anagathic treatments.

Maximum Terms indicates the number of terms after which a character must retire from their career. There is nothing to stop a character from adventuring after this point (except physical frailty) but they will not be able to pursue a Prior History career beyond this point.

ENCUMBRANCE

There is a limit to what a person or creature can carry and for how long. Obviously larger and stronger creatures will be able to carry more than their smaller and weaker counterparts. The following rules will help you determine if your character is considered encumbered, and what penalties will apply under these conditions.

WEIGHT

If you want to determine whether your character's gear is heavy enough to slow him down (more than his armor already does), total the weight of all his armor, weapons, and gear. Compare this total to the character's Strength on the Carrying Capacity table to determine the character's load level. Consulting the Carrying Loads table shows how encumbrance will limit the character's Dex modifier, impose penalties on physical skill checks and reduce movement rate.

If your character is wearing armor, use the worst figure (from armor or from weight) for each category. Do not stack the penalties.

LIFTING AND DRAGGING

A character can lift up to the maximum load (for his Strength) over his head.

A character can lift up to double the maximum load off the ground, but he can only stagger around with it. While overloaded in this way, the character loses any Dexterity bonus to AC and can only move 1.5 meters per round (as a full-round action).

A character can generally push or drag along the ground up to five times the maximum load. Favorable conditions (smooth ground, dragging a slick object) can double these numbers, and bad circumstances (broken ground, pushing

CARRYING CAPACITY

Strength	Light Load	Medium Load	Heavy Load
1 Str	up to 1.3kg	1.4-2.7kg	2.8-4.5kg
2 Str	up to 2.7kg	2.8-5.8kg	5.9-9kg
3 Str	up to 4.5kg	4.6-9kg	9.1-13.5kg
4 Str	up to 5.8kg	5.9-11.7kg	11.8-18kg
5 Str	up to 7.2kg	7.3-14.8kg	14.9-22.5kg
6 Str	up to 9kg	9.1-18kg	18.1-27kg
7 Str	up to 10.3kg	10.4-20.7kg	20.8-31.5kg
8 Str	up to 11.7kg	11.8-23.8kg	23.9-36kg
9 Str	up to 13.5kg	13.6-27kg	27.1-40.5kg
10 Str	up to 14.8kg	14.6-29.7kg	29.8-45kg
11 Str	up to 17.1kg	17.2-34.2kg	34.3-51.7kg
12 Str	up to 19.3kg	19.4-38.7kg	38.8-58.5kg
13 Str	up to 22.5kg	22.6-45kg	45.1-67.5kg
14 Str	up to 26.1kg	26.2-52.2kg	52.3-78.7kg
15 Str	up to 29.7kg	29.8-59.8kg	59.9-90kg
16 Str	up to 34.2kg	34.3-68.8kg	68.9-103.5kg
17 Str	up to 38.7kg	38.8-77.8kg	77.9-117kg
18 Str	up to 45kg	45.1-90kg	90.1-135kg
19 Str	up to 52.2kg	52.3-104.8kg	104.9-157.5kg
20 Str	up to 59.8kg	59.9-119.7kg	119.8-180kg
21 Str	up to 68.8kg	68.9-137.7kg	138.8-207kg
22 Str	up to 77.8kg	77.9-155.7kg	155.8-234kg
23 Str	up to 90kg	90.1-180kg	180.1-270kg
24 Str	up to 104.8kg	104.9-209.7kg	209.8-315kg
25 Str	up to 119.7kg	119.8-239.8kg	239.9-360kg
26 Str	up to 137.7kg	138.8-275.8kg	275.9-414kg
27 Str	up to 155.7kg	155.8-311.8kg	311.9-468kg
28 Str	up to 180kg	180.1-360kg	360.1-540kg
29 Str	up to 209.7kg	209.8-419.8kg	419.9-630kg
+10 Str	x4	x4	x4

CARRYING LOADS

Load	Max Dex	Check Penalty	Speed (12m)	(9m)	Run
Medium	+3	-3	9m	6m	x4
Heavy	+1	-6	9m	6m	x3

an object that snags) can reduce them to one-half or less.

BIGGER AND SMALLER CREATURES

The figures on the Carrying Capacity table are for Medium-size creatures. Larger creatures can carry more weight depending on size category: Large (x2), Huge (x4), Gargantuan (x8), and Colossal (x16). Smaller creatures can carry less weight depending on size category: Small (3/4), Tiny (1/2), Diminutive (1/4), and Fine (1/8).

MULTIPLE LEGS

Creatures and aliens with more than two legs can carry heavier loads than bipeds. To determine such a creature's carrying capacity limits, use the Carrying Capacity table, multiplying by the appropriate modifier for the creature's size: Fine 1/4, Diminutive 1/2, Tiny 3/4, Small 1, Medium 1.5, Large 3, Huge 6, Gargantuan 12, and Colossal 24. If the creature is hexapedal (6 legs) multiply the total determined previously by 2. Octapedal creatures (8 legs) multiply the total by x3.

TREMENDOUS STRENGTH

For Strength scores above those listed, carrying capacity can be determined as follows: Find the Strength score between 20 and 29 that has the same "ones" digit as the creature's Strength score and multiply the figures by four for every 10 points of Strength the creature has above that, e.g. x 4 for Str 30, x 16 for 40, x 64 for 50, and so on.

MOVEMENT

There are three movement scales in the game:

Personal or Tactical: for combat between people and/or creatures, measured in meters per round.

Vehicle or Local: for combat between vehicles or exploring an area, measured in meters per minute.

Ship or Overland: for ship-to-ship combat (measured in 32,000km hexes per hour) or getting from place to place on a planet (measured in kilometers per hour or day).

MODES OF CREATURE MOVEMENT

While moving at the different movement scales, creatures generally walk, hustle, or run.

Walk: A walk represents unhurried but purposeful movement at 5.4 kilometers per hour for an unencumbered human.

Hustle: A hustle is a jog or similar quick but not excessively hard movement; this is about 10 kilometers per hour for an unencumbered human. The double move action represents a hustle.

Run (x 3): Moving three times your character's standard speed is a running pace for a character in heavy armor.

Run (x 4): Moving four times your character's standard speed is a running pace for a character in light, medium, or no armor.

MOVEMENT AND DISTANCE

	Speed 6m	9m	12m
One Personal Round/Tactical Movement - 6 seconds			
Walk	6m	9m	12m
Hustle	12m	18m	24m
Run (x3)	18m	27m	36m
Run (x4)	24m	36m	48m
One Vehicle Round/Local Movement - 1 minute			
Walk	60m	90m	120m
Hustle	120m	180m	240m
Run (x3)	180m	270m	360m
Run (x4)	240m	360m	480m
One Ship Round/Overland Movement - 1 hour			
Walk	3.6km	5.4km	7.2km
Hustle	7.2km	10.km	14.4km
Run (x3)	10.8km	15.4km	21.6km
Overland Movement - 1 day			
Walk	28.8km	43.2km	57.6km
Hustle	57.6km	86.4km	115.2km

(Assumes 8 hours spent actually traveling)

HAMPERED MOVEMENT

Condition	*Example*	*Movement Penalty*
Obstruction		
Moderate	Undergrowth	x3/4
Heavy	Thick undergrowth	x1/2
Surface		
Bad	Steep slope or mud	x1/2
Very bad	Deep snow	x1/4
Poor visibility	Darkness or fog*	x1/2

*Includes any effects that create a "fog".

Hampered Movement: Obstructions, bad surface conditions, or poor visibility can hamper movement. The Referee determines the category that a specific condition falls into (see the Hampered Movement table). When movement is hampered, multiply the standard distance by the movement penalty (a fraction) to determine the distance covered.

If more than one condition applies, multiply the normal distance covered by all movement penalty fractions that apply.

TACTICAL MOVEMENT

Use tactical speed for combat between people and/or creatures, measured in six-second rounds. Tactical movement is also used when handling combats involving people and/or creatures, along with vehicles and/or ships.

VEHICLE/LOCAL MOVEMENT

Characters exploring an area use local movement, measured in minutes. Vehicles in combat with other vehicles, or vehicles and ships in combat together use this scale of movement.

Walk: A character can walk without a problem on the local scale.

Hustle: A character can hustle without a problem on the local scale. See Overland Movement, below, for movement measured in hours.

Run: A character with a Constitution score of 9 or higher can run for a minute without a problem. Generally, such characters can run for about a minute or two before having to rest for a minute.

OVERLAND MOVEMENT

Characters covering long distances cross-country use overland movement. Overland movement is measured in hours or days. A day represents 8 hours of actual travel time. For rowed watercraft, a day represents 10 hours of rowing. For a sailing ship, it represents 24 hours. A day spent driving or piloting a vehicle represents 8 hours, distance traveled is based on the cruising speed of the vehicle itself.

Walk: A character can walk 8 hours in a day of travel without a problem.

Hustle: A character can hustle for 1 hour without a problem. Hustling for a second hour in between sleep cycles causes 1 point of Stamina

TERRAIN AND OVERLAND MOVEMENT

Terrain	*Highway*	*Road*	*Trackless*
Plains	x1	x1	x1
Scrub, rough	x1	x1	x3/4
Forest	x1	x1	x1/2
Jungle	x1	x3/4	x1/4
Swamp	x1	x3/4	x1/2
Hills	x1	x3/4	x1/2
Mountains	x3/4	x1/2	x1/4
Sandy Desert	x1	x3/4	x1/2

MOUNTS AND VEHICLES

Mount/Vehicle	Per Hour	Per Day
Mount (carrying load)		
Light riding animal	9.7km	77.6km
Average riding animal	8.0km	64.0km
Heavy riding animal	6.4km	51.2km
Light draft animal	8.0km	64.0km
Average draft animal	6.4km	51.2km
Heavy draft animal	4.7km	37.6km
Light combat mount	6.4km	51.2km
Average combat mount	4.7km	37.6km
Heavy combat mount	3.2km	25.6km
Watercraft		
Raft or barge (poled)*	0.8km	8.0km
Rowboat	2.4km	24.0km
Sailing boat	3.2km	76.8km
Sailing ship	4.0km	96.0km
Large sailing ship	4.8km	115.2km
Rowed Galley	6.4km	64.0km

*Rafts and barges are used on lakes and rivers. If going downstream, add the speed of the current (typically 4.8 kph) to the speed of the vehicle. In addition to 10 hours of being rowed, the vehicle can also float an additional 14 hours, if someone can guide it, so add an additional 67.6 kilometers to the daily distance traveled. These vehicles can't be rowed against any significant current, but they can be pulled upstream by draft animals on the shores.

LIGHT SOURCES

Object	Light	Duration
Match	1.5m	30 seconds
Lighter	1.5m	5 minutes
Candle	1.5m	1 hour
Oil Lamp	4.5m	6 hours per half-liter of oil
Torch	6m	20 minutes
Campfire	9m	4 hours
Bonfire	12m	6 hours
Flashlight*	9m	6 hours
Electric Lantern	9m	8 hours
Cold Light Lantern	9m	3 days

* A cone 9m long and 9m wide at the far end.

damage, and each additional hour causes twice the damage taken during the previous hour.

Run: A character can't run for an extended period of time. Attempts to run and rest in cycles effectively work out to a hustle.

Terrain: The terrain through which a character travels affects how much distance she can cover in an hour or a day.

Forced March: In a day of normal walking, a character walks for 8 hours. The character spends the rest of daylight time making and breaking camp, resting, and eating.

A character can walk for more than 8 hours in a day by making a forced march. For each hour of marching beyond 8 hours, the character makes a Constitution check (DC 10 + 1 per extra hour). If the check fails, the character takes 1d6 points of Stamina damage. It's possible for a character to march into unconsciousness by pushing herself too hard.

Mounted Movement: An animal bearing a rider can move at a hustle. It can also be force-marched, but its Constitution checks automatically fail. See the Mounts and Vehicles tables for mounted speeds and speeds for vehicles pulled by draft animals.

Waterborne Movement: See the Mounts and Vehicles table for speeds for water vehicles.

VISION AND LIGHTING

Characters need a way to see in the dark. See the Light Sources table for the radius that a light source illuminates and how long it lasts. Characters with low-light vision can see objects twice as far away as the given radius.

LI Sensors: Light Intensifying sensors take the ambient light and multiply it electronically, allowing the user to enjoy vision almost as good as under full daylight conditions. Treat any low light condition, except total darkness, as if the light level were normal. A minimal amount of light is required to power LI sensors; a match, a candle, moonlight, even starlight will suffice. LI sensors will not work in total darkness.

IR Sensors: Infrared sensors detect differences in temperature, allowing the user to distinguish most creatures and any objects that are at a different temperature to their surroundings. IR sensors work very well in cold environments, and even in total darkness, but do not work very well in high temperature conditions where the background heat creates interference. IR vision quality is typically lower than for visible light sensors. Treat any low light condition as if it were normally illuminated, but any Spot or Search checks are at a -2 penalty.

PRIOR HISTORY

Traveller characters do not typically begin play as 1st level characters. Instead, they are usually older, more experienced men and women who have served in the armed forces, spent at least a few years learning the tricks of their trade or in academic studies at the University, or all of these. Players who wish to begin play with 1st level characters should consult the Starting Age section and then skip the rest of this chapter.

Term: A term, when used in reference to Prior History, represents a 4-year period of a character's background history (the period before they began adventuring).

Mustering Out: A character who has quit being a member of a service or earning employment as a member of a specific class is said to have "mustered out". This is not the same thing as retiring from a service or profession.

Special Case: Scouts do not exactly muster out of the service. Instead they go on "Detached Duty" for an indefinite period (often the rest of their lives) but can be temporarily recalled to service if necessary. A Scout who goes on Detached Duty in this manner gains normal mustering out benefits, but they are only gained once (when she first goes on Detached Duty). Temporary recall does not earn additional benefits.

Retiring: Retirement is really a special case of mustering out. A character may retire after spending at least 5 terms in a service or employed as a member of a class. A character who retires will earn certain benefits (for long service) in addition to standard mustering out benefits.

Note: There is absolutely nothing to prevent retired characters from beginning an adventuring career. In addition, many ex-military personnel are referred to as "retired" once they have left the service, whatever their age. This is a courtesy to allow personnel to use their service titles to impress people. For example, an ex-Navy character (age 26) might refer to himself as "Sublieutenant Jaime S. Kallen, Imperial Navy (Retired)", which may gain him more respect than merely "Jaime Kallen".

Service: A service is one of the four basic military or quasi-military organizations known as the Army, Marines, Navy, and Scouts. A character may not multiclass into a service class unless they have first spent at least one term of Prior History employment as a member of that service. Except for Scouts, once a character has mustered out of a service they may earn no additional levels in that service class unless returned to active duty by the referee during the course of a campaign.

Profession: Any job or career that is not a service (see above). A character may take employment as a member of any class he or she has at least one level of experience in.

STARTING AGE

Most 1st level human characters begin at age 18. There are exceptions, notably Barbarians and Belters who are age 14 at 1st level instead. An 18 year old 1st level character may either attempt to gain entrance into University and continue their education, or elect to begin developing their Prior History instead. Starting ages for alien lifeforms are listed below.

STARTING AGE BY RACE

Race	*Adult Age*	*Young Adult Age*	*Max Terms*
Human (Solomani)	18	14	7
Mixed Vilani	18	14	8
Vilani	18	14	10
Aslan	14	12	13
Vargr	18	14	7
Luriani	18	14	7
Sydite	18	14	6
Ursa	12	10	5
Virushi	18	14	7

Adult Age: If a character's core class specifies a starting age of adult, this is the age of the character in years.
Young Adult Age: If a character's core class specifies a starting age of young adult, this is the age of the character in years.
Maximum Terms: The maximum number of terms a player character spend in development of their Prior History. This limit does not apply to NPCs.

EDUCATION VS. EMPLOYMENT

A starting character faces a dilemma: enter a career or attend university? It is up to the player to decide which option best suits their planned career path; the character will earn experience and other bonuses whichever they choose.

The Educational Choice: A character with an initial Education score of 10 or higher is considered to be informally educated as a result of personal interest and job-related learning rather than having undertaken a formal course of study at a college or university. Such characters do not have a degree. Therefore the University option remains a viable choice for these highly educated characters, allowing them to earn a formal degree (and the experience acquired from successful University attendance), though they may not necessarily receive an increase in their education score.


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Attendance at the University does not have to be chosen immediately. A character may elect to attend at any point during their Prior History development rather than spending another term in employment. Once they have completed their studies, the character may resume employment if they have not already developed too many terms.

The Path of Employment: Whether fresh off the farm or just out of college, a character has to make a living. A character may attempt to enlist into one of the four military service classes (Army, Navy, Marines, and Scouts), or develop their experience in their core class. While gainfully employed in such endeavors the character will earn experience and possibly other benefits including decorations, citations, promotions, cash, or equipment.

A character may choose to muster out of any service or employment position at the end of any term, and then seek employment in another service or profession (or attend University) if they have not already spent too many terms in Prior History development. However, common sense must apply. Only in circumstances of the direst need will the Imperial Marines accept a recruit aged 38. Similarly, it seems very unlikely that someone would leave the Navy to begin a career in the Army. Such a career path would be highly unusual, even by the standards of player-characters.

UNIVERSITY

It is assumed that a character attending the 'University' has managed to locate an appropriate center of learning of at least TL12, unless the Referee specifies otherwise. A character may apply for admission to one of three programs of study; Bachelor's Degree, Master's Degree, or Doctorate. She must meet the eligibility requirements for the program and pass the entrance examination, or her application will be rejected. A character who fails to enter University can try again in a later term.

Once admitted to a study program, success is still not guaranteed. The character must specify her chosen field of study (biology, interstellar law, criminology, journalism, etc.). The character will spend the next 2-4 years in study before sitting a final examination at the end of the program's course. Characters who pass their final exams will earn an appropriate degree in their chosen field of study. Those who fail leave the university without their degree, but perhaps a bit wiser for their time spent.

Take 10 and Take 20 may not be used when resolving events at the University.

Eligibility: Any requirements the character must meet before applying for admission.

Admission: If a character fails to pass the entrance exam, they may not attend the university this term (no time is lost) and must select another option such as pursuing employment within their core class. If the character passes, they are accepted into the University for the duration of the program.

Characters with at least 1 level in the Academic class may add +1 to all admissions checks.

Graduation: Failing the final exams means the character has spent only half the specified course length in attendance at the University, but leaves after that time without a degree and earns only one-half the normal experience. Passing the final exams means the character has spent the full specified course duration in successful study and has earned a degree along with the full experience point award.

Characters with at least 1 level in the Academic class may add +1 to all graduation checks.

Honors: The truly studious and diligent may be able to graduate with Honors. If the character has successfully graduated from the course, they may see if they earned a position on the University's Honor Roll and an experience point bonus. Failure to make the honors roll means the character does not earn any extra experience for the time the spent, but there is no penalty or censure associated with this.

Characters with at least 1 level in the Academic class may add +1 to all honors checks.

Course Length: The amount of time the character will spend in his or her studies. At the end of the course, the character will have aged the number of years listed here.

BACHELORS PROGRAM

The first of the degree programs, and required before one may attempt to earn higher degrees in a subject. Upon successful admission, the character must specify what their chosen field of study will be; Criminology, Law, Medicine, Journalism, or any other reasonable field that is acceptable to the Referee. Characters that successfully graduate from this program earn a Bachelor of the Arts, Sciences, etc., degree as appropriate. The character may add the initials BA, BSc, etc. to the end of their name as appropriate to reflect their new status, and they may apply for admission into the University's Masters Program for their chosen field if desired.

Eligibility: No requirements.

Admission: Int check vs. DC (22-Edu) to be admitted.

Graduation: Int check vs. DC (22-Edu) to successfully graduate, obtain a degree, and earn 3000xp. If the character's EDU score is 11 or less, it is automatically raised to 12.

Honors: Int check vs. DC (28-Edu) to earn a place on the University Honor Roll, gain a 1000xp bonus, and add +1 to their current EDU score (after graduation).

Course Length: 4 years if graduated, 2 years if failed to graduate. Characters with an Edu ability score of 12+ may complete the course and graduate after 3 years.

MASTERS PROGRAM

A character with a Bachelors degree in a field of study may elect to further their education and pursue a Master's degree. A character's field of study for this program must be the same as their chosen field of study for their Bachelors degree. Characters that successfully graduate from this program earn a Master of the Arts, Sciences, etc., degree as appropriate. The character may add the initials MA, MSc, etc, to the end of their name as appropriate to reflect their new status, and they may apply for admission into a Doctorate Program for their chosen field if desired.

Eligibility: An appropriate Bachelors degree.

Admission: Int check vs. DC (26-Edu) to be admitted.

Graduation: Int check vs. DC (26-Edu) to successfully graduate, obtain a degree, and earn 1500xp. If the character's EDU score is 13 or less, it is automatically raised to 14.

Honors: Int check vs. DC (32-Edu) to earn a place on the University Honor Roll, gain a 500xp bonus, and add +1 to current EDU score (after graduation).

Course Length: 2 years if graduated, 1 year if failed to graduate.

DOCTORATE PROGRAM

A character with a Masters degree in a field of study may elect to complete their education by obtaining their Doctorate degree. A character's field of study for this program must be the same as their chosen field of study for their Masters degree. Characters that successfully graduate from this program earn a Doctorate of the Arts, Sciences, etc., degree as appropriate. The character may add the initials Ph.D. to the end of their names as appropriate to reflect their new status, and they may apply for admission into the University's Doctorate Program for their chosen field if desired. Characters that have graduated with Medicine as their field of study may legally call themselves Physicians, and may append the initials M.D. (Medical Doctor) after their names.

Eligibility: An appropriate Masters degree.

Admission: Int check vs. DC (26-Edu) to be admitted.

Graduation: Int check vs. DC (26-Edu) to successfully graduate, obtain a degree, and earn 1500xp. If the character's EDU score is 15 or less, it is automatically raised to 16.

Honors: Int check vs. DC (32-Edu) to earn a place on the University Honor Roll, gain a 500xp bonus, and add +1 to current EDU score (after graduation).

Course Length: 2 years if graduated, 1 year if failed to graduate.

COURSE TITLES

Players should specify a suitable degree title for their character. Many courses are entirely standard and result in titles such as "BSc Physics". However (and always in agreement with the Referee), a character may earn a degree with a more unusual title, such as "BA Medical Administration". Many universities offer such vocational courses in addition to purely academic studies. Note that a Masters or PhD must be in the same field as a character's Bachelor's degree, but need not have the same title. Higher degrees are often more specialized than bachelor's programs.

There are four basic types of degree that can be earned in the Traveller universe: Arts, Sciences, Engineering and Education. These are abbreviated as follows, with examples:

BSc: Bachelor of Science. These are "pure" science courses, e.g. Physics, Planetology, Xeno-Biology, Metallurgy, Biochemistry.

BA: Bachelor of Arts. These are the most "academic" courses, e.g. Literature, Law, History, Linguistics, Virushi Cultural Studies, Military Studies.

B.Eng: Bachelor of Engineering. These are "Applied Science" courses for the most part, e.g. Starship Engineering, Mining Studies, Information Systems.

B.Ed: Bachelor of Education. This is a specialist vocational course that trains characters to work as instructors or educators, and includes a minor in a specialist subject, e.g. Physics, History etc. Graduates are not so knowledgeable about their specialist subject as their peers leaving a "straight" BA or B.Sc course, but they will have a good working knowledge of psychology and instruction-related skills.

Higher degrees are usually a specialism of a bachelor's course. Thus a B.Sc Physics graduate may then take an M.Sc in Jumpspace Dynamics, Astrophysics or something really esoteric like Gravomagnetic Flux Dynamics. Doctorates are even more specialized.

Optional: A member of the Academic class (at the Referee's discretion) need only ever take one Bachelor's degree, and can then undertake several courses of study at Masters level. A Masters is required as the foundation for each and every Doctorate. Thus a truly information-obsessed Academic might take a BA in History, then MA in Vargr Military History, a second MA in Interstellar Warfare Studies, a PhD (Doctorate) in the tactics of the Vargr Kforuzeng Empire, ANOTHER MA, this time in Planetary Defense Systems, and finally a B.Ed in History (General) in order to secure a teaching job at the Imperial War College. This kind of spectacular academic career is not for everyone. Most people take a Bachelor's and maybe a Master's degree, then get out in the world to start a career. To an Academic, however, study can BE a career...

OFFICER TRAINING CORPS (OTC)

A character studying for a Bachelor's degree may apply for enrollment in the University's Officer Training Corps or OTC. How easy it is to get accepted into OTC depends on which service branch you are planning to join upon graduation. If a character fails to be accepted into OTC, they may continue with other University studies normally. Only one OTC application (successful or not) can be made during a course of study.

If a character accepted into OTC successfully graduates from the University, he or she will be automatically commissioned as an officer in their chosen service and earns a 1000 experience point bonus. If a character is accepted into OTC but fails to graduate from the University, they do not receive a commission nor the experience bonus, and must continue into the appropriate service class. A character who earns a commission in one of the services through OTC must spend the next term of Prior History immediately following graduation employed as a member of the service in which they were commissioned.

Note that while the Scouts are considered a service they do not have an OTC program. Also note that while the Merchants are not considered a service, they do have an OTC program available. The same requirements and rewards apply to Merchant OTC as to military OTC.

OTC ENROLMENT

Planned Service	*Check*
Army (any tech)	Str Ability Check vs. DC10
Marines	Int Ability Check vs. DC12
Navy	Int Ability Check vs. DC12
Merchants	Int Ability Check vs. DC10
Scout/Other	Not Available

EMPLOYMENT

A character can attempt to enlist in one of the services or earn a living as a member of any non-service class in which the character has at least 1 level of experience. If a character is not at least 1st level in a class, they may not take employment as a member of that class. For example, a newly created 1st level Traveller may only choose to seek employment for their first term as a Traveller. If during the course of development, this character multiclasses as a member of the Merchant class, he may then chose to seek employment as either a Traveller or a Merchant.

Anyone may attempt to enlist in a service, and if they meet the class requirements or pass the class fitness test they will be accepted.

Working and serving one or more terms of employment as part of a character's Prior History earns the character a number of useful benefits.

Experience Points: A character will earn an average of 4,000 XP per term (4 years) served. The actual amount received will vary, depending upon whether the character survives the term without 'incident', gets commissioned or promoted, and the character makes his experience bonus award each term.

Decorations: Each term the character 'survives', there is a chance of earning a medal or citation for their actions during the term.

Commissions: Some class prior histories allow for characters to be commissioned as officers. Like promotions, a commission as an officer will earn more benefit opportunities upon leaving the service.

Promotions: Promotions mean higher rank or status, which can equate to more benefits when it comes to leaving or retiring from a service or profession.

Cash Bonuses: It is possible to earn a cash bonus while serving a term in some class prior histories (Belters, Mercenaries, Merchants, and Rogues).

Mustering Out Benefits: Once a character decides to end their prior history in a class, they may be entitled to a number of cash and/or material benefits based on their length of service and rank.

History: The character has a more complete background from which to develop a personal history and personality.

ENLISTING OR GETTING A JOB

Any character with at least 1 level of experience in a non-service class may automatically find employment as a member of that class, unless in the previous term they either mustered out of, or failed their re-enlistment roll as a member of, the same class.

A character may attempt to enlist as a member of a service at any point up to age 33 (4 terms). The services are not interested in training new recruits any older than this.

Each profession or service class gives a set of initial requirements that must satisfied or passed before a character is accepted as a member and may begin work or training. A character may only be an active member of one service or profession at a time during Prior History, but once they muster-out they may attempt to enter a different service or profession.

Basic Training: Upon successfully enlisting into a service (Army, Navy, Marines or Scouts) the character spends the first two years of their first four-year term of service in orientation and initial training. This earns the character an automatic 1000XP bonus. The remaining 2 years of the first term are handled as if it were a normal term of service (see Serving a Term). Experience earned for the term is normal (plus the automatic training bonus), but any Commission checks are at a -2 penalty, any cash bonus earned is halved, and no check is made for an XP bonus.

Characters entering a service after completing OTC at the University do not undergo basic training and serve a normal first term.

SERVING A TERM OF EMPLOYMENT

The following steps outline how to conduct a character serving a term in prior history. Not all steps will apply to the prior history routine of any given class. At the end of each term the player may attempt to reenlist, or may choose to muster out of the current class prior history.

Take 10 and Take 20 may not be used when resolving events during Employment.

1) Duty Assignment: At the start of each 4-year term, the character must roll to see what they duty assignment or job will be for that term. This assignment will determine the Survival, Commission, Promotion, Decoration, Experience Bonus, and Cash Bonus DCs for the term.

2) Survival: Each term the character serves, he or she must check to see if they 'survived' the 4-year term without incident. If the character survives he or she earns 4,000 XP. If the Survival DC is rolled exactly, the character was wounded (or otherwise injured) but survived the incident without jeopardizing their career. If serving in the Army, Navy, or Marines the character is awarded the Purple Heart medal. Since being injured at work represents an unmissable learning opportunity, injured characters of all classes earn a 1000 XP bonus this term.

Failing to survive doesn't actually mean the character has died, but rather that they have suffered some mishap that places their career in jeopardy. Characters failing to survive do not earn any XP this term and forgo any commission, promotion, or XP bonus rolls (but they may take a decoration roll if available; see step 5, Decorations). To find out what went wrong during the term, roll 1d6 on the Survival Mishap table for the appropriate service or profession. If the character was awarded a MCUF, subtract 1 from the Mishap roll. If awarded a MCG, subtract 2 from the roll, and subtract 3 from the roll if awarded an SEH.

Characters can increase their chance of Survival in a given term by taking an increase to their Decoration, Commission, AND Experience Bonus DCs. For every point that is subtracted from the required Survival DC, one point must be added to the Decoration, Commission, AND Experience Bonus DC for this term. This represents a "head down and take no risks" approach during the term.

Alternatively, a character can increase their chance of a Decoration, Commission, AND Experience Bonus in a given term by taking an increase to their Survival DC this term. For every point added to the required Survival DC, the character may subtract one point from the Decoration, Commission, AND Experience Bonus DCs for this term. This represents a daring, risk-taking approach during the term, which can have great benefits or get the character into real trouble. Not all risky situations have the potential for injury, but all have the potential to make the character very unpopular with higher-ups if he or she takes an unnecessary risk and fumbles the ball.

3) Commission: Each term an enlisted character serves, he or she has a chance to be commissioned as an officer. If the roll is successful, the character is commissioned as the lowest rank of officer in the service. A character also receives a 2000 XP bonus when they are commissioned. A character may only be commissioned once in a given class. Scouts and Merchants do not receive commissions.

This does not apply to Scouts, Merchants or Barbarians. Scouts have no service ranks. Merchants and Barbarians do have a ranked command structure, but no separate enlisted and commissioned ranks.

4) Promotion: Promotions in rank or status are available in the prior history for Army, Barbarian, Marines, Mercenary, Merchant, Navy, and Noble classes. Each term served in most services or professions offers a chance of promotion, whether the character is enlisted personnel or an officer. If the character makes their Promotion DC roll, they rise in rank or title. If the character has already reached the highest enlisted or officer rank, then no promotion is received. An enlisted person is not 'promoted' into the officer corps; he or she must be commissioned for this to occur. A character earns 1000 XP every time they are promoted. If there are parenthesis around the Promotion DC number, that is the DC for enlisted personnel. Officers add 2 to the DC - there are more enlisted positions available than commissioned ones.

Scouts do not have ranks and promotions as such, but any Scout that has served 5 or more terms (20 years) or higher is considered to be a Senior Scout.

A character may add +1 to any promotion check for every two completed terms spent in the current service.

Enlisted: Enlisted personal are the lower levels of the command structure and form the majority of the personnel in any service. Depending upon the service, they represent the junior leaders such as team leaders, foremen and non-commissioned officers, and the "workers" such as technicians, soldiers, deckhands, clerks, nursing staff, couriers, apprentices and other people that do the majority of the actual work in any given profession.

Officers: Officers are the overseers and administrators in any service. They are the ones to make the plans and give the orders for the enlisted personnel to carry out. Unless a character enlists into a background class having completed OTC at the University, or having graduated from the University with Honors, the only other way to become an officer is to be commissioned during service.

Merchants entering the profession after completing OTC begin at a rank of O2 rather than O1 as normal.

5) Decoration: For some services, there may also be a chance of earning a decoration, medal, or citation for the character's actions on duty during the term. If the Decoration DC is made, the character will earn a citation for Meritorious Conduct Under Fire (MCUF) and a 2000 XP bonus this term. If the roll is at least 5 points higher than the required DC, the character earns a Medal for Conspicuous Gallantry (MCG) and a 4000 XP bonus. For a roll at least 10 points higher than the required DC, the character earns a Starburst for Extreme Heroism (SEH) and an 8000 XP bonus. Scouts and Merchants do not receive decorations. The medals listed apply to the military services (Army, Navy and Marines). Other services have equivalent citations, though these are not usually for gallantry in combat.

6) Experience Bonus: Every service and profession offers the chance to earn an experience point bonus award each term. Successfully making the character's Experience Bonus DC roll will earn them a 1d4 x 1000 XP bonus to any XP already earned this term through survival, commissioning, or promotion.

7) Cash Bonus: Characters serving in some services and professions have an opportunity each term to earn a cash bonus. If the Cash Bonus check is successful, the character may roll once on the Cash Benefits table under Mustering Out Benefits for that particular service or profession.

8) Apply Aging Effects: If the character has aged to the point where they may need to make roll on the aging table (see pg. 114), they should do so now.

9) Applying Experience: Add the experienced earned for this term to the total for the character. If the character has gone up a level, apply all the bonuses for the new level (Skills, feats, stamina, etc).

10) Reenlistment/Continued Employment: After each successfully completed term of employment (i.e. one in which they didn't get thrown out of the service!), the character must check to see if the service or profession 'requires' continued enlistment or employment for another term, or even would like the character to stay on at all. If you an unmodified 20 is rolled on the Reenlistment/Continued Employment die roll, the character must serve another four-year term even if this would take them past the normal maximum number of terms. If the Reenlistment/Continued Employment DC roll is made, the character may voluntarily continue for another term if they have served 6 or fewer previous terms. Failing to make the Reenlistment/Continued Employment roll means that the service or profession no longer requires the character's services for some reason, and they may not reenlist or continue.

RETIRING AND MUSTERING OUT

A character may voluntarily serve up to 7 terms (more or less, depending on the character's race. See The Effects of Aging pg. 114) in a service or profession. Only through mandatory reenlistment may any character serve more than 7 terms. At any time up to the completion of the 4th term the character may 'muster out' and leave the service or simply quit their job. If the character has served 5 or more terms they may retire instead with a yearly pension based on the total number of terms served.

RETIREMENT PAY

Terms Served	*Yearly Pension*
5 terms	Cr4,000
6 terms	Cr6,000
7 terms	Cr8,000
8+ terms	Cr10,000

Cash and Material Benefits: Whether retiring or just mustering out, a character is entitled to cash and/or material benefits. For every term they have served, 1 benefit roll is earned. If the character is an officer with a final rank of O1 or O2 they receive 1 extra benefit roll, a final rank of O3 or O4 receives 2 extra benefit rolls, and a final rank of O5 or higher receives 3 extra benefit rolls.

RETIREMENT/MUSTERING OUT BENEFIT ROLLS EARNED

Accomplishment	*Rolls Earned*
Per term of service	1
If Officer Rank O1 or O2	1
If Officer Rank O3 or O4	2
If Officer Rank O5 or higher	3

There are two Benefits tables, Cash and Material Benefits. Up to a maximum of 3 rolls (excluding Cash Bonuses earned during service) may be taken on the Cash table. Any number of rolls may be taken on the Material Benefits table. Characters that are officers with a final rank of O5 or higher may add +1 to any roll on the Material Benefits table, and characters with Gambling skill are allowed to add +1 to any roll on the Cash table.

The various material benefits available from each profession or service are detailed below.

Blade: The character may select any one bladed weapon available (up to Cr100 in value) and add it to his or her possessions. The weapon must be selected immediately upon receipt of this benefit, or the character may elect to "sell" the weapon for 90% of its value (Cr90) instead and pocket the cash.

Education: The character's Education ability score is raised by the given amount.

Gun: The character may select any one handgun, rifle, shotgun, or submachine gun available (up to Cr500 in value) and add it to his or her possessions. The weapon must be selected immediately upon receipt of this benefit, or the character may elect to "sell" the weapon for 90% of its value (Cr450) instead and pocket the cash.

High Passage: The character receives a high passage ticket entitling him or her to first class (high) passage on any ship headed between one world and the next world visited by the ship. High passage includes excellent cuisine and allows up to one ton of baggage. A high passage normally costs Cr10,000 when purchased. This high passage ticket may be cashed in for 90% of its value (Cr9000) if desired.

Intelligence: The character's Intelligence ability score is raised by the given amount.

Low Passage: The character receives a ticket entitling him or her to low passage on any starship between one world and its next destination. This type of passage involves travelling via a cryogenic capsule (cold sleep or suspended animation). Passengers are unconscious for the entire course of the journey. As a side benefit, one does not age while in cold sleep. Unfortunately this does not offset the intrinsic dangers involved in this type of travel if proper medical supervision is not available upon awakening. Low passage costs Cr1000 when purchased and includes a 10kg baggage allowance. This low passage ticket may be cashed in for 90% of its value (Cr900).

Middle Passage: The character receives a ticket entitling him or her to middle passage on any starship between one world and its next destination. Middle passage includes second-class accommodation (still of reasonable quality), passable food and drink, and up to 100kg of baggage. The passenger is expected to tend to his or her own affairs (maid service, laundry, cleaning, etc.) during the voyage. Middle passage costs Cr8000 when purchased, and this middle passage may be cashed in for 90% of its value (Cr7200) if desired.

TAS Membership: This benefit may only be received once. Any subsequent receipt of it is ignored (and not rerolled). The Travellers' Aid Society (TAS) is a private organization, which maintains hostels and facilities at all class A and B starports in human space. Such facilities are available (at a reasonable cost) to members and their guests. In addition to the use of TAS facilities and services, each member receives a free high passage ticket every two months. This ticket may be kept, used, or cashed in for 90% of its value (Cr9000) as needed.

In addition to earning membership when mustering out, membership may be purchased for an initiation fee of Cr1,000,000. Membership is for the life of a character, and may not be transferred.

Social Standing: The character's Social Standing ability score is raised by the given amount.

Vehicle: The character may select any vehicle available (up to Cr5000 in value) and add it to his or her possessions. The vehicle must be selected immediately upon receipt of this benefit, or the character may elect to "sell" the vehicle for 90% of its value (Cr4500) instead and pocket the cash.

Weapon: The character may select any one weapon (of any type) up to Cr1000 in value and add it to his or her possessions. The weapon must be selected immediately upon receipt of this benefit, or the character may elect to "sell" the weapon for 90% of its value (Cr900) instead and pocket the cash.

Scout Ship: It is the policy of most Scout Services to make surplus Scout ships available to selected members of the service that are entering detached duty (mustering out). The recipient is free to use the vessel for any legal purposes, but both the ship and its captain are subject to recall to active duty at any time without prior notice. The ship remains the legal property of the Scout Service and may not be sold. Fuel for these ships is available for free at any Scout base, and maintenance is also free at any Scout base located at a class B or A starport. The captain is responsible for any other upkeep and crew costs.

Other Starships: The character receives title and ownership to some type of starship (Free Trader, Yacht, Lab Ship, Mercenary Cruiser, or Seeker) depending upon the class they are mustering out of. The ship's purchase loan is not paid off, however, and the character is now responsible for the monthly bank payments, maintenance, crew costs, and other expenses.

If the character receives this benefit more than once (from any prior history class), each subsequent receipt indicates that the original ship received is actually 10 years older, and the total payment term on the load is reduced by ten years. By this method it is possible for a character to end up with a ship, owned free and clear, by successfully receiving this benefit five times (once to receive the ship, four times to pay off the 40-year loan.) Such a ship is at least 40 years old, obviously.

ACADEMIC

CORE CLASS

Continued Employment: DC2

RANKS

There are no ranks in the Academic service.

EARNED BENEFITS

	Cash Benefits
1	Cr1000
2	Cr2000
3	Cr5000
4	Cr10000
5	Cr20000
6	Cr30000
7	Cr40000

	Material Benefits
1	Low Passage
2	Middle Passage
3	High Passage
4	+1 Social Standing
5	Gun
6	Lab Ship
7	No benefit



DUTY ASSIGNMENT

1d20	*Assignment*	*Survive DC*	*Deco DC*	*XP Bonus DC*
1-4	School	auto	none	4
5-10	Teaching Assignment	2	20	12
11-14	Lecture Circuit	4	8	10
15-17	Field Research	6	10	8
18-19	Classified Project	8	14	6
20	Top Secret Research	8	16	4
	Ability Modifier	*Edu*	*None*	*None*

SURVIVAL MISHAPS

1D	*Mishap*
1	No further action
2	Tenure ends with Emeritus honors. (In effect the character is honorably discharged)
3	Lecture on questionable subject matter draws ridicule from academic community. Lose 1 point Soc.
4	Accused of dishonorable conduct with a student. Ensuing scandal leads to dismissal. Lose all benefits.
5	Accusations of lecturing on seditious subject matter (e.g. Psionics) leads to a conviction. Dismissed and forced to serve an extra 4 years in prison. Lose all benefits.
6	A temporarily debilitating mental illness forces early end of tenure. Lose 1d6-3 (minimum 1 point) points from either Int or Wis.

ACADEMIC DECORATIONS

These decorations should be used for Academics in place of those described under the Decoration section earlier for military personnel.

FF (Foundation Fellowship): An award of merit from one of the multitude of independent charitable and research foundations throughout charted space. Received if the Decoration roll was successful.

SA (Science Academy): Enlisted in the ranks of scholars who have made a serious contribution to their fields. (A peer-review process). Received if the Decoration roll was greater than the DC by at least 5. Supersedes the FF award.

ZP (The Zhunastu Prize): A prize awarded by a committee once every 4 years in various categories (Literature, Physics, Medicine etc), it is the pinnacle in scholarly recognition. The prize was established by Emperor Cleon II, after his abdication, and funded by a large endowment provided from Zhunastu Industries profits at the time. Received if the Decoration roll was greater than the DC by at least 10. Supersedes the FF and SA awards.

ARMY
SERVICE CLASS

Reenlistment: DC9

RANKS

Enlisted	
E1	Private
E2	Corporal
E3	Sergeant
E4	Sergeant First Class
E5	First Sergeant
E6	Sergeant Major
Commissioned	
O1	Lieutenant
O2	Captain
O3	Major
O4	Lieutenant Colonel
O5	Colonel
O6	General

MUSTERING OUT BENEFITS

Cash Benefits	
1	Cr2000
2	Cr5000
3	Cr10000
4	Cr10000
5	Cr10000
6	Cr20000
7	Cr30000
Material Benefits	
1	Low Passage
2	+1 Intelligence
3	+2 Education
4	Weapon
5	Middle Passage
6	High Passage
7	+1 Social Standing



SURVIVAL MISHAPS

1D	Mishap
1	No further action
2	Demoted, lose one rank of service (e.g. a sergeant becomes a corporal)
3	Honorably discharged from the service.
4	Dishonorably discharged from the service. Lose all benefits
5	Dishonorably discharged from the service after serving an extra 4 years in prison for a crime. Lose all benefits
6	Medically discharged from the service. Lose 1d6-3 (minimum 1 point) points from any one of: Str, Dex, Con, or Cha.

DUTY ASSIGNMENT

1d20	*Assignment*	*Survive DC*	*Comm DC*	*Rank Promo DC*	*Deco DC*	*XP Bonus DC*
1-4	Training	auto	none	(6)	none	8
5-10	Garrison	auto	none	(8)	none	none
11-14	Internal Security	2	none	(6)	20	none
15-17	Police Action	4	10	12	14	8
18-19	Counter Insurgency	4	12	14	17	12
20	Raid	6	4	6	6	4
	Ability Modifier	*Edu*	*Con*	*Edu*	*None*	*None*

BARBARIAN
CORE CLASS

Continued Employment: Automatic

RANKS

O1	-
O2	Hunter
O3	Warrior
O4	War Chief
O5	Tribe/Clan Chief
O6	Elder



EARNED BENEFITS

	Cash Benefits
1	None
2	None
3	Cr1000
4	Cr2000
5	Cr3000
6	Cr4000
7	Cr5000

	Material Benefits
1	Low Passage
2	Blade
3	Blade
4	Blade
5	No Benefit
6	High Passage
7	High Passage

DUTY ASSIGNMENT

1d20	*Assignment*	*Survive DC*	*Rank Promo DC*	*XP Bonus DC*
1-4	Village	4	18	16
5-10	Migration	6	16	12
11-14	Hunting	8	14	8
15-17	Raid	8	12	6
18-19	War	10	10	4
20	Exploration	10	12	8
	Ability Modifier	*Str*	*Int*	*None*

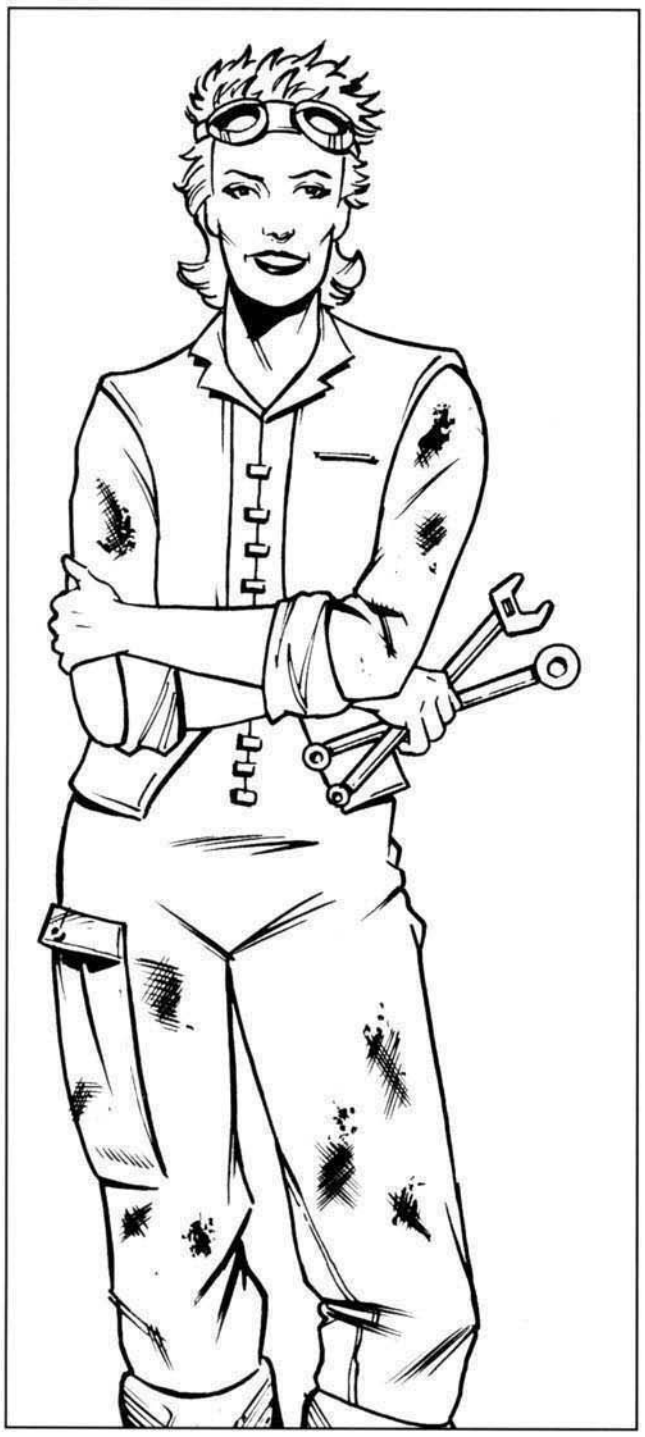
SURVIVAL MISHAPS

1D	*Mishap*
1	No further action
2	Loss of Face before tribe, lose one rank (e.g. a Warrior becomes a Hunter)
3	Sent into the larger world for good of Tribe (effectively discharged)
4	Disgraced the Tribe and banished. Lose all benefits.
5	Dishonored the Tribe, and forced into slavery for 4 years. Lose all benefits.
6	Believed to be cursed. Beaten almost to death and driven out of the Tribe. Lose 1d6-3 (minimum 1 point) points from any one of: Str, Dex, Con, or Cha.

BELTER
CORE CLASS

Continued Employment: DC9

RANKS
There are no ranks in the Belters service.



EARNED BENEFITS

Cash Benefits

1	None
2	None
3	Cr1000
4	Cr1000
5	Cr100000
6	Cr100000
7	Cr100000

Material Benefits

1	Low Passage
2	+1 Intelligence
3	Weapon
4	High Passage
5	TAS Membership
6	Seeker
7	No Benefit

DUTY ASSIGNMENT

1d20	*Assignment*	*Survive DC*	*Cash Bonus DC*	*XP Bonus DC*
1-4	Portside	4	none	18
5-10	Contract Work	9	22	14
11-14	Rush Region	14	20	10
15-17	Trojan Points	16	18	10
18-19	Belt Fringe	18	16	8
20	Rumor	16	14	10
	Ability Modifier	*	**	*none*

** +1 per term*

*** Prospecting Skill Check*

SURVIVAL MISHAPS

1D	*Mishap*
1	No further action
2	Robbed. Lose any cash bonus for this term.
3	Claim Jumped. Lose all cash bonus for this term and any prior terms
4	Fired/Banned. Discharged from employment, lose all benefits
5	Stranded/Betrayed. Choose between spending 4 years in low berth or 4 years in prison. Lose all benefits
6	Severe Injury. Lose 1d6-3 points (minimum of 1 point) from any one of: Str, Dex, Con, or Cha.

MARINES
SERVICE CLASS

Reenlistment: DC7

RANKS

	Enlisted
E1	Private
E2	Lance Corporal
E3	Corporal
E4	Sergeant
E5	Gunnery Sergeant
E6	Sergeant Major
	Commissioned
O1	Lieutenant
O2	Captain
O3	Force Commander
O4	Lieutenant Colonel
O5	Colonel
O6	Brigadier

MUSTERING OUT BENEFITS

	Cash Benefits
1	Cr2000
2	Cr5000
3	Cr5000
4	Cr10000
5	Cr20000
6	Cr30000
7	Cr40000

	Material Benefits
1	Low Passage
2	+2 Intelligence
3	+1 Education
4	Weapon
5	TAS Membership
6	High Passage
7	+2 Social Standing



SURVIVAL MISHAPS

1D	*Mishap*
1	No further action
2	Demoted, lose one rank of service (i.e. a sergeant becomes a corporal)
3	Honorably discharged from the service.
4	Dishonorably discharged from the service. Lose all benefits.
5	Dishonorably discharged from the service after serving an extra 4 years in prison for a crime. Lose all benefits
6	Medically discharged from the service. Lose 1d6-3 (minimum 1 point) points from any one of: Str, Dex, Con, or Cha.

DUTY ASSIGNMENT

1d20	*Assignment*	*Survive DC*	*Comm DC*	*Rank Promo DC*	*Deco DC*	*XP Bonus DC*
1-4	Training	auto	none	(6)	none	8
5-10	Ship's Troops	2	none	(6)	20	6
11-14	Internal Security	2	none	(6)	20	none
15-17	Police Action	4	14	12	12	8
18-19	Counter Insurgency	4	16	14	14	12
20	Raid	6	8	6	4	4
	Ability Modifier	*Edu*	*Con*	*Edu*	*None*	*None*

MERCENARY
CORE CLASS

Continued Employment: DC9

RANKS

	Enlisted	
E1	Private	
E2	Corporal	
E3	Sergeant	
E4	Gunnery Sergeant	
E5	First Sergeant	
E6	Sergeant Major	
	Commissioned	
O1	Second Lieutenant	
O2	First Lieutenant	
O3	Captain	
O4	Lieutenant Colonel	
O5	Colonel	
O6	-	

MUSTERING OUT BENEFITS

	Cash Benefits
1	Cr2000
2	Cr5000
3	Cr10000
4	Cr10000
5	Cr10000
6	Cr20000
7	Cr30000

	Material Benefits
1	Low Passage
2	+1 Intelligence
3	+2 Education
4	Weapon
5	Middle Passage
6	High Passage
7	Mercenary Cruiser

DUTY ASSIGNMENT

1d20	Assignment	Survive DC	Comm DC	Rank Promo DC	XP Bonus DC	Cash Bonus DC
1-4	Training	auto	none	(8)	10	none
5-8	Recruiting	auto	none	(10)	none	none
9-14	Cadre	4	none	(8)	none	16
15-17	Security Forces	6	10	12	10	14
18-19	Commando Raid	6	12	14	12	10
20	Striker Mission	8	6	8	4	8
	Ability Modifier	*Edu*	*Con*	*Edu*	*None*	*Rank **

*Officers 2x rank



SURVIVAL MISHAPS

1D	Mishap
1	No further action
2	Demoted, lose one rank of service (e.g. a sergeant becomes a corporal)
3	Honorably discharged from the service.
4	Dishonorably discharged from the service. Lose all benefits
5	Dishonorably discharged from the service after serving an extra 4 years in prison for a crime. Lose all benefits
6	Medically discharged from the service. Lose 1d6-3 (minimum 1 point) points from any one of: Str, Dex, Con, or Cha.

MERCHANTS
CORE CLASS

Continued Employment: DC4

RANKS

O1	Apprentice
O2	Crewman
O3	Petty Officer
O4	Junior Officer
O5	Senior Officer
O6	Executive Officer



EARNED BENEFITS

	Cash Benefits
1	Cr1000
2	Cr5000
3	Cr10000
4	Cr20000
5	Cr30000
6	Cr50000
7	Cr90000

	Material Benefits
1	Low Passage
2	+2 Intelligence
3	Middle Passage
4	High Passage
5	Weapon
6	TAS Membership
7	Free Trader

DUTY ASSIGNMENT

1d20	*Assignment*	*Survival DC*	*Rank Promotion DC*	*XP Bonus DC*	*Cash Bonus DC*
1-4	Planetside	auto	20	12	none
5-10	Route	auto	16	8	20
11-14	Charter	2	18	8	20
15-17	Exploratory	3	12	4	18
18-19	Speculative	3	10	6	16
20	Special*	6	none	4	6
	Ability Modifier	*Edu*	*Con*	*Edu*	*None*

* Piracy, smuggling, free trading, or similar risky venture.

Cash Bonus: If the Cash Bonus check is successful, roll once on the cash benefits table under Mustering Out. The character receives one-half the amount indicated.

SURVIVAL MISHAPS

1D	*Mishap*
1	No further action
2	Pirate Attack. Lose any cash bonus for this term.
3	Honorably discharged from the service.
4	Dishonorably discharged from the service. Lose all benefits
5	Dishonorably discharged from the service after serving an extra 4 years in prison for a crime. Lose all benefits
6	Medically discharged from the service. Lose 1d6-3 (minimum 1 point) points from any one of: Str, Dex, Con, or Cha.

NAVY
SERVICE CLASS

Reenlistment: DC6

RANKS

Enlisted	
E1	Recruit
E2	Space Hand
E3	Petty Officer
E4	Chief Petty Officer
E5	Senior Chief
E6	Master Chief
Commissioned	
O1	Ensign
O2	Lieutenant
O3	Lt. Commander
O4	Commander
O5	Captain
O6	Admiral

MUSTERING OUT BENEFITS

Cash Benefits	
1	Cr1000
2	Cr5000
3	Cr5000
4	Cr10000
5	Cr20000
6	Cr50000
7	Cr50000
Material Benefits	
1	Low Passage
2	+1 Intelligence
3	+1 Education
4	Weapon
5	TAS Membership
6	High Passage
7	+1 Social Standing



SURVIVAL MISHAPS

1D	Mishap
1	No further action
2	Demoted, lose one rank of service (e.g. a petty officer becomes a spacehand.)
3	Honorably discharged from the service.
4	Dishonorably discharged from the service. Lose all benefits
5	Dishonorably discharged from the service after serving an extra 4 years in prison for a crime. Lose all benefits
6	Medically discharged from the service. Lose 1d6-3 (minimum 1 point) points from any one of: Str, Dex, Con, or Cha.

DUTY ASSIGNMENT

1d20	*Assignment*	*Survive DC*	*Comm DC*	*Rank Promo DC*	*Deco DC*	*XP Bonus DC*
1-4	Training	auto	none	(6)	none	8
5-10	Shore Duty	2	none	(8)	20	8
11-14	Patrol	2	10	8	19	6
15-17	Siege	4	14	12	16	6
18-19	Strike	6	10	8	8	4
20	Battle	6	8	6	6	4
	Ability Modifier	*Int*	*Soc*	*Edu*	*None*	*None*

NOBLE
CORE CLASS

Reenlistment: automatic

RANKS

Rank among nobles is based on one's standing in society, i.e. Social Standing ability score.

Soc	*Noble Rank*
16	Knight, Knightess, Dame
18	Baron, Baroness, Baronet
20	Marquis, Marquesa, Marchioness
22	Count, Countess
24	Duke, Duchess
26	Archduke, Archduchess
28	Crown Prince, Crown Princess
30	Emperor

MUSTERING OUT BENEFITS

	Cash Benefits
1	Cr10,000
2	Cr50,000
3	Cr50,000
4	Cr100,000
5	Cr100,000
6	Cr100,000
7	Cr200,000

	Material Benefits
1	High Passage
2	High Passage
3	Weapon
4	Weapon
5	TAS Membership
6	Yacht
7	Nothing

DUTY ASSIGNMENT

1d20	*Assignment*	*Survive DC*	*Rank Promo DC*	*XP Bonus DC*
1-4	Grand Tour	3	23	9
5-10	Government Post	4	22	8
11-14	Diplomatic Post	4	21	8
15-17	Family Business	3	20	9
18-19	Moot Meetings	5	19	7
20	Secret Mission	6	18	6
	Ability Modifier	*Int*	*Int*	*None*



SURVIVAL MISHAPS

1D	*Mishap*
1	No further action
2	Dueling injury. Lose 1 point from Dex or Str
3	Enemies ascendant at Moot. Effectively discharged
4	Family involved in scandal. Effectively discharged. Lose benefits
5	Anger the Emperor, drop to SOC 11 + 1d4, expelled from service
6	Convicted of High Crime by Moot. Drop to SOC 9 + 1d6 (SOC must drop at least 1 point). Serve 4 years in prison.

PROFESSIONAL
CORE CLASS

Continued Employment: DC2

RANKS

E1	Employee
E2	-
E3	-
E4	Supervisor
E5	-
E6	-

O1	Junior Assistant
O2	Assistant
O3	Manager
O4	Senior Manager
O5	Vice-President
O6	Board Member

EARNED BENEFITS

Cash Benefits

1	Cr5000
2	Cr10000
3	Cr20000
4	Cr30000
5	Cr50000
6	Cr75000
7	Cr100000

Material Benefits

1	Low Passage
2	+1 Intelligence
3	+1 Education
4	Weapon
5	High Passage
6	Gold Watch
7	Vehicle

DUTY ASSIGNMENT

1d20	Assignment	Survive DC	XP Bonus DC	Comm DC	Rank Promo DC
1-4	Government Service	3	9	12	(8)
5-10	Corporate Service	4	8	10	(6)
11-14	Consulting Firm	4	8	10	6
15-17	Private Practice	5	7	8	8
18-19	Service to Noble House	5	6	6	6
20	Frontier Assignment	6	5	6	8
	Ability Modifier	*Int*	*None*	*Soc*	*Int*



SURVIVAL MISHAPS

1D	Mishap
1	No further action.
2	Minor industrial accident. Lose 1 point from either Str or Dex.
3	Laid off with no call back date. Effectively discharged.
4	Declared overqualified in private sector. Effectively honorably discharged.
5	Shady business dealings revealed to public. Lose 2 points of Soc and spend 4 years in prison. Lose all benefits.
6	Chronic medical problems prohibit continued employment. Lose 1d6-3 points (minimum 1 point) from either Str or Con. Discharged.



ROGUE
CORE CLASS

Continued Employment: DC2

RANKS

There are no ranks among Rogues.

EARNED BENEFITS

Cash Benefits

1	Cr5000
2	Cr10000
3	Cr20000
4	Cr30000
5	Cr50000
6	Cr75000
7	Cr100000

Material Benefits

1	Low Passage
2	+1 Intelligence
3	+1 Education
4	Weapon
5	High Passage
6	Vehicle
7	Nothing

DUTY ASSIGNMENT

1d20	*Assignment*	*Survive DC*	*XP Bonus DC*	*Cash Bonus DC*
1-4	Free-lancing	6	6	20
5-10	Information Gathering	5	7	20
11-14	Smuggling	6	6	18
15-17	Acquisition	6	6	16
18-19	Enforcement	7	5	18
20	Big Caper	8	4	14
	Ability Modifier	*Int*	*None*	*Int*

SURVIVAL MISHAPS

1D	*Mishap*
1	No further action.
2	Violent incident. Lose 1 point from either Str or Dex.
3	Gang or group smashed by law enforcement; character escapes. Effectively discharged.
4	Gang leaders retire on the profits and disband the group. Effectively honorably discharged.
5	Caught and convicted. Lose 2 points of Soc and spend 4 years in prison. Lose all benefits.
6	Injured in serious violent incident or arrest attempt. Lose 1d6-3 points from either Str or Con. Discharged.

SCOUTS
SERVICE CLASS

Reenlistment: DC2



RANKS

There are no ranks in the scouts, although any scout who has served 5 or more terms is considered a Senior Scout.

MUSTERING OUT BENEFITS

	Cash Benefits
1	Cr20000
2	Cr20000
3	Cr30000
4	Cr30000
5	Cr50000
6	Cr50000
7	Cr50000

	Material Benefits
1	Low Passage
2	+2 Intelligence
3	+2 Education
4	High Passage
5	Weapon
6	Scout Ship
7	Nothing

DUTY ASSIGNMENT

1d20	*Assignment*	*Survival DC*	*XP Bonus DC*
1-4	Training	auto	auto
5-8	Base	2	10
9-14	Routine	4	8
15-17	Mission	6	6
18-19	Special Mission	8	6
20	War Mission	6	6
	Ability Modifier	*Con*	*None*

SURVIVAL MISHAPS

1D	*Mishap*
1	No further action
2	Minor, but prolonged injury, Lose any service feat earned this term.
3	Placed on Detached Duty (effectively discharged from the service, but may be recalled in times of need)
4	Dishonorably discharged from the service. Lose all benefits
5	Dishonorably discharged from the service after serving an extra 4 years in prison for a crime. Lose all benefits
6	Medically discharged from the service. Lose 1d6-3 (minimum 1 point) points from any one of: Str, Dex, Con, or Cha.



TRAVELLER
CORE CLASS

Continued Employment: DC2

RANKS

There are no ranks among Travellers.

EARNED BENEFITS

	Cash Benefits
1	Cr10000
2	Cr20000
3	Cr40000
4	Cr60000
5	Cr80000
6	Cr100000
7	Cr250000

	Material Benefits
1	High Passage
2	+1 Intelligence
3	+1 Education
4	Vehicle
5	TAS Membership
6	Ship
7	Nothing

DUTY ASSIGNMENT

1d20	*Assignment*	*Survive DC*	*XP Bonus DC*
1-4	Personal Business	3	9
5-10	Corporate Troubleshooting	4	8
11-14	Service to Noble House	4	8
15-17	Government Service	3	9
18-19	Frontier Opportunity	5	7
20	Secret Mission	6	6
	Ability Modifier	*Int*	*None*

SURVIVAL MISHAPS

1D	*Mishap*
1	No further action.
2	Minor injury. Lose 1 point from either Str or Dex.
3	Became disaffected with Travelling for a time. Effectively discharged.
4	Settled down to a steady job. Effectively honorably discharged.
5	Shady escapade leads to arrest. Lose 1 points of Soc and spend 4 years in prison. Lose all benefits.
6	Serious injury. Lose 1d6-3 (minimum 1 point) points from any one of: Str, Dex, Con, or Cha.

PRIOR HISTORY EXAMPLE

This example takes you through the steps used in creating a 6th level Rogue named *Kaane Haamasir.* The familiar steps of determine the ability scores of a character, selecting a race, and choosing a class are not detailed here; instead simply the results of those steps are shown.

1) ABILITIES

Str: 16, Dex: 11, Con: 14, Int: 9, Wis: 8, Cha: 16, Edu: 14, Soc: 10

An energetic young man, not bright enough to keep from getting into trouble, but charming enough to be able to talk his way out. Usually...

2) RACE

Mixed Human.

Kaane elects to be a mixed race human, as this race has the greatest flexibility when developing a character.

3) HOMEWORLD

Very High Technology, Non-Agricultural Vacuum world

Kaane rolls a 6 on the World technology table, meaning he is from a Very High Technology homeworld. Rolling a 10 on the world trade classification indicates that it is "Va Na" or a Non-Agricultural Vacuum world. These worlds are usually mining and manufacturing centers run by a large interstellar corporation.

Kaane's Very High Tech homeworld means he can add T/Computer to his class skill list, plus three other skills. He selects T/Mechanical and T/Communications from the Non-Agricultural list (remember that a character can select skills up to 2 tech bands lower than his own) and T/Astrogation from the Vacuum world list. These skills become class skill regardless of which class Kaane selects.

Kaane also gets the following feats: Vessel/Grav, Vacc Suit and selects Zero-G/Low Gravity Adaptation from the world list.

4) CLASS

Rogue

Kaane does not want to live the life of a corporate drone, and selects the Rogue Class. Here is what Kaane looks like at first level:

Kaane Haamasir
1st level Rogue, 18 years old. Height: 195 cm, Weight: 170 kg
Abilities: *Str: 16, Dex: 11, Con: 14, Int: 9, Wis: 8, Cha: 16, Edu: 14, Soc: 10*
Skills: *T/Mechanical-0, Intimidate-3, Bribery-1, Driving (Vessel/Grav)-3, T/Computer-3, Astrogation-2, Innuendo-1, T/Communication-1*
Feats: *Armor Proficiency (Light), Armor Proficiency (Medium), Weapon Proficiency (Swordsman), Weapon Proficiency (Marksman), Fence Stolen Goods, Fast Talk*
Stamina: *8*
Lifeblood: 14
Speed: *9 meters*
BAB: *+0*
Experience: *0*

5) UNIVERSITY AND PRIOR HISTORY

As a rogue, Kaane does not have the opportunity to go to University, so he sets off to make his fortune among the stars and enrolls in the Rogue Prior History career.

6) ROGUE PRIOR HISTORY TERM 1

Duty Assignment: For Term 1, Kaane rolls a 6 for duty assignment and does some Information Gathering for the group he has hooked up with.

Survival: He rolls a 9 on 1d20 for survival, subtracting -1 for his Intelligence modifier for a total of 8 against a Survival DC of 5, making it through the term without problems.

XP Bonus: Checking to see if he earns an XP bonus, Kaane rolls an 11 on 1d20 (no modifiers for an XP Bonus check) against a DC of 7, earning himself an additional experience point bonus for this term. He rolls a 1 on 1d4 for a bonus of 1000XP.

Cash Bonus: Unfortunately for Kaane however, he only rolls a 16 on 1d20 when determining if he earns a cash bonus as well this term. With the -1 penalty of his Intelligence modifier, for a total of 15 is 5 points below the DC of 20 needed for some extra cash.

In all, Kaane has aged 4 years (he is now 22), earned a total of 5000XP (4000XP for survival and 1000xp for the bonus), and is now 3rd level.

Kaane Haamasir
2nd level Rogue, 18 years old. Height: 195 cm, Weight: 170 kg
Abilities: *Str: 16, Dex: 11, Con: 14, Int: 9, Wis: 8, Cha: 16, Edu: 14, Soc: 10*
Skills: *T/Mechanical-0, Intimidate-4, Bribery-1, Driving (Vessel/Grav)-4, T/Computer-3, Astrogation-2, Innuendo-1, T/Communication-1, Appraise-2*
Feats: *Armor Proficiency (Light), Armor Proficiency (Medium), Weapon Proficiency (Swordsman), Weapon Proficiency (Marksman), Fence Stolen Goods, Fast Talk, Connections (Underworld)*
Stamina: *17*
Lifeblood: *14*
Speed: *9 meters*
BAB: *+0*
Experience: *1000*

Kaane Haamasir
3rd level Rogue, 22 years old. Height: 195 cm, Weight: 170 kg
Abilities: *Str: 16, Dex: 11, Con: 14, Int: 9, Wis: 8, Cha: 16, Edu: 14, Soc: 10*
Skills: *T/Mechanical-0, Intimidate-5, Bribery-4, Driving (Vessel/Grav)-4, T/Computer-3, Astrogation-2, Innuendo-1, T/Communication-1, Appraise-2, Gather Information-2*
Feats: *Alertness, Armor Proficiency (Light), Armor Proficiency (Medium), Connections (Underworld), Weapon Proficiency (Swordsman), Weapon Proficiency (Marksman), Fence Stolen Goods, Fast Talk*
Stamina: *23*
Lifeblood: *14*
Speed: *9 meters*
BAB: *+2*
Experience: *5000*

7) ROGUE PRIOR HISTORY TERM 2

Continued Employment: For Term 2, Kaane rolls a 12 on 1d20 to see if he manages to continue his employment with his present gang (a DC of 2), easily earning himself a spot with his comrades for another term.

Duty Assignment: Rolling on the duty assignment table results in a 15, showing us that Kaane spends this term 'acquiring' certain items on behalf of himself and/or his comrades.

Survival: A survival check roll of 20 (-1 for his Int modifier) against a DC of 6 lets Kaane breezing through this term without a hitch.

XP Bonus: A roll of 12 for his XP bonus (DC6) earns Kaane another experience bonus award this term. Rolling 1d4 to see what the XP bonus is this term Kaane gets a 2, for a bonus of 2000XP.

Cash Bonus: His luck continues to hold with a roll of 17 while checking for a possible cash bonus. Even with a -1 penalty due to his Intelligence, his final total of 16 is just enough to earn him a free roll on the cash benefits table this term. Rolling 1d6 on the table for a roll of 4 increases Kaane's bank account balance by a welcome Cr30,000.

At the end of this term, Kaane is 4 years older (26 years old), has earned an additional 6000XP (4000XP for survival and 2000XP bonus) for a total of 11,000XP, and is now 5th level.

Kaane Haamasir
4th level Rogue, 22 years old. Height: 195 cm, Weight: 170 kg
Abilities: *Str: 17, Dex: 11, Con: 14, Int: 9, Wis: 8, Cha: 16, Edu: 14, Soc: 10*
Skills: *T/Mechanical-0, Intimidate-6, Bribery-4, Driving (Vessel/Grav)-4, T/Computer-3, Astrogation-2, Innuendo-1, T/Communication-1, Appraise-4, Gather Information-3*
Feats: *Alertness, Armor Proficiency (Light), Armor Proficiency (Medium), Connections (Underworld), Weapon Proficiency (Swordsman), Weapon Proficiency (Marksman), Fence Stolen Goods, Fast Talk*
Stamina: *31*
Lifeblood: *14*
Speed: *9 meters*
BAB: *+3*
Experience: *6000*

Kaane Haamasir
5th level Rogue, 26 years old. Height: 195 cm, Weight: 170 kg
Abilities: *Str: 17, Dex: 11, Con: 14, Int: 9, Wis: 8, Cha: 16, Edu: 14, Soc: 10*
Skills: *T/Mechanical-0, Intimidate-6, Bribery-6, Driving (Vessel/Grav)-6, T/Computer-3, Astrogation-2, Innuendo-1, T/Communication-1, Appraise-4, Gather Information-3*
Feats: *Alertness, Armor Proficiency (Light), Armor Proficiency (Medium), Connections (Underworld), Weapon Proficiency (Swordsman), Weapon Proficiency (Marksman), Fence Stolen Goods, Fast Talk, Improved Search*
Stamina: *37*
Lifeblood: *14*
Speed: *9 meters*
BAB: *+3*
Experience: *11,000*

8) ROGUE PRIOR HISTORY TERM 3

Continued Employment: For Term 3, Kaane rolls a 4 to re-enlist (DC2). The boss questions his loyalty but eventually decided to let him stay.

Duty Assignment: He rolls a 12 for duty assignment and helps the gang smuggling the stolen goods to another world.

Survival: He rolls a 7 for survival (DC6), -1 for his Intelligence, getting himself injured when the deal goes bad. A result exactly equal to the Survival DC results in a wound and a 1000XP bonus (being shot or stabbed is a great motivation to learning. Kaane won't likely do THAT again...).

XP Bonus: Rolling a 17 for his XP bonus check (DC6) shows he learned a great deal from this experience. A roll of 2 again on 1d4 gives Kaane an additional bonus of 2000XP this term.

Cash Bonus: With only a roll of 7 (-1 for his Intelligence for a total of 6), unlike last term, Kaane's smuggling efforts this term did not earn him a cash bonus, possibly due to being shot and robbed of the goods...

Kaane, after another 4 years is now 30, has earned 7000XP this term (4000XP for survival, 1000XP for being wounded, and a 2000XP bonus) for a total of 18,000XP, and is 6th level.

Kaane Haamasir
6th level Rogue, 30 years old.
Height: 195 cm, Weight: 170 kg
Abilities: *Str: 17, Dex: 11, Con: 14, Int: 9, Wis: 8, Cha: 16, Edu: 14, Soc: 10*
Skills: *T/Mechanical-0, Intimidate-8, Bribery-7, Driving (Vessel/Grav)-6, T/Computer-3, Astrogation-2, Innuendo-1, T/Communication-1, Appraise-4, Gather Information-4*
Feats: *Alertness, Armor Proficiency (Light), Armor Proficiency (Medium), Connections (Underworld), Weapon Proficiency (Swordsman), Weapon Proficiency (Marksman), Fence Stolen Goods, Fast Talk, Improved Search, Brawling*
Stamina: *45*
Lifeblood: *14*
Speed: *9 meters*
BAB: *+4*
Experience: *18,000*



9) MUSTERING OUT OF PRIOR HISTORY AS A ROGUE

Kaane decides to get out while the getting is good - or at least before the boss decides to rub him out. He has spent three terms as a Rogue, and that earns him three separate rolls on the benefits table. Kaane decides to use one roll on the material benefits table and rolls a 5. This gains him a free High Passage, probably left over from the smuggling caper. His last two rolls he chooses to use on the cash table rolling a 2 and a 5 respectively. The first roll earns him Cr10,000 and the second roll nets him an additional Cr50,000 for a total of Cr60,000. With his starting cash of Cr2500, his Cash Bonus during the second term of Cr30,000, and his mustering out cash, Kaane begins adventuring with a hefty cash balance of Cr92,500.

Kaane Haamasir
6th level Rogue, 30 years old. Height: 195 cm, Weight: 170 kg
Abilities: *Str: 17, Dex: 11, Con: 14, Int: 9, Wis: 8, Cha: 16, Edu: 14, Soc: 10*
Skills: *T/Mechanical-0, Intimidate-8, Bribery-7, Driving (Vessel/Grav)-6, T/Computer-3, Astrogation-2, Innuendo-1, T/Communication-1, Appraise-4, Gather Information-4*
Feats: *Alertness, Armor Proficiency (Light), Armor Proficiency (Medium), Connections (Underworld), Weapon Proficiency (Swordsman), Weapon Proficiency (Marksman), Fence Stolen Goods, Fast Talk, Improved Search, Brawling*
Stamina: *45*
Lifeblood: *14*
Speed: *9 meters*
BAB: *+4*
Experience: *18,000*
Credits: *92,500*
Possessions: *1 High Passage*

COMBAT

Conflict of some kind is integral to any good story, and nowhere more so than in a role-playing game.

This does not mean that every session should involve blazing guns and flashing blades. There are many types of conflict, and most of them can be resolved without violence. A campaign in which violence is commonplace is likely to go off the rails for one of two reasons.

• Combat becomes so routine that it is no longer exciting or perceived as a threat to the characters. This is temporarily alleviated by dumping more bad guys with bigger guns on the players, but in the end this is self-defeating.

• Character turnover is so quick that nobody can even remember their latest adventurer's name, let alone develop his or her personality.

Combat should be used sparingly. Most fights should support the plot, though the occasional random brawl or ambush also serves to keep the characters alert or off balance. Remember that in Traveller (as in real life) weapons, and especially firearms, are deadly. Local law enforcement will usually become involved in any exchange of fire, or any combat that leaves bodies lying around. This may not be much of a problem on an airless asteroid in deep space, but on most planets the characters will have to tread carefully.

STAGING COMBAT

One way to keep fight scenes fresh and exciting is to stage combat in unusual places. Action movies often make use of this device. For example, a fight that takes place on a moving bus or train is far more interesting than one that seems to occur on a gray featureless plain without obstructions or cover.

Throw in plenty of distractions - fleeing bystanders, vehicles, local animals, runaway baggage carts or whatever - to make the scene come alive (and to allow characters to make dramatic use of the scenery). Have stray shots smash things or hit bystanders.

Remember environmental hazards. Vac suit tears, diving into brambles when seeking cover, broken glass on the ground or falling into deep water while wrestling with a foe can all make a fight scene more tense at the time and memorable afterward.

Combat is intense and stressful. Characters often suffer from tunnel vision, focusing on one enemy to the exclusion of all else. Anyone wanting to remain fully aware of everything around him should be required to make frequent skill checks (e.g. Spot), or he will simply fail to notice anything that does not happen right in front of him.

Intimidation and trickery also play a part. People don't always see what's really there - they can only see what's visible. Sometimes an enemy can be bluffed into fleeing or surrendering, or intimidated into panicked submission.

Finally, remember that armed combat is deadly. Smart people make use of cover and concealment (there is a difference!), and maneuver for a better position rather than just blasting away from where they are.

NEW OR MODIFIED RULES

Unless otherwise noted, all of the standard d20 combat rules are used in T20, including Initiative, the Surprise Round, rolling to hit, Armor Class (AC), attacks of opportunity, etc. In most cases, we have chosen to supplement rather than change most of the standard d20 combat system. In particular we have introduced an additional measure of health for characters, NPCs and creatures, in addition to a new concept called damage dice reduction.

ENCOUNTER DISTANCE

(RULES ADDITION)

Various additions have been made to the standard d20 rules, to cover situations arising in a technology-rich environment.

SPOTTING OTHER VESSELS

When an encounter between one or more vessels (including vehicles) occurs, all vessel commanders involved must make T/Sensor check. A successful check means that vessel and its crew are aware of the other vessels involved. If a vessel is without sensors, they must rely on their own visual acuity, and a Spot check may be used instead. In either case, the base DC for the task is 20.

The following circumstances can affect the T/Sensor or Spot skill check:

Target Size: The size of a target also has a bearing on how easily it may be noticed. Smaller objects are harder to deal with than larger ones. Add the size modifier of the vessel to the DC for any sensor or spot task. Size modifiers are as follows: Colossal -16, Gigantic -12, Huge, -8, Large -4, Medium +0, Small +4, Tiny +8, Diminutive +12, Fine +16. This modifier applies to both T/Sensor and Spot checks.

Running Silent: A vessel may attempt to avoid detection and scanning by "running silent". If a vessel takes no actions (other than movement), attempts no active sensor checks (passive scans are allowed), fires no weapons, and otherwise does nothing which might reveal its presence, add +15 to any DC when another vessel is attempting to use their sensors on the silent vessel. This is only effective against T/Sensor systems, and does not prevent a vessel from being spotted visually.

Jamming: The sensor operator may attempt to spend the round providing defensive sensor jamming against


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incoming targeting lock attempts by enemy vessels, hopefully decreasing the chance of being hit. Jamming will also aid in foiling attempts at detection, tonnage and classification estimations, and identification by other vessels. This is a Full Action.

The sensor operator must make a T/Sensors skill roll and add the sensor system model number to this result. This total will establish the vessel's Jamming rating for the round. Any other vessel attempting to target or otherwise scan the vessel must use the vessel's Jamming rating as the DC for these tasks rather than the standard DC for the current round.

This is only effective against T/Sensor systems, and does not prevent a vessel from being spotted visually.

Passive Scans: Encounter-related sensor scans are done as 'active' scans, which basically means the target of the scan will know it is happening. Active sensor scans against commercial and civilian vessel by anyone other than the appropriate authorities is highly frowned upon by most, and even considered a hostile act by some captains. Passive sensor scans on the other hand will likely go undetected unless the target is actively watching for it, and even then they may miss it.

All a sensor operator has to do to perform a passive scan is notify the referee in advance of the skill check itself. This will add +10 to the DC of the task however. If the target of the scan is expecting such an action, it may make a T/Sensor skill check (DC20) to spot it. If the target is wary but not actively expecting the scan, increase the DC to 30. No matter what the base DC, a passive scan will only be successful if the opposing ship is doing something capable of being detected, such as launching a small craft, engaging active sensors, retracting a turret, even opening an airlock might be detectable by a passive sensor scan.

This is only effective against T/Sensor systems, and does not prevent a vessel from being spotted visually.

Not Moving: A vessel that is not moving is harder to spot that one that is not. Add +5 to the DC for stationary vessels. This modifier applies to both T/Sensor and Spot checks.

Camouflage: The Combat Engineering skill can be used to attempt to camouflage a vessel from being spotted. In this case, the base DC is instead 25 + the Combat Engineering skill modifier of the individual that installed the camouflage. This is only effective against visual detection, and does not prevent a vessel from being spotted by sensors.

Advanced camouflage equipment may make a camouflage attempt effective against sensors. Examples include radar-absorbent camouflage netting and thermal signature masking.

Six or More Vessels: A group of vessels is easier to spot than an individual vessel, even if the vessels are smaller than medium size. Subtract -2 from the DC. This modifier applies to both T/Sensor and Spot checks.

Moonlight: Nighttime, but with moonlight or equivalent illumination available. Add +5 to the DC. This is only effective against visual detection, and does not prevent a vessel from being spotted by sensors.

Starlight: Nighttime or in space. No moon, but a clear and star-filled sky. Add +10 to the DC. This is only effective against visual detection, and does not prevent a vessel from being spotted by sensors

Deep Darkness: Overcast skies at night, or similar lack of lighting. Add +20 to the DC. This is only effective against visual detection, and does not prevent a vessel from being spotted by sensors

Total Darkness: No available illumination at all such as in a deep cave. Impossible without sensors. This is only effective against visual detection, and does not prevent a vessel from being spotted by sensors

ENCOUNTER AWARENESS DIFFICULTY

Circumstance	*DC*
Base	20
Target size	+/-4 per size category
Running silent	+15
Jamming	Special
Passive scan	+10
Not moving	+5
Camouflage	Special
Six or more Vessels	-2
Moonlight	+5
Starlight	+10
Deep Darkness	+20
Total Darkness	Impossible

HIDING AND SPOTTING

If creatures are trying not to be seen, it's usually harder to spot them, but creatures that are keeping low to avoid being spotted also are less likely to notice other creatures. If a group (of people or animals) is hiding, its members can only move at half their normal overland speed. They also suffer a -2 penalty on their Spot checks to notice other creatures because they are staying low.

Instead of a base DC of 20 for others to spot them at the standard spotting distance, the DC is 25 + the hider's Hide skill modifier. The modifiers from the Encounter Awareness Difficulty table still apply, except for the size modifier (which is already part of the character's skill modifier). A character whose Hide ranks, Dexterity modifier, and armor check penalty total -6 or lower actually has a lower DC than if he or she weren't hiding. In such cases, simply calculate the Spot DC as if the character wasn't hiding (according to the Spotting Difficulty table). If a creature gets a special bonus to Hide because of camouflage, spe-

VISUAL ENCOUNTER RANGES

Terrain	Detection and Distance	Hexes	Basic Range
Arcology, popular starport, dense pedestrian and vehicle traffic	2d4 X 75m (avg. 375m)	5T	Close
City or town center, moderate pedestrian and vehicle traffic	3d6 X 150m (1575m)	1S	Short
Suburban neighborhood, light pedestrian and vehicle traffic	6d6 X 300m (6300m)	4S	Medium
Smoke, heavy fog, dense clouds	2d4 X 75m (avg. 375m)	5T	Close
Jungle, dense forest	2d4 X 150m (750m)	10T	Close
Heavy mountainous terrain	3d6 X 150m (1575m)	1S	Short
Rugged hills or low mountains	6d6 X 150m (3150m)	2S	Short
Light forest, low rolling hills	6d6 X 300m (6300m)	4S	Medium
Scrub, brush, or bush	2d6 X 1.5km (10.5km)	7S	Long
Grasslands, plains, at sea, or other open terrain with little cover	3d6 X 1.5km (15.0km)	10S	Very Long
Observer is in flight, clear skies	4d6 X 1.5km (18.0km)	12S	Very Long
Observer is in flight, cloudy skies	3d6 X 1.5km (15.0km)	10S	Very Long
Observer is in flight, dusk or dawn	2d6 X 1.5km (10.5km)	7S	Long
Observer is in flight, heavy clouds or night	1d6 X 1.5km (5.0km)	3S	Short

SENSOR ENCOUNTER RANGES (VEHICLES ONLY)

Sensor Model	Detection	Encounter Distance	Hexes	Basic Range
Model/1	up to 5km	1d3 X 1.5km (avg 3km)	2S	Short
Model/2	up to 10km	1d3+6 X 1.5km (10km)	7S	Long
Model/3	up to 50km	2d6+8 X 1.5km (22km)	15S	Very Long
Model/4	up to 100km	30km	20S	Extreme
Model/5	up to 500km	30km	20S	Extreme
Model/6	up to 1000km	30km	20S	Extreme
Model/7	up to 5000km	30km	20S	Extreme
Model/8	up to 10,000km	30km	20S	Extreme
Model/9	beyond 10,000km	30km	20S	Extreme

SENSOR ENCOUNTER RANGES (SMALL CRAFT AND STARSHIPS ONLY)

Sensor Model	Detection	Encounter Distance	Hexes	Basic Range
Model/1	up to 15,000km	1d20 X 750km (avg 3km)	10T	Close
Model/2	up to 45,000km	1d3 X 15,000km (10km)	2S	Short
Model/3	up to 75,000km	1d2+3 X 15,000km (22km)	3S	Short
Model/4	up to 120,000km	1d3+5 X 15,000km	7S	Long
Model/5	up to 240,000km	1d8+8 X 15,000km	12S	Very Long
Model/6	up to 580,000km	1d4+16 X 15,000km	18S	Extreme
Model/7	up to 4,800,000km	300,000km	20S	Extreme
Model/8	up to 9,600,000km	300,000km	20S	Extreme
Model/9	beyond 9,600,000km	300,000km	20S	Extreme

SIZE MODIFIERS TO ATTACK BONUS AND ARMOR CLASS

Size	Animal or Item Weight (kg) or Vehicle Volume (vl)	Size Modifier	Starships and Smallcraft Tonnage (tons)	Weight in Pounds (d20 size)
Fine	up to 0.05	+8	-	0.11 (1/8)
Diminutive	0.05 to 0.5	+4	-	1.1 (1)
Tiny	0.5 to 5	+2	-	11 (8)
Small	5 to 30	+1	-	66 (60)
Medium	30 to 250	0	-	550 (500)
Large	250 to 2000	-1	1 ton	4400 (4000)
Huge	2000 to 15,000	-2	1-9 tons	33,000 (32,000)
Gargantuan	15,000 to 115,000	-4	10-99 tons	253,000 (250,000)
Colossal	115,000 to 1,315,000	-8	100-999 tons	253,000 or more
Enormous	1,315,000+	-10	1000-9999 tons	-
Monstrous	-	-12	10,000-99,999 tons	-
Stupendous	-	-14	100,000-999,999 tons	-
Incredible	-	-16	1,000,000+ tons	-

cial coloring, and so on, use that bonus rather than the contrast bonus from the Spotting Difficulty table.

Additionally, the other creatures do not automatically spot hiding creatures at one-half the encounter distance. Instead, that is the distance at which the other creatures can make Spot checks to notice the hiding creatures. These are normal Spot checks opposed by the hiders' Hide checks.

ENCOUNTER RANGE

The range of the encounter depends on whether contact was made visually or through the use of sensors. Encounters at visual range will usually start much closer than those where even poor sensors were involved. Sensors may well be able to detect and become aware of an opponent long before the vessels actually get within combat encounter range (30km) of one another. In these cases, the encounter range will automatically start at 30km distance. If none of the commanders involved detects one another, the encounter will begin at one-half the normally rolled range with all parties automatically aware of each other.

The T or S following the Hexes entry represent the number of hexes on the Tactical Plot and the Strategic Plot as detailed under the Advanced Vehicle and Starship Combat rules (pg. 169).

MISSED ENCOUNTERS

The rules for spotting assume that both sides will eventually notice each other; the rules simply establish the distance at which they do so. But sometimes you want to take into account the possibility that the two groups will miss each other entirely. To handle these possibilities, simply let there be a 50% chance that the others encountered and the PCs don't get any closer but rather pass by each other, such as when one group is moving north and the other east. (Creatures following the PCs' trail, of course, always close with them.)

COMBAT STATISTICS

ATTACK BONUS (RULES MODIFICATION)

Unlike standard d20 games, T20 uses Dexterity rather than Strength as a bonus for melee attacks, reflecting the changes in how armor works and the emphasis of natural speed and finesse rather than brute force. Your attack bonus with a melee weapon is:

Base attack bonus + Dexterity modifier + size modifier

DAMAGE (RULES MODIFICATION)

If an attack is successful, roll the weapon's listed damage. If the attack is against a lifeform apply the full damage against the target's Stamina rating. In addition, a successful attack against a target may inflict Lifeblood damage against lifeforms or Structural Integrity damage against equipment, vehicles, and ships. The amount of such damage is determined by reducing the original damage roll based on the Armor Rating or AR of the target.

Damage Reduction by AR: Roll all the damage dice, but then remove one die from the damage roll for each point of AR the target possesses. Always remove the lowest rolls first. Whatever the target's Armor rating, leave one

die (the highest one) on the table. If there are still points of Armor rating to be accounted, subtract the remaining points from the remaining damage.

Minimum Weapon Damage: If penalties to damage, through any means, bring the damage result below 1, a hit deals no damage to the target.

Example 1: A character attacks a bug-eyed monster and hits, rolling 3d10 for damage (she's firing a Laser Rifle). The damage dice come up 4, 7, and 4 for a total of 15 points of damage. Since the target is a lifeform, this damage is immediately applied against its remaining Stamina. We now determine how much (if any) Lifeblood damage has been inflicted. The bug-eyed monster has an Armor rating of 5, so we must first remove up to 5 dice of damage if possible. We can't obviously because a Laser Rifle only does 3d10 damage. We remove 2 dice from the damage roll, both of the fours because the lowest rolls are removed first. This leaves 7 points of Lifeblood damage, and also 3 points of Armor rating, to account for. Subtracting these 3 points from the Lifeblood damage, the Laser Rifle inflicts an additional 4 points of lifeblood damage to the bug-eyed monster.

Example 2: Two grav tanks are taking shots at one another, both with an Armor rating of 12 and firing Heavy Fusion Guns (6d20 damage). One of the tanks scores a hit on its opponent and rolls 6, 12, 8, 4, 15, and 11 for a total of 56 points of damage. Since the target is a vehicle it has no stamina points. Instead we must reduce the damage to account for the target's armor and apply any remaining damage to the Structural Integrity of the vehicle. We remove five of the dice leaving just the 15. This accounts for 5 of the 12 points of Armor rating of the target. Applying the remaining 7 factors of armor against the remaining damage roll of 15 leaves the attack inflicting a total of 8 points of Structural Integrity damage.

Scaling Damage Between Lifeforms, Vehicles, and Starships

The scale of armor and weapon power between lifeforms, vehicles, and starships is quite drastic. To reflect this when playing T20 and running combats involving lifeforms, vehicles, and/or starships at the same time apply the following damage modifiers. In all cases where extra dice are rolled, they should be of the same type as the base damage of the weapon itself (d4, d6, d8, etc.).

Lifeforms attacking Vehicles: When a lifeform attacks a vehicle using a personal weapon, automatically reduce the damage by 5 dice before applying any reductions due to armor.

Lifeforms attacking Starships: A lifeform attacking a starship or small craft with a personal weapon will automatically reduce the damage by 10 dice before applying any reductions due to armor.

Vehicles attacking Lifeforms: A vehicle rolls an additional 5 dice of damage when an attack against a lifeform hits.

Vehicles attacking Starships: A vehicle attacking a starship or small craft with must reduce its damage by 5 dice before applying any reductions due to armor.

Starships attacking Lifeforms: Starship weapons ignore personal armor as if it does not exist, in addition to rolling an extra 10 dice of damage when attacking any Lifeforms.

Starships attacking Vehicles: Starships weapons against vehicles may roll an extra 5 dice of damage. In addition, roll twice on the Internal Damage Location tables.

ARMOR CLASS (AC) (CONVERSION NOTES)

When using creatures or characters from other d20 systems, you may use the Armor Class (AC) normally for determining if an attack successfully hit or not. However, when it comes to damage reduction due to AR, if the armor is manufactured and detailed in T20, use the T20 specifications and ratings. If the armor type is not list, or is natural armor, divide the standard d20 armor bonus by 3, rounding up. This will will allow you to convert most AC ratings from other d20 games into the standard 1-15 AR range T20 also uses.

Vehicle and Starship Armor Class (rules addition)

The AC for a vehicle or starship is calculated differently. Dexterity modifiers and shield bonuses do not apply when dealing with a vehicle or ship. In addition, either the pilot/driver or a computer may control the evasive defense of a vessel. Computers are very adept at providing fairly reliable, if somewhat predictable evasive routines. However, nothing can replace an experienced pilot or driver at the helm.

To reflect this, vessels using a computer to control their evasive maneuvers are limited to a maximum Agility modifier equal to the computer model number divided by 2 (round down), or the vessel's Agility rating, whichever is lower. A pilot or driver controlling the evasive maneuvers of a vessel may use the full Agility rating of the vessel as a modifier. Allowing a computer to handle evasive maneuvers is considered a free action for the pilot or driver. If the pilot or driver handles evasive maneuvers themselves, this is considered a standard action.

10 + Armor bonus + Agility modifier + Size modifier

ARMOR RATING (AR) (RULES ADDITION)

The armor worn by an individual or the armor installed on a vehicle or ship not only makes it harder to inflict damage on that person or vessel, it will also reduce the amount of damage if an attack does get through. While this value

is used in calculating the overall AC of a person or vessel, the Armor Rating or AR should also be kept track of on a character sheet for easy reference. Note that the shield bonuses are not used when recording personal AR.

STAMINA (RULES ADDITION)

Stamina represents a character's ability to withstand heavy exertion, accumulated minor wounds, fatigue, and other minor physical impairments and injuries. A higher-level character may have a much larger Stamina reserve to rely upon, developed from years of training and experience. Stamina is modified by Constitution.

Unconscious (0 or Fewer Stamina Points): When a character reaches 0 Stamina points he or she will fall unconscious from a combination of exhaustion, accumulated minor damage, etc. Any further Stamina damage received by an unconscious character is taken directly against Lifeblood instead (no armor adjustments apply here) until the character has healed to at least 1 Stamina point. The character will remain unconscious for at least 10 minutes, after which they may attempt a Fortitude save (DC15) to recover consciousness. If the save is failed the character may try again every 10 minutes until successful, someone revives them, or they are healed.

LIFEBLOOD (RULES ADDITION)

In addition to Stamina each lifeform, be it a character, NPC, or bug-eyed monster also has a Lifeblood rating that represents its ability to withstand the traumatic damage and injuries that often accompany futuristic weaponry. The Lifeblood rating is generally equal to the lifeform's Constitution score, but may vary due to size and other factors.

Dying (0 to -9 Lifeblood): When a being's Lifeblood drops to 0 or lower, it is dying. At the end of each round, beginning with the round in which Lifeblood fell to 0 or lower, the being must make a Will save (DC15) to avoid losing consciousness and a Fort save (DC15) to avoid losing 1 more Lifeblood. Once unconscious it will automatically lose 1 additional Lifeblood point at the end of each round, no Fort save allowed. If the being reaches -10 Lifeblood, it is dead. Each round a being remains conscious it does not automatically lose additional Lifeblood and may attempt any type of action other than a move action. However an action is attempted while in this condition, the being must make an additional Will and Fort save (both DC15) after the action to see if the stress causes him/her/it to fall unconscious and/or lose additional lifeblood.

Dead (-10 or lower Lifeblood): If a character or other being ever reaches -10 Lifeblood, they have died. It is also possible to die even if a being has remaining lifeblood; for example, certain types of poisoning can reduce a character's Constitution score, which if reaches 0 also will cause death.

STRUCTURAL INTEGRITY POINTS (SI) (RULES ADDITION)

Vehicles (including robots), small craft, and starships do not have a Stamina or Lifeblood rating. Instead these craft use a Structural Integrity or SI rating to measure damage against them. This SI rating is based on the overall size of the craft, and is determined when the vessel is design and constructed (see the Vehicle or Starship Design rules, pg. 233 or 253).

Non-Functional (0 or fewer Structural Integrity): When a vessel's structural integrity drops to 0 or lower, it is rendered completely non-functional. Nothing will work until repairs are made. Any further damage received will automatically cause internal damage (roll on the Damage Location table for each hit), and may end up completely destroying the craft.

Destroyed: It is difficult to completely destroy a vehicle, small craft, or starship - but it can be done. A craft that takes an amount of damage greater than or equal to twice (x2) its original Structural Integrity rating has been destroyed completely. Destroyed craft cannot be repaired at all. Thus a 100-ton starship could take up to 200 structural integrity points of damage before being destroyed.

SPEED (RULES MODIFICATION)

The speed of a character is based primarily on their race and the type of armor they are wearing.

Virushi move 6 meters, or 3 meters when wearing medium or heavy armor.

Humans, Luriani, and **Sydites** move 9 meters, or 6 meters when wearing medium or heavy armor.

Vargr and **Ursa** move 12 meters, or 9 meters when wearing medium or heavy armor.

Aslan move 12 meters, or 9 meters when wearing medium or heavy armor.

INITIATIVE

(RULES ADDITION)

Vehicle, Small Craft, or Starship Initiative: When a vessel becomes aware of any opponent(s), it must make an initiative check. An initiative check is a 1d20 roll, adding the Agility bonus of the vessel (if any).

Vehicles: If the commander of the vessel has the Tactics (I or II) feat, they may add their WIS modifier to this roll.

Small Craft and Starships: If the commander of the vessel has the Ship's Tactics feat, they may add a +2 modifier to this roll.

These Initiative check results determine in what order vessels will act during each round of the encounter. Each vessel may take an action in their initiative order (highest

to lowest) every round. If two or more vessels have the same initiative check result, they will act in order based on the vessel Agility bonus (highest to lowest). If there is still a tie, have each side roll 1d6 with the highest roll acting before the lowest roll. Reroll until all ties are broken.

Unaware: This is the equivalent of being caught flat-footed for vehicles, small craft, and starships. Vessels that are unaware of their opponents may not use their Agility bonus when calculating their AC if attacked. An unaware combatant may not take any actions during the surprise round.

ACTIONS IN COMBAT

THE COMBAT ROUND (RULES MODIFICATION)

Each hex or square is equal to 1.5 meters (or roughly 5 feet). Each combat round is 6 seconds.

ATTACKS OF OPPORTUNITY (RULES MODIFICATION)

Threatened Area: A character threatens a 1.5 meter radius around himself (every adjacent hex or square). Unlike the standard d20 rules, using firearms and other self-powered weapons do not provoke an attack of opportunity when fired at an opponent within the Threatened Area.

ATTACK ACTIONS

Attack (rules modification)

Critical Hits: In addition to the normal effects of a critical hit, the armor of a target is also ignored and the target takes the full damage roll against its Lifeblood or Structural Integrity rating. Against vehicles and starships, a critical hit also earns an additional roll on the appropriate Internal Damage Location table. Regardless of whether the victim of a critical hit is a lifeform, vehicle, or starship, reduce its the armor bonus by -1 until repaired.

Shooting into a Crowd: When shooting at a target that is within 3 meters of an ally, the shooter suffers a -4 penalty to hit due to the need for careful aim to avoid hitting their own comrade.

Called Shot

As a full action, a shooter may attempt to shoot at a specific item or location on a target such as its head, a weapon in hand, or a radio pack on the target's back. If the attack is successful, and the target is holding the object that was shot, the target must make a Reflex save (DC25) to avoid dropping the item (unless it is on a sling or otherwise rigged to prevent such an event, or, obviously, it is a body part), in addition to any damage inflicted on the target item.

The attack roll is made normally as if shooting at the lifeform in possession of the target, and applying the following modifier based on the size of the target in question:

Called Shot Modifiers

Item Size	*Modifier*	*Example*
Fine	-12	Ring on hand, Button on jacket
Diminutive	-8	Foot, Hand, Eye, Heart, Hand Computer
Tiny	-6	Head, Leg, Arm, Hat on head
Small	-5	Chest, Groin, Small Weapon, Backpack
Medium	-4	Medium Weapon
Large	-2	Large Weapon
Huge	-1	

Burst Fire (rules addition)

Weapons that fire a burst of 2, 3, 4, 10, 20, or 100 rounds may improve the attacker's odds of hitting a target or inflict additional damage. The attacker must decide whether to spray the target, increasing the chances of scoring a hit, or to fire a precise, grouped burst in the hope of inflicting greater damage. Either sort of burst fire is considered a standard action. Characters with more than one attack per round may take this action for each attack. See the Damage rules (pg. 148) for more information on applying damage.

Burst Fire Effects

Burst Size	*Attack Bonus*	*Extra Damage*
1 round	+0	+0 damage
3 round burst	+1	+1 die of damage
4 round burst	+2	+2 dice of damage
10 round burst	+3	+3 dice of damage
20 round burst	+5	+5 dice of damage
100 round burst	+10	+10 dice of damage

Suppressive Fire (rules addition)

Any personal weapon with a rate of fire greater than two may be used to produce covering and suppressive fire, in an attempt to get hostiles to keep their heads down. This is considered a full round action. Anything moving or taking an action that is not under 100% cover, is within a 5 block/hex (7.5 meters) arc of fire in front of the character's weapon, and within the first range increment of the weapon using suppressive fire, may be hit. Check only once per available target, up to a number of targets equal to one-half the normal rate of fire for the weapon. Roll to hit normally but with a -4 penalty due to the inaccuracy of this type of fire. If anything is actually hit, use Suppressive Fire Damage table. See the Damage rules (pg. 148) for more information on applying damage.

Rate of Fire 10 or Greater: If the rate of fire of the weapon is 10 or greater, targets within the second range increment of the weapon, and an 8 block/hex arc (12

meters) may also be hit. Roll to hit normally but at a -8 penalty. If anything is actually hit, use Suppressive Fire Damage table below.

Anything beyond these ranges are unlikely to be hit, but if you do want to check, extend the possible area to be hit out to the range of the weapon, along a 8 block/hex wide (12 meters) path from the attacker. The to hit roll at these ranges will be at -10, and of course no more than a number of targets may be hit than have been rounds fire.

This effect lasts until the character's next round action.

Suppressive Fire Damage

RoF	*Extra Damage*
3-4 rounds	none
10 rounds	+1 die of damage
20 rounds	+2 die of damage
100 rounds	+4 dice of damage

MOVE ACTIONS

Reload (rules addition)

Reloading a personal weapon is considered a move action and does provoke a possible attack of opportunity.

MISCELLANEOUS ACTIONS

Activate an Item (rules addition)

You may turn on a flashlight, activate a weapon or other similar action. This is a free action.

Mount or Dismount a Vehicle (rules addition)

Mounting or dismounting a vehicle is a full round action, and may subject the unit to an attack of opportunity. At the beginning of the next round the unit is considered to be in the vessel, or just adjacent to the vessel if dismounting.

Open An Iris Valve, Sliding Door, or Standard Door (rules addition)

A character may open any standard door, sliding door, or iris valve as a standard action. Moving through the doorway takes an additional move action, and closing the doorway requires a final standard action. If conflicting commands are given to a sliding door or iris valve (one character activates it to open and another activates it to close) will cause the doorway to remain in the position it was at the start of the round and ignore all commands for the round.

Open a Hatchway (rules addition)

Opening a hatchway is a full round action. Moving through the hatch takes an additional move action, and closing a hatch requires another full round action. Opening or closing a hatchway may provoke an attack of opportunity.

Open an Airlock (rules addition)

Activating an airlock to open or close is a standard action, but the airlock will not finish opening or closing until the fourth round after the command was given. It takes 3 rounds to compress or decompress the airlock, and one full round to open or close the doorway. Once a command to open or close has been given to an airlock, it cannot be overridden until the cycle completes.

Put on a Pressure Suit (rules addition)

It takes 2 full round actions to put on a vac suit, and 5 full round actions to put on battle dress or combat armor and seal it. An Intelligence check (DC10) must be made once the suit is on to ensure that its environmental integrity is intact. This check is reduced to DC 5 if the character or someone assisting them has the Armor (Vac Suit) feat. If failed, the suit does not provide any defense against explosive decompression.

Patch a Pressure Suit Breach (rules addition)

Applying a patch to a breach in a vac suit, battle dress or combat armor is a full round action. An Intelligence check (DC15) must be made to properly apply the patch and seal the breach. This check is reduced to DC 10 if the character or someone assisting them has the Armor (Vac Suit) feat.

INJURY AND DEATH

(RULES MODIFICATION)

Rather than Hit Points, T20 uses Stamina and Lifeblood to represent how difficult it is to kill a character or lifeform.

What Stamina Represents: Stamina represents a character's ability to withstand heavy exertion, accumulated minor wounds, fatigue, and other minor physical impairments and injuries. A higher-level character has much larger Stamina reserve to rely upon developed from years of training and experience, but is modified by their Constitution.

What Lifeblood Represents: Lifeblood represents a character's ability to withstand traumatic injury. The Lifeblood rating is generally equal to the lifeform's Constitution score, but may vary due to size and other factors.

d20 Note: Stamina points are the basic equivalent of Hit Points, with some minor changes. Character from other d20 games using Hit Points or equivalent translate exactly.

Effects of Damage: Damage has no detrimental effect on a character until their current Stamina or Lifeblood points reach 0 or lower.

At 0 Stamina, a character falls unconscious through general battering and fatigue. At 0 or fewer Lifeblood a character is dying. At -10 or lower Lifeblood, a character is dead.



Massive Damage: Because of T20's Lifeblood rules, the d20 Massive Damage rule should not be used, as it is unnecessary. Any creature taking 50 or more points of Lifeblood damage is likely to be dead anyway...

EFFECTS OF WOUNDS ON STAMINA AND LIFEBLOOD

See the sections on Stamina and Lifeblood (above) for full details.

Stamina 0 or less:	The character is unconscious. Further damage is dealt directly to Lifeblood.
Lifeblood 0 to -9:	The character is dying.
Lifeblood -10 or lower:	The character is dead.

HEALING DAMAGE

See Medical Technology (pg 215)

DAMAGE TO PERSONAL EQUIPMENT

Personal equipment only takes SI damage. If an item takes damage equal or exceeding its total SI rating, it is destroyed beyond repair. If not destroyed, for each point of damage taken there is a 5% chance that the equipment will malfunction each time it is used. There is an even (50/50) chance the item will either fail to work at all, or work but produce incorrect and improper results.

MOVEMENT AND POSITION

(RULES MODIFICATION)

The standard scale equals 1 inch on the tabletop, or 1.5 meters in the game world. If using grid or hex maps, 1 hex/grid square equals 1.5 meters.

Standard Scale
One inch = 1.5 meters
One hex/grid square = 1.5 meters
"Next to" or "adjacent" = 1 inch (1 hex/square or 1.5 meters) away
30mm figure = A human-size (Medium) lifeform occupies an area 1 inch (1 hex/grid square or 1.5 meters) across.
One round = 6 seconds

TACTICAL MOVEMENT

Movement in Combat: If a character takes an action that requires a full round or more to complete, she may only take a 1.5 meter step.

TACTICAL SPEED

Race	No Armor or Light Armor	Medium Armor or Heavy Armor
Aslan	18m	15m
Vargr, Ursa	12m	9m
Human, Luriani, Sydite	9m	6m
Virushi	6m	3m

COMBAT MODIFIERS

In addition to the standard combat modifiers from the d20 System, T20 introduces a few new modifiers that apply in a science-fiction setting.

ARMOR PIERCING ROUNDS (RULES ADDITION)

Armor piercing rounds are valuable when attacking armored targets. For each Armor Piercing (AP) bonus of the round, subtract -1 from the Armor Rating (AR) of the target. At no time, however, may the total AR penalty exceed the actual armor rating of the target. Any weapon capable of firing projectiles may use Armor Piercing ammunition. The Armor Piercing bonus of a round may never exceed half the technological level of its manufacture, rounded down. For example, an armor piercing round manufactured on a TL9 world could have a maximum AP bonus of +4.

Multiply the cost of a normal round by x10 to determine the cost of a version of the round with an AP rating of +1. For higher AP bonus, multiply the base cost of a +1 AP round by the total bonus of the round. For example a round that would normal cost Cr1 with no AP bonus would increase to Cr10 per round for a +1 AP bonus round, and to Cr70 for a +7 AP bonus round.

The availability of AP rounds in general will vary from world to world, depending on the local law level. The more powerful AP rounds will usually not be available to the public at all, instead being reserved for use by the local military. Exactly what sort of AP ammunition is publicly available depends upon the local Law Level.

GRAVITY (RULES ADDITION)

The local gravity can have a major effect on activities in combat, unless a character is acclimatized to such environments through the Heavy Gravity Adaptation, Zero-G/Low Gravity Adaptation, or Improved Zero-G/Low Gravity Adaptation feats. Modifiers apply to all attack, skill and save checks.

Local Gravity	Check Modifier
Zero Gravity	-4
Trace Gravity (0.1 - 0.3 G)	-2
Low Gravity (0.4 - 0.7 G)	-1
Standard Gravity (0.8 - 1.2 G)	-0
Heavy Gravity (1.3 - 1.5 G)	-1
Oppressive Gravity (1.6G or higher)	-3
Weapons with recoil (in Low Gravity or less)	-2

RANGE (RULES ADDITION)

The range modifiers for melee and ranged weapons works as detailed in the d20 System rules, thrown weapons have a maximum of 5 range increments, and all other ranged (non-melee) personal weapons have a maximum range of 10 increments. Modern and future vehicle weapons have a maximum range of 15 increments. Range for communications, sensors, and ship's weaponry works a bit differently.

Personal or Vehicle Communication and Sensor Ranges: Vehicle and personal weapons each have a range increment listed for them. This represents the range at which the weapon is most accurate. For each additional increment beyond, the weapon's accuracy is reduced by -2 (applied to the attacker's to hit roll), and the damage roll is reduced by 1 die. See the Damage rules (pg. 148) for more information on applying damage.

Range	Distance (in Kilometers)
Close	up to 1
Short	up to 5
Medium	up to 50
Long	up to 500
Continental/Very Long	up to 5000
World-wide/Extreme	up to 10,000

Starship or Spaceship Communications, Sensors, and Weapon Ranges: Ship's weaponry, Sensors, and Communications are handled differently because of the distances involved. These systems are simply rated by their standard range band (close, short, medium, long, very long, and extreme). For each range band past a system's standard range it suffers a -2 penalty to any skill checks, attack rolls, etc., and any damage roll is reduced by 1 die. For weapons, treat Extreme 1 - 4 as a single range band, Extreme.

Range	Hexes	Distance (in Kilometers)
Visual	(0)	up to 50
Close	0	up to 15,000
Short	1-3	up to 45,000
Medium	4-5	up to 75,000
Long	6-8	up to 120,000
Very Long	9-16	up to 240,000
Extreme 1	17-20	up to 300,000
Extreme 2	21-24	up to 360,000
Extreme 3	25-28	up to 420,000
Extreme 4	29-32	up to 480,000
Far	33-320	up to 4,800,000
System-wide	321+	beyond 4,800,000

RELATIVE SPEED (RULES ADDITION)

The difference between the current speed of the attacker and defender has an impact on how easily the tar-

get can be hit. A fast moving target is much more difficult to hit than a slow target. These modifiers apply to vehicle and personal combat only.

Relative Speed Difference	*Target AC Modifier*
0-25 kph	+0
26-50 kph	+1
51-100 kph	+2
101-200 kph	+4
201-400 kph	+8
401-600 kph	+10
601-800 kph	+12
801-1000 kph	+14
1001+ kph	+16

SPECIAL ATTACKS AND DAMAGE

SUBDUAL DAMAGE (RULES MODIFICATION)

The d20 subdual damage rules are not needed in T20. Instead simply apply any damage meant to 'subdue' rather than kill an opponent to their current Stamina score. Ranged weapons may not be used when attempting to 'subdue' an opponent, except for those firing special non-lethal ammunition, such as baton rounds or "beanbags".

ATTACKING VEHICLE OCCUPANTS (RULES ADDITION)

It is possible to attempt to attack someone riding within an open-topped vehicle, or riding on the outside of a vehicle (in a saddle mount for example). Operators and passengers with an enclosed vehicle may not be attacked directly (except perhaps with a Called Shot action).

When attacking someone within an open-topped vehicle, the target is assumed to be under partial hard cover (the vehicle). This is usually about 50% cover unless the target is standing in which case the cover would be about 25%.

When riding on the outside of a vehicle, a target does not enjoy any cover and may be attacked normally. The shooter must specify whether he is attempting to hit the vehicle or a rider on the vehicle.

HIGH EXPLOSIVE ROUNDS (RULES ADDITION)

Due to their nature, high explosive rounds do one (or more) extra die of damage in addition to the weapon's normally listed damage.

AREA EFFECT WEAPONS (RULES ADDITION)

Mortars, artillery, grenades and similar weapons are area effect weapons. They each have a listed Area of Effect (AoE). Anything within this radius when the weapon hits may make a Reflex or Agility save (DC15) to take only 1/2 the rolled damage. Anyone or anything failing its save will take the full damage from the weapon (unless reduced by armor).

Anything within twice the listed area of effect for the weapon, but outside the listed area of effect, may make a Reflex or Agility save (DC 15) to avoid taking any damage at all. Anyone or anything failing its save will take 1/2 damage from the weapon (unless reduced by armor).

The saving throws need only be made once for a given attack; apply the result to both Stamina damage and Lifeblood or Structural Integrity damage.

Ship's Weapons: The weapon systems installed on small craft and starships are much more powerful than their vehicle and personal counterparts. When a ship's weapon is used in combat against anything other than another starship or small craft, the weapon has an area effect based on the type of weapon it is:

Ship's Weapons Area Effect

Weapon System	*Area of Effect (AoE)*
Lasers	5 meters per USP rating
Missiles and Energy Weapons	10 meters per USP rating
Meson Guns	10 meters per USP rating
Nuclear Missiles	100 meters per USP rating
Particle Accelerators	1 meter per USP rating

USP Ratings are explained in the Starships section of these rules.

DEMOLITIONS (RULES ADDITION)

Using explosives to damage, penetrate, or breach an object requires using a charge of the proper size, and properly placing the charge for maximum effect.

Penetration Charge: A penetration charge of the proper size provides just enough power to penetrate the given structural material and armor, breaking any sealed environmental integrity (possibly causing explosive decompression), and causing damage.

Breaching Charge: A breaching charge of the proper size penetrates the given structural material and armor, breaking any sealed environmental integrity (possibly causing explosive decompression), causing x10 damage, and leaving a hole approximately 1 meter in diameter. Moving through a breach hole is treated as if moving through an open hatchway (a move action).

TYPE OF CHARGE

Structural Material	*Penetration*	*Breach*	*Damage*
Wood	250 grams	4kg	1d6
Rock/Stone	500 grams	7.5kg	1d8
Interior Starship wall	600 grams	9kg	1d10
Concrete	750 grams	11kg	1d12
Reinforced Concrete	1kg	15kg	2d8
Vehicle Hull:	1kg	15kg	2d8
Vehicle Armor:	+1kg per armor rating	+15kg per armor rating	-
Interior Starship Bulkhead:	5kg	750kg	4d20
Starship Hull:	8kg	120kg	6d20
Starship Armor:	+10kg per armor rating	+150kg per armor rating	-

Placing a Charge: 2 full round actions, DC15. A character may place a single, non-tamped charge of 10kg or less (basically a satchel charge).

Carefully Placing a Charge: 3 minutes, DC10. A character may place a single, non-tamped charge of any size.

Tamping a Charge: 6 minutes, DC20. A character may place a single, tamped charge of any size. A properly tamped charge will do twice the normal damage.

Failing a Placement or Tamping Check: There will not usually be any indication that the charge has been incorrectly placed until it is detonated. When an incorrectly-placed charge is detonated, the person who placed the charge must make another Demolition skill check (DC15). If the check is successful, the charge detonates but fails to penetrate or cause a breach, and does only one-half its normal damage. If the check is failed, the charge does not detonate correctly. It will not cause any damage to the intended target, though it may pose a hazard to anyone coming back to try to re-use it.

Damage to a Demolition Charge: If a prepared demolition charge is hit by an attack, roll 1d20. If the roll is less than the damage inflicted on the charge then it goes off prematurely. Nuclear explosives are very unlikely to be set off in this manner due to their design, but a casing breach will create a radiation hazard.

FORCE FIELDS (RULES ADDITION)

Force fields or 'black globe generators' absorb any and all energy, of whatever form, that contacts the field. They are the most effective form of defense available for any ship, but unfortunately they are not commercially available, found only as recovered alien artifacts of immense value. Energy is absorbed and diverted to special capacitors, doing no damage to the ship.

The drawback to force fields is that while any incoming energy is absorbed, any outgoing energy is also absorbed. A ship operating a black globe force field cannot maneuver, use its sensors or communications systems, fire its own weapons, or even see outside the ship while within an active force field.

The black globe generator might seem to be somewhat less than useful given the limitations, were it not for that fact that it can be 'flickered'. Each round, the screens operator decides at what rate to flicker the force field at from 0 up to the USP rating of the black globe generator itself. Each rate represents a 10% block of time, thus a flicker rate of 4 would mean the force field is flicked 'on' 40% of the time during this combat round. The force field will absorb a percentage of the damage equal to the flicker rate X 10% (round up) from any incoming AND outgoing attack this round. If a ship operating a black globe at a flicker rate of 4 would normally take 20 points of damage from an attack, the force field would absorb 8 points. If the same ship operating the black globe attacks another ship and hits for 12 points of damage, would actually only inflict 7 points on the other ship, after its own force field absorbed 5 points of the outgoing energy.

Capacitors used for the black globe generator are able to store up to 36 points of damage as EPs (Energy Points) for every ton of them available. The primary drawback to this defense system is if the available capacitor storage is exceeded because of damage absorbed by the force field the capacitors will explosively discharge, inflicting the stored EP as damage to the ship. Fortunately however, this stored energy may be diverted from the capacitors to power the ship's other systems as needed, but only when the generator is flicked 'off'. Because of this there is a limit to the maximum amount of power than can actually be drawn from the capacitors during a combat round, based on the flicker rate and the maximum output rate of the ship's power plant. A ship can draw down from the capacitors a maximum of 100% of its maximum power plant output per round, -10% for every point of the globe flicker rate

that round. For example, a ship operating a black globe with a flicker rate of 4 and a power plant with a maximum output per round of 1000EPs, could draw up to 400EPs from the capacitors each round (if the power is available). This energy can be used for any necessary ship's function. Using Capacitor energy to power a Jump drive has unpredictable and often disastrous effects.

Any black globe can be set to a flicker rate of 10, regardless of the actual USP rating of the generator. A flicker rate of 10 is not really flickering at all but rather the force field is in operation 100% of the time during the round and ALL incoming and outgoing damage is absorbed.

Some types of weapons are more effective at 'overloading' a force field due to the nature of their attack and the power behind them. While this effect does not increase the amount of damage done, it does increase the amount of actual energy that has to be absorbed by the field.

Weapon Efficiency vs. Black Globe Force Fields

Weapon Type	*Extra Energy Absorbed*
Lasers, Plasma Gun	None
Fusion Gun, Non-Nuclear Missile	Absorbed Damage X 2
Particle Accelerator	Absorbed Damage X 5
Meson Gun	Absorbed Damage X 20
Nuclear Missile	Absorbed Damage X 100

Invisibility: Because a black globe generator absorbs all incoming energy, this has the effect of rendering a ship effectively invisible. This won't help much when already in combat if a ship suddenly turns on its force field to hide, its enemies will easily be able to plot the future position of the ship based on its previous trajectory; the now 'invisible' ship cannot alter its current course and speed while under the protection of the field. The enemy's plot predictions will always be correct.

This trick does come in handy when jumping into an enemy system on a pre-plotted course with the black globe generators running at a flicker rate of 10. It will be impossible for the enemy to detect the presence of the ship until it decides to turn off the generator and reveal itself to bombard a planet or engage an enemy fleet with complete tactical surprise. Of course, there are risks...

INDIRECT FIRE (RULES ADDITION)

Indirect fire is a method of attacking a ranged target that cannot be seen by the firing weapon. It requires someone with the Forward Observer skill be in a position to observe the target and in direct communication with the gunner firing the weapon. The basic DC for a gunner to hit a target through indirect fire is 40 minus the skill rank of the forward observer. Subtract -2 from the DC for each subsequent round spent acquiring the target, to a maximum of -10DC modifier prior to firing the first shell. Thereafter, the DC can be reduced by -2 for each shell observed by the forward observer.

Calling in an attack or adjusting fire are full round actions. The attack will commence the turn after the call is made, and arrive the turn after that. Thus an indirect fire attack requires 3 rounds to complete.

To Hit Modifiers: Range and Relative speed modifiers apply to indirect fire attacks.

Missed Shots: Shots that miss have to land somewhere. If using squares for maps, roll 1d8 to determine which direction the round lands away from the target, counting round clockwise from 1 (directly over). Roll 1d6 if using hexes. The distance the round lands from the target is 1d4 squares/hexes + the number of range bands distance to the target.

Fire for Effect: Once the target is hit, the gunner may begin firing for effect. Since the target location has been locked into the weapon there is no need to see if a hit occurs on each subsequent round, it is automatic. When firing for effect, the gunner may launch an attack each round rather than every 3rd round as when adjusting fire.

MESON ATTACKS (RULES ADDITION)

Attacks by meson weapons do not use the vehicle or ship's Armor rating when calculating the vessel's AC. Instead the rating of any Meson Screens installed are used in place of the Armor rating. This is because meson weapons pass straight through armor. The only effective defense against a meson attack is a meson screen. Certain hull configurations are less susceptible to meson attacks due to targeting difficulty while others are particularly susceptible to the fire of a meson weapon.

Meson attacks also inflict radiation damage.

Vehicle or Starship Armor Class vs. Meson Attacks: 10 + Meson Screen rating + Hull Configuration Modifier (see below) + Agility modifier + size modifier

Ship Hull Configuration	*AC Modifier*
Needle/Wedge	+2
Cone	+1
Cylinder	+0
Closed Structure	-3
Sphere	-4
Flattened Sphere	-2
Dispersed Structure	+5
Planetoid	-6
Buffered Planetoid	+4

SUBSTANCE ARMOR RATING AND THICKNESS

Substance	TL	Max AR	Thickness
Paper	1	3	up to 40mm +1 AR per +20mm thickness (22cm)
Rope	0	5	up to 60mm +1 AR per +30mm thickness (33cm)
Synthetic Fibers	7	10	up to 15mm +1 AR per +15mm thickness (15cm)
Glass	1	8	up to 5mm +1 AR per +5mm thickness (5cm)
Ice	0	2	up to 80mm +1 AR per +40mm thickness (44cm)
Wood	0	6	up to 150mm +1 AR per +150mm thickness (150cm or 5')
Brick, Rock, Concrete	0	25	up to 120mm +1 AR per +120mm thickness (120cm or 4')
Reinforced Concrete	5	25	up to 90mm +1 AR per +90mm thickness (90cm or 3')
Iron	1	10	up to 60mm +1 AR per +60mm thickness (60cm or 2')
Steel	5	15	up to 30mm +1 AR per +30mm thickness (30cm or 1')
Aluminum	7	15	up to 45mm +1 AR per +45mm thickness (45cm or 1.5')
Hard Steel	6	20	up to 15mm +1 AR per +30mm thickness (15cm or 6")
Composites	8	25	up to 10mm +1 AR per +20mm thickness (10cm or 4")
Industrial Ceramics	9	25	up to 5mm +1 AR per +10mm thickness (5cm or 2")

TL: The technological level at which this substance first becomes generally available.
Base AR: The base AR of an object up to the given thickness.
Maximum AR: The maximum possible AR of an object regardless of its thickness. Materials capable of ARs of 11+ are suitable for use as chassis and armor for vehicles. Materials capable of ARs of 15+ are suitable for use as small craft and starship hull and armor.
Thickness: The AR rating of an object that is not technically 'armored' is based on the type of substance it is made of and how thick the substance is. The thicker a substance is the higher its overall AR will be. Obviously it takes a much greater thickness of timber than steel to stop a bullet.
Vehicles: For Vehicle Armor, figure thickness in centimeters rather than millimeters; maximum AR is equal to the vehicle TL.
Ships: For Smallcraft and Starship Armor, figure thickness in 10s of centimeters rather than centimeters; maximum AR is equal to the TL of the vessel.

RADIATION ATTACKS (RULES ADDITION)

Some weapons inflict radiation damage in addition to their normal damage. When determining radiation damage from nuclear missiles, and particle accelerators (but not meson guns), use the rating of any installed Nuclear Dampers (if any) in addition to the Armor rating when determine the AC of the targeted ship. Against the type of radiation produced by meson guns, armor is ineffective and only nuclear dampers will have any effect.

ATTACKING OBJECTS

Penetrate: If any damage remains after applying the effects of the Armor Rating of the material/object, the attack/explosive has penetrated the material/object, breaking any sealed environmental integrity (possibly causing explosive decompression), and the remaining damage is applied against any item(s) beyond/within.

Breach: To breach a material/object, a cumulative total of 35 points of SI damage per Armor Rating must be inflicted. A breach creates a hole about 1 meter in diameter and breaks any sealed environmental integrity (possibly causing explosive decompression). If any damage remains, it is applied against anything beyond/within the breached area. Moving through a breach hole is treated as if moving through an open hatchway (a move action).

Destroying an Item: The penetration and breach rules are used when attempting to inflict damage on an object encased within (such as in a metal box) or just beyond a covering object (perhaps behind a starship bulkhead) made of the given material. If the attack is intended to simply destroy an object made of a given material, for example crushing a metal box, it must inflict an amount of damage equal to the Structural Integrity rating of the object itself (usually based on size if not otherwise specified).

OBJECT ARMOR RATING AND STRUCTURAL INTEGRITY

Item	AR	SI
Rope	0	1
Synthetic Rope	0	1
Light Fixture	0	2
Simple Wooden Door	0	2
Small Wood Crate	0	4
Metal Storage Barrel	1	6
Heavy Wooden Door	2	7
Fireproof Box	2	4
Metal Door	5	10
Brick, Rock, or Concrete Wall (30cm thick)	3	17
Reinforced Concrete Wall (1 meter thick)	9	50
Steel Chain	5	2
Handcuffs	5	1
Interior Wooden Wall	0	2
Interior Metal (Hard Steel) Wall	5	8
Bulkhead	10	50

BASIC VEHICLE AND STARSHIP COMBAT

These basic rules for vehicle and starship combat presented here are designed to allow for more roleplaying and involvement of the characters, rather than a map and miniature approach (which is available in the Advanced Rules that follow later). Movement and maneuvering are abstracted to allow for cinematic battles as vessels attempt to maneuver into a position of pursuit and advantage against their opponents, or frantically try to shake the pursuit of an opponent that is hot on their tail.

Range is similarly abstracted, needing only to note whether the range for all vessels involved for each round is Close, Short, Medium, Long, Very Long, or Extreme.

The term vessel is used to refer to starships, small craft, or vehicles as a general inclusive group. If the term starship, small craft, or vehicle is specifically used, it refers to those types of craft only.

ACTIONS IN BASIC COMBAT

Most personal actions detailed earlier and found in the d20 core rule books are not appropriate while a character is a passenger or crewmember on board a vessel (unless approved by the Referee). Specific exceptions to this are personal attack actions, which are possible if a character is able to fire a weapon out of an open window, hatch or other opening in the vessel.

In these cases, the attack by the character is handled normally, except the attack is also considered to be a Burst Fire attack of 10 rounds (ignore the action requirements in this case). This reflects the additional time involved during vehicle combat rounds. Note that it is still possible for a character to take the Burst Fire action. In such a case, multiply the number of rounds fired by the character by 10 to determine the effects of the Burst Fire.

THE COMBAT ROUND

When individual personnel are not involved, and a combat is between only vehicles or vehicles and starships (including small craft) operating within the atmosphere of a planet, each combat round is 1 minute long under these basic rules. When combat involves only starships and small craft, the length of each combat round is 20 minutes under these basic rules.

NEW ACTIONS

In addition to personal attack actions, the following new actions are available to crewmembers aboard a vessel, small craft, etc. These are broken down by the crew position that would usually handle the action, and ideally a separate character will handle each position. This will usually give each character an opportunity to do something and contribute to the combat based on their diverse skills, but a character may freely take action from any crew position if they are qualified and have enough time to complete the action this round.

Captain/Commander Actions

Command: The vessel's commander may use his or her Leader skill to rally the crew and improve morale and performance. Make a leadership skill check (DC15). If successful all crewmembers may enjoy a bonus to all skill checks, saving throws, and attack rolls this round, equal to the commander's Leader skill rank divided by 3 (round down). This is a standard action.

Tactics: The vessel's captain may use his or her knowledge of Tactics (for vehicles) or Ship's Tactics (for small craft and starships) to help position the vessel into a better defensive and offensive posture. The use of this feat is a full round action for the captain/commander, but will impart a bonus to all attacks and defenses equal to the captain's Wisdom or Intelligence ability bonus, whichever is higher. Treat any penalty as +0.

Pilot/Driver Actions

All Vessels

Adjust Speed: Increase or decrease the vehicle speed, up to an amount equal to its maximum acceleration. This is a move action and requires no skill check.

Adjust Range: A pilot may attempt to adjust the range between their craft and another. An opposed Pilot skill check must be made between both pilots, applying the modifiers. The pilot with the higher skill check result

ADJUST RANGE MODIFIERS

Circumstance	Modifier
Higher Current Speed	+1 per 10kph difference in speed
Higher Acceleration	+1 per difference in maximum acceleration
Vehicle Agility	+0-6

COLLISION AVOIDANCE

Situation	DC
Base	5
Traffic (5 or more vessels within short range)	+5
Heavy brush	+10
Small debris field, heavy traffic, light woods	+15
Asteroid field, light density	+20
Asteroid field, average density	+25
Asteroid field, heavy density	+30
Every 6 points of speed (starships and small craft)	+5
Very Slow (vehicles only)	+0
Slow or Offroad speed (vehicles only)	+5
Cruising speed (vehicles only)	+10
Fast (vehicles only)	+15

EVASIVE MANEUVERS

Result	AC Bonus
1-10	+0
11-20	+1
21-28	+2
29-33	+4
34-38	+6
39+	+8

may elect to increase, decrease, or maintain the distance between the vehicles. This action applies to vehicles only, and is a move action for BOTH pilots. If the other pilot has already taken a move or full action this round, the check goes unopposed. If the other pilot has not taken a move or full action this round, opposing a range adjustment will count as their move action for the round.

Avoid Collision: When a vessel is moving at short or close range through a debris field, traffic, an asteroid belt, a planetary ring, or similar situation where there is a reasonable chance of collision with another object, the pilot must make an Avoid Collision check each round. This is a full action.

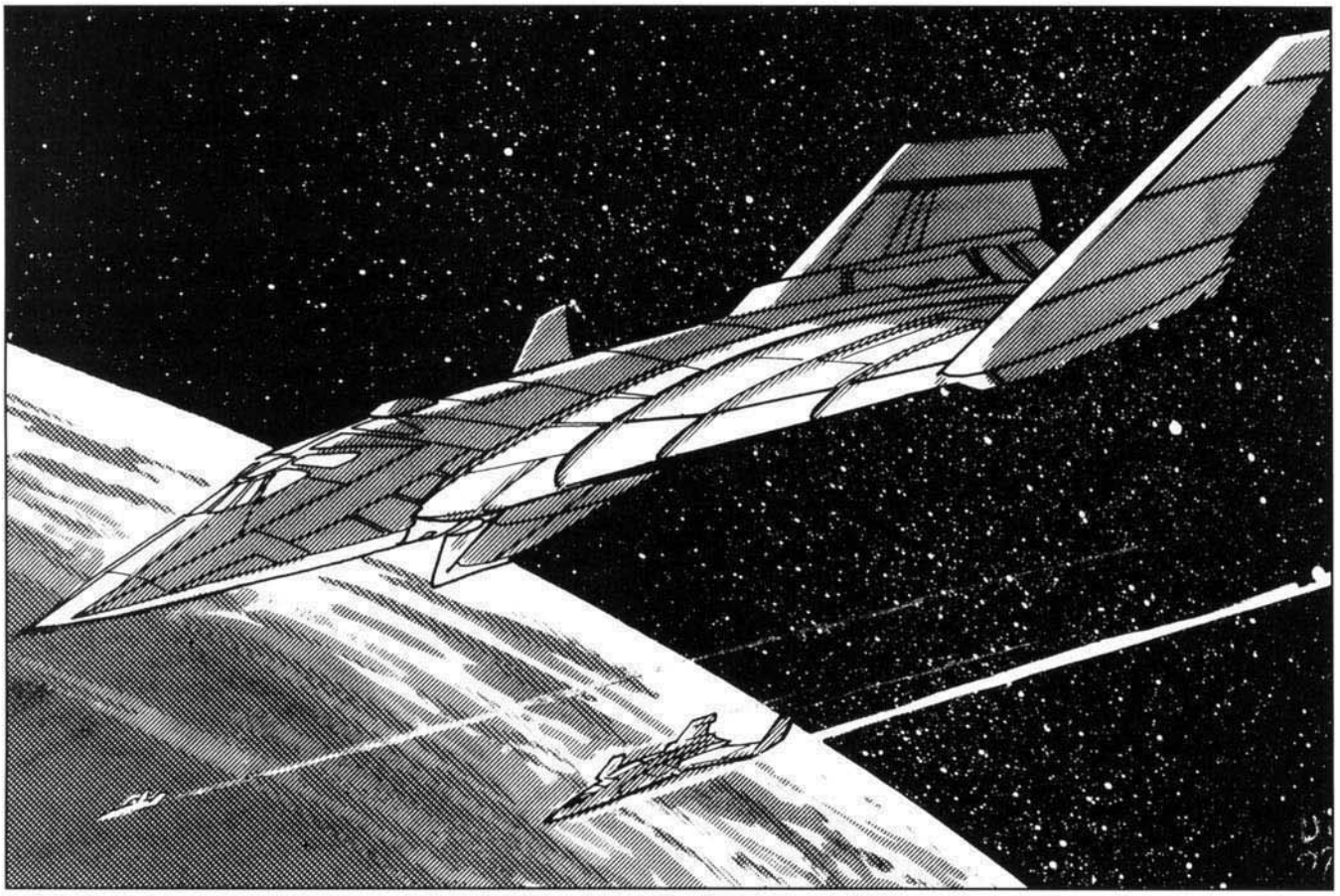
Break Pursuit: If a vessel is being pursued (see Pursuit below) the pilot or driver may break the pursuit with a successful opposed Pilot or Driver skill check against his opponent. Once the pursuit has broken and the pursuing vessel loses all accumulated attack bonuses against that target. This is a full round action.

Evade Attack: The pilot/driver operates the vessel in an erratic manner in an attempt to avoid being hit by opposing weapons fire. This is a full round action and allows the pilot/driver to make a Pilot/Drive skill on the Evasive Maneuvers table to determine the defensive AC bonus imparted to the vessel this round.

Move: The pilot/driver keeps the vessel on its current course and heading, remaining at the current speed. This is a move action and requires no skill check.

Pursuit: If a pilot/driver makes a successful opposed Pilot/Driver skill check against another vessel, the successful pilot/driver has placed his vessel in pursuit of his target maintaining the current range and matching the target ship move for move. Once a pursuit has been established, it must be maintained each round to take advantage of the position. No skill check is required to maintain a pursuit. It is automatically maintained unless the target attempts to Break Pursuit action, manages to extend the range to Medium or greater, or succeeds in outpacing the speed of the pursuing vessel by 7+ points (for starships and small craft) or by 50kph (for vehicles). Establishing the initial pursuit is a full round action, as is maintaining a pursuit.

For each round (after the first) that a vessel maintains pursuit of another vessel, it may add a cumulative +1 bonus to hit when attacking the vessel being pursued, up to a maximum of +4. While in pursuit of a target, a vessel loses its agility bonus to its AC if it comes under attack itself. This is a full round action and may only be attempted at Short range or closer and both ships must be at the same speed when the pursuit is begun.



Ram: Ramming is a potentially suicidal maneuver in which a pilot intentionally crashes his vessel into the hull or chassis of another vessel. This action may only be attempted at close range, and if the ramming vessel is moving faster than the target. See Vessel Collisions for more information.

To successfully ram another vessel requires an opposed Pilot/Drive skill check between both vessels. This is a full round action.

Pilot Actions

Starships and Small Craft Only

Atmospheric Entry: The pilot may attempt to transition the ship out of orbit and into the atmosphere of a planet. Once a ship has successfully entered an atmosphere, all movement is handled as if it were any other aircraft in flight and now uses the Vehicle Manuever Actions instead. This is a full action with a base DC equal to the World Atmosphere UWP rating + the World Size UWP rating. Exotic, Corrosive, or Insidious atmospheres should be treated as Standard unless specified otherwise. Attempting this action may provoke an Attack of Opportunity. This action may be taken by starships and small craft only

Dock Ships: The pilot may attempt to dock one ship with another allowing passage between both ships for cargo and crew. This is usually a small craft docking with a starship, but it is possible to dock some starships together. Both ships must be moving at the same speed, and there must be no opposition to the attempt. If this is a hostile docking attempt, the target ship must have been rendered incapable of maneuvering. This is a full action with a DC of 20, and may provoke an Attack of Opportunity. Only starships and small craft may take this action.

Orbital Insertion: The pilot may attempt to insert the ship into orbit around a planet. In an orbital insertion fails, the ship fails to enter the proper orbit, and the orbit will steadily begin to decay drawing the ship towards the planet's atmosphere in an uncontrolled reentry (see Atmospheric Reentry). This is a full action with a base DC of 15, and may provoke an Attack of Opportunity. Only starships and small craft may take this action.

Astrogator Actions

Starships and Small Craft Only

Range Check: At the beginning of each round, each ship must make a T/Astrogation skill check. The ship with the highest result may elect to increase, decrease, or maintain the range for the round. This is a standard action and applies to starships and small craft only.

Communications Operator Actions

All Vessels with communications equipment

Tactical Communication: The Comms Officer can establish and maintain communications between allied vessels using the normal rules for communication (see T/Communications skill). If there is significant interference or a lot of communications going on (e.g. due to bad comm. discipline among a fleet), the DC is increased; treat as Considerable Noise (+10). Deliberate comms jamming will increase DC as described under the T/Communications skill. These modifiers do stack. If reliable communications are not established, vessels cannot act in concert, and Fleet Tactics skill cannot be applied. Maintaining communications is a full round action.

Comms Jamming: The Comms Officer can attempt to jam local communication as a full action. See the T/Communications skill for details.

Intercept Enemy Communications: As a full-round action, the Comms Officer may attempt to intercept enemy communications. This requires a T/Communications skill check at a DC of (20 + enemy comm. system number). Encryption (if any) must also be broken. Knowledge of enemy intentions can be valuable to a commander, if she knows how to use it. A vessel commander may make a Ships Tactics or Tactics check at a DC of 15 to gain an advantage from intercepted comms. If successful, the commander gains knowledge of the enemy's dispositions or intentions. This translates to a one-time +10 bonus to any skill check affecting the enemy (e.g. a pilot's attempt to evade a sudden attack, or a gunner's precise shot just as the enemy vessel turns to present a better target.) Of course, the enemy must have communications for them to be intercepted.

Computer Operator Actions

Computer Fire Control: Rather than having individual gunners handle the vessel's weaponry, the computer is handling both targeting and fire control this round. Attacks are handled normally, but the Main Computer Model Number is used in place of Gunnery skill rank and no sensor bonuses are allowed. This is a free action, but the computer may not be used to handle targeting for gunners this round. The computer operator should make the attack rolls for the computer this round.

1d20 + Computer model number + size modifier + targeting bonus + range penalty = AC hit.

Computer Targeting: The vessel's computer is handling targeting for all weapons this round, leaving the sensor operator to handle other tasks instead. This is a free action, but the computer may not be used to handle fire control for the vessel this round. The computer operator should roll 1d20 + the Main Computer Model Number to check for success for each vessel that is to targeted. The DC for this task is 15 or the current Sensor Jamming rating of the target. If successful, all gunners on the vessel may add a bonus equal to the Main Computer Model Number / 3 to their attack rolls this round.

Sensor Operator Actions

Sensor Jamming: The sensor operator may attempt to spend the round providing defensive sensor jamming against incoming targeting lock attempts by enemy vessels, hopefully decreasing their chance of getting hit. The operator rolls 1d20 + his T/Sensor skill + the Sensor Model Number of the vessel to set the vessel's Sensor Jamming rating for this round. This rating is the DC that any opposing vessel will have to beat in order to obtain a target lock or other sensor scan on the sensor operator's vessel. This is a full round action.

Sensor Targeting: The sensor operator may attempt to spend the round providing improved fire control and targeting data to the gunners, hopefully increasing their chances of hitting their targets. The sensor operator should roll 1d20 + his T/Sensors skill + the Sensor Model Number to check for success for each vessel that is to targeted. The DC for this task is 15 or the current Sensor Jamming rating of the target. If successful, all gunners on the vessel may add a bonus equal to the Main Computer Model Number to their attack rolls this round. This is a full round action.

Gunner Actions

Attack: A gunner may attack any target within the range of the weapon system they are manning. The gunner attacks by making a Gunnery skill check roll adding the USP rating of the weapon system, along with any Range, Computer Targeting, Sensor Targeting, or other modifiers in effect this round for his vessel. This is a full round action.

1d20 + Gunnery skill + size modifier + targeting bonus + range penalty = AC hit.

Point Defense Sandcasters: A target defending against a missile, laser, plasma, or fusion attack may fire defensive sand if the vessel has any sandcaster mounts/turrets/batteries and gunners that have not already acted this round. Gunners

and mounts/turrets/batteries used in point defense may not be used to attack later in the same round. Defensive sand adds the sandcaster USP/UVP rating to the target's defense score for this attack. As many point defense sandcasters may be fired as are available, each adding their USP/UVP rating to the target's defense total.

Point Defense Lasers: A target defending against a missile attack may fire defensive lasers if the vessel has any laser mounts/turrets/batteries and gunners that have not already acted this round. Gunners and mounts/turrets/batteries used in point defense may not be used to attack later in the same round. The defending gunner makes an attack roll against a DC of 16 + the owning vessel's computer USP/UVP. If the defending gunner hits, the missile attack fails. The defender may attempt to shoot down an incoming missile attack with as many point defense laser mounts/turrets/batteries as they have available.

Point Defense Laser: 1d20 + Gunnery skill + (Computer USP/UVP) + Weapon UVP/USP
Missile's Defense: 16 + Missile USP/UVP

Point Defense Repulsors: A target defending against a missile attack may fire repulsors if the vessel has any repulsor mounts/turrets/batteries and gunners that have not already acted this round. Gunners and mounts/turrets/batteries used in point defense may not be used to attack later in the same round.

Point Defense Repulsor: 1d20 + Gunnery skill + (Computer USP/UVP) + Weapon UVP/USP
Missile's Defense: 10 + Missile USP/UVP

Reload Vessel or Vessel's Weapon: A crewmember (usually the gunner) may spend the round reloading one (1) spent missile rack, one (1) spent sandcaster or other individual weapon system. This is a full round action.

Engineer/Mechanic Actions

Damage Control: An engineer may attempt to effect temporary and jury-rigged repairs to damaged systems on a vessel in an attempt to bring them back online and/or improved degraded performance due to inflicted damage. This is a full round action. See Repairing Damage (pg. 168) for more information. This is a full round action.

Power Routing: If a the power plant of a vessel or vessel takes damage and its power output is reduced, there may not be enough power available each round to power all the vessel's drives, weapons and other systems at the same time. In this case, the engineer must reallocate power to the various systems as she deems necessary and appropriate. Drives, weapons, or other systems without power in a round may not be used. This is a full round action.

Excess Power Routing: If a vessel can produce excess power (in the form of Energy Points or EP) beyond what is needed for its drives, subsystems, and agility rating, it may apply this extra power in a couple of ways.

Emergency Agility: An engineer/mechanic may attempt to temporarily improve the performance of a vessels drive system, thereby increasing the defensive agility of the vessel making it harder it hit. The engineer/mechanic must make a T/Engineering or T/Mechanical skill check as appropriate (DC15). If successful the vessel's agility is improved to a rating equal to the vessel's maximum agility rating based on the installed drive train or maneuver drive. While using emergency agility, all weapon systems and screens are temporarily offline. This is a full round action.

For each round this is kept up, another appropriate skill check must be made, but a -1 per subsequent round. If the attempt fails, there is a chance that the drive system has been damaged. Make another skill check DC 20, to avoid permanently reducing the vessel's drive rating by a factor of one until the vessel can be brought into port and the system overhauled and repaired properly.

Overpower Weapons: An engineer/mechanic may attempt to temporarily improve the weapon factor of a vessels weapon system, thereby increasing the damage they inflict if they hit a target. The engineer/mechanic must make a Technical: Engineering or Mechanical skill check as appropriate (DC15). Add +1 to the DC for each factor of overpowering attempted up to a maximum factor of 9. If successful add +1 die of damage for every factor of overpowering. While using overpowered weapons, the vessel or vessel may not accelerate, decelerate, or maneuver, and the agility rating is temporarily reduced to 0. This is a full round action.

For each round this is kept up, another appropriate skill check must be made, but a -1 per subsequent round. If the attempt fails, there is a chance that the weapon system has been damaged. Make another T/Engineering skill check DC 20, to avoid permanently reducing the weapon rating by a factor of one until the vessel can be brought into port and the system overhauled and repaired properly.

DAMAGE (RULES ADDITION)

COLLISIONS

If two vessels collide, both will inflict an amount of damage on the other based on their current Structural Integrity rating and their current speed. In most cases, this will result in the destruction of vessels of the same size or of smaller vessels colliding with larger vessels. Starships and small craft colliding with large asteroids, moons, or other natural celestial objects are destroyed upon impact.

VEHICLE INTERNAL HIT LOCATION

Affected Area	
d100	*Internal Hit Location*
Chassis	
01-02	**Miscellaneous Systems:** Treat as a Visual system hit if no miscellaneous systems installed or intact.
03-04	**Visual Systems:** Treat as a Communication systems hit if no visual systems installed or intact.
05-07	**Communication Systems:** Treat as a Sensor system hit if no comm. systems installed or intact.
08-10	**Sensor Systems:** Treat as an Appendage hit if no sensor system installed or intact.
11-14	**Appendages:** Treat as a Weapon mount hit if no appendages installed. Treat as a Chassis hit if no weapon mounts installed or intact.
15-18	**Weapon Mounts:** Treat as an Appendage hit if no weapon mounts installed. Treat as a Chassis hit if no appendages installed or intact.
19-25	**Drive Train:** Treat as a Power plant hit if no drive trains installed or remaining intact.
26-30	**Control Systems:** Treat as additional Chassis SI damage if no control systems installed or intact.
Engine Compartment	
31-35	**Fuel Tanks:** Treat as a Drive train hit if no fuel tanks installed or intact.
36-40	**Drive Train:** Treat as a Power plant hit if no drive trains installed or remaining intact.
41-45	**Power Plant:** Treat as a Control system hit if no power plant installed or intact.
46-50	**Control System:** Treat as additional Chassis SI damage if no remaining control systems intact.
Passenger/Cargo Compartment	
51-64	**Cargo Area:** Treat as an Unoccupied Facility hit if no cargo is aboard or remains intact.
Internal Electronics	
65-66	**Onboard Computers:** Treat as a Miscellaneous system hit if no onboard computers installed or intact.
67	**Miscellaneous Systems:** Treat as a Visual system hit if no miscellaneous systems installed or intact.
68	**Visual Systems:** Treat as a Communication systems hit if no visual systems installed or intact.
69	**Communication Systems:** Treat as a Sensor system hit if no comm. systems installed or intact.
70	**Sensor Systems:** Treat as an Operational Control-Control system hit if no sensor system installed or intact.
Passenger and Crew Facilities	
71-78	**Unoccupied Facility:** Treat as an Occupied facility hit if no unoccupied facilities available or intact.
79-80	**Weapon Mounts:** Treat as an Appendage hit if no weapon mounts installed. Treat as a Passenger hit (the Gunner) if no occupied facilities available or intact. If no gunner, then treat as additional Chassis SI damage if no (living) driver operating the vehicle.
81-86	**Occupied Facility:** Treat as a Passenger hit if no occupied facilities available or intact.
87-90	**Passenger:** Treat as an Operational Control-Control system hit if no (living) passenger in the facility.
Operational Control	
91-95	**Control System:** Treat as a Robotic brain hit if no remaining control systems intact.
96-97	**Robotic Brain:** Treat as a Driver hit if no robotic brain installed or intact.
98-100	**Driver:** Treat as additional Chassis SI damage if no (living) driver operating the vehicle.

DAMAGE EXPLANATIONS

Unless specified otherwise, the owner/pilot/driver of the vehicle may decide which specific systems are hit if more than target one is possible.

Miscellaneous System: One or more miscellaneous electronic systems are hit and disabled.

Visual System: One or more visual electronic systems are hit and disabled.

Communications System: One or more communications systems are hit and disabled.

Sensor System: One or more sensor systems are hit and disabled.

Appendage: One or more appendages are hit and disabled.

Weapon Mount: One or more weapon mounts are hit and disabled.

Drive Train: One or more of independent drive trains are hit and disabled.

Control System: The vehicle immediately becomes out of control, with no chance of recovery. The vehicle will slow at its standard deceleration rate and/or begin to fall out of the sky unable to keep itself aloft. Unless otherwise damaged and inoperable, all other systems aboard remain functional.

Fuel Tank: The fuel tank is hit and ruptured, losing all fuel within.

Power Plant: One or more power plants are hit and disabled reducing the available power to the vehicle.

Cargo Area: One or more items of cargo aboard are hit and destroyed.

Onboard Computer: One or more onboard computers are hit and disabled.

Unoccupied Facility: An unoccupied passenger or crew facility is hit and rendered unusable.

Occupied Facility: An occupied passenger or crew facility is hit and rendered unusable. Apply damage (randomly if more than one occupant) equal to one-half the total SI damage inflicted with this hit until all damage has been applied or no occupants remain standing. Any personal armor worn by the victim(s) applies.

Passenger: A specific passenger is hit. Apply damage equal to one-half the total SI damage inflicted with this hit. Any personal armor worn by the victim applies.

Robotic Brain: The robotic brain operating the vehicle is hit and disabled. The vehicle immediately becomes out of control, with no chance of recovery. The vehicle will slow at its standard deceleration rate and/or begin to fall out of the sky unable to keep itself aloft. Unless otherwise damaged and inoperable, all other systems aboard remain functional.

Driver/Pilot: The operator of the vehicle is hit. Apply damage equal to the total SI damage inflicted with this hit. Any personal armor worn by the victim applies. If the operator falls unconscious or dies, the vehicle immediately becomes out of control, with no chance of recovery until the drive/pilot is moved so another may attempt to regain control. The vehicle will slow at its standard deceleration rate and/or begin to fall out of the sky unable to keep itself aloft. Unless otherwise damaged and inoperable, all other systems aboard remain functional.

Vehicle Speed	*Damage on Target*
Not Moving	-
Very Slow	Vehicle SI x 0.1
Slow	Vehicle SI x 0.25
Cruising Speed	Vehicle SI x 0.5
Fast	Vehicle SI
Max Speed	Vehicle SI x 2

Target	*Damage on Vehicle*
Lifeform	CON Score + Armor Rating
Another Vehicle	Its Damage on Target
Stone/Concrete/Steel	SI x 3
Large Tree	SI x 2
Wooden Structure	SI x 1.5
Small Tree	SI x1.25
Plant (shrub or bush)	SI x1.1
Another Vehicle	See Vehicle Speed above

VEHICLE INTERNAL DAMAGE

In addition to Structural Integrity damage, vehicles may also take internal damage to their subsystems and components.

Critical Hits: A vehicle will suffer internal damage on a critical hit. In this circumstance, the attacker ignores the armor rating (AR) of the vehicle and inflicts the full amount of damage rolled against its chassis SI rating. For most weapons, this damage is doubled on a critical hit (though some weapons may have a greater multiplier).

In addition, the attack also scores an Internal Hit on one of the subsystems, components, occupants, or other item with the vehicle itself. To determine where the remainder of the damage is applied, the attacker rolls once on the Vehicle Internal Hit Location table.

Affected Area: If a vehicle is hit with a weapon that has an area of effect (this includes all starship and small craft

SMALL CRAFT AND STARSHIP INTERNAL DAMAGE LOCATIONS

All Weapons

1d100	*Subtable*
01-23	Miscellaneous
24-50	Fuel
51-72	Fire Control
73-89	Engineering
90-92	Screens
93-94	Electronics
95	Crew
96+	Special

Radiation Weapons (Particle Accelerators, Nuclear Missiles, and Meson Guns)

1d100	*Subtable*
01-45	Fire Control
46-88	Electronics
89-97	Crew
98+	Special

Weapon Platform	*Modifier*
Pulse Laser	+5 (does not apply to the radiation table)
Nuclear Missile	+20 (does not apply to the radiation table)
Spinal Mount	+40 (applies to both tables)

Miscellaneous Subtable

1d100	*Specific Location*
01-40	Cargo Hold
41-60	Staterooms
61-70	Small Craft
71-75	Ship's Vehicle
76-80	Engineering/Vehicle Shop
81-85	Sickbay/Lab
86-90	Low Berths
91-92	Ship's Locker
93-94	Magazine
95-96	Fuel Purification
97-98	Gravitics
99-00	Life Support

Special Subtable

1d100	*Specific Location*
01-02	Frozen Watch/Ship's Troops/Low Passengers Dead
03-05	Fire Control Out
06-10	Roll on the Crew subtable
11-20	Power Plant Disabled
21-35	One Hanger/Boat Deck/Vehicle Storage
36-65	Jump Drive Disabled
66-80	One Screen Disabled
81-90	Maneuver Drive Destroyed
91-95	Computer Destroyed
96-98	Bridge Destroyed
99-00	Vessel Vaporized

Crewmember Attack Subtable (Optional)

1d100	*Equivalent Effect*
01-25	1 attack for 1d4 damage
26-50	1 attack for 1d6 damage
51-60	1 attack for 1d8 damage
61-70	1 attack for 1d10 damage
71-80	1 attack for 3d6 damage
81-90	1 attack for 3D10 damage
91-95	1d3 attacks for 3d6 damage each (apply armor separately against each)
96-98	1d3 attacks for 3d10 damage each (apply armor separately against each)
99	1d3 attacks for 6d6 each (apply armor separately against each)
00	Character is blasted into tiny bits, burned to a cinder, or is dramatically killed in some other way.

All damage is lethal, i.e. inflicts Lifeblood damage.

Fuel Subtable

1d100	*Specific Location*
01-20	Purification Plant or Fuel Feed Equipment
21-100	Fuel Tanks

Fire Control Subtable

1d100	*Specific Location*
01-70	Battery
71-85	100-ton Weapon Bay
86-90	50-ton Weapon Bay
96-100	Spinal Mount

Engineering Subtable

1d100	*Specific Location*
01-29	Maneuver Drive
30-65	Jump Drive
66-100	Power Plant

Screens Subtable

1d100	*Specific Location*
01-34	Repulsors
35-67	Nuclear Damper
68-100	Meson Screen

Electronics Subtable

1d100	*Specific Location*
01-40	Sensors
41-80	Communications
81-100	Computer

Crew Subtable

1d100	*Specific Location*
01-20	Flight/Command Crew
21-40	Gunnery Crew
41-60	Engineering Crew
61-100	Other Crew

SMALL CRAFT AND STARSHIP INTERNAL DAMAGE LOCATIONS

Tracking Internal Damage

Mark damaged systems with an X for each hit they take. Mark each repair with a / (slash) to show that a system has only been temporarily repaired. Erase all marks when damage has been permanently repaired.

Any subsequent hit to a previously damaged system will destroy all battlefield repairs that have been completed. All battlefield repairs are temporary at best. If a system is completely damage it is disabled and no longer functions at all, until repaired.

Damage Explanations

How damage affects individual systems is detailed below in alphabetical system order.

Appendage: The duty rating of the appendage is reduced by one level. Heavy would become Medium, a Medium appendage reduced to a Light appendage, and a Light appendage would be rendered inoperable.

Cabin/Small Stateroom/Bunks: 1d3 of the crew and passenger quarters has been damaged or rendered unusable, reducing the available living space for the crew and passengers.

Cargo Hold: 10% (round down) of the cargo hold space, and any cargo within, are damaged or destroyed.

Computer: The model number of a specific computer system (targeting, autopilot etc) is reduced by 1 for every hit taken. If model number reaches zero, the system is inoperable.

Crew: 10% of the crew within the affected area (a minimum of one person aboard small ship, probably several crewmembers aboard a larger vessel) is seriously injured by secondary effects of the weapon. The Referee may simply assume the character is "down" and out for the duration of the fight, or may use the optional Crewmember Attack Table. Each affected person is automatically hit by the equivalent of the weapon attack listed, representing hull spallation, electrocution, fire, etc.

Engineering Shop: One of the engineering shops aboard the vessel has been damaged or rendered inoperable, reducing the available machining and workshop support for the engineering staff.

Frozen Watch: Some vessels carry excess crewmembers in low berths, to be awakened in the event of crew casualties. Damage to the low berth area will kill these personnel.

Fuel: 10% of the available fuel stores on board have been lost. If the vessel runs out of fuel, the power plant will shut down.

Fuel Feed: Fuel feed becomes erratic. The ship can maneuver, fire etc, but any attempt to Jump will result in a catastrophic Misjump 25% of the time and a minor Misjump 50% of the time.

Fuel Purification: The efficiency of the ship's fuel purification system is reduced by 10%, increasing the time it takes to refine fuel for the tanks.

Gravitics: Gravity aboard the vessel is reduced by 10% each time this system is hit. If gravity is reduced to less than 80% the ship is considered to be a low gravity environment. If gravity is reduced to 30% or less, consider the ship to be a trace gravity environment. If gravity is reduced to 0%, the ship and its inhabitants are left in a zero-g environment. Apply any gravity modifiers as appropriate.

Jump Drives: A jump drive can take up to its Jump rating (1-6) in hits before failing to work at all. Each hit will reduce its effective Jump range by 1 parsec.

Laboratory: One of the undamaged labs aboard the vessel has been damaged or rendered inoperable, reducing the available lab and research support for the science staff.

Low Berth: 1d4 of the Low Berths aboard have failed or been damaged, killing the occupants inside (if any).

Maneuver Drives: A maneuver drive can take up to its acceleration rate (1-6 Gs) in hits before failing to work at all. Each hit will reduce its effective acceleration rate by 1-G.

Passengers: 5% of the passengers or crew have been either injured or killed, with a minimum of 1.

Power Plants: A power plant can take up to its power rating (1+) in hits before failing to work at all. Each hit will reduce its power rating, and thus its output (possibly limiting the number of subsystems that may be operated during each round).

Sensors: Reduce the model number of the sensor system by 1 for each hit taken. This will reduce the effective range of the system. If the model number is reduced to zero or less, the system is disabled completely (but not destroyed).

Ship's Locker: The ship's locker has been hit destroying 10% of the contents within. If the locker's displacement is one ton or less, it is destroyed.

Ship's Vehicle: 1d3 vehicles have been hit. Treat as if an attack had hit each vessel and apply the damage from this attack against each normally.

Sickbay: One of the undamaged sickbays have been damaged or rendered inoperable, reducing the available lab and surgical support for the medical staff.

Small Craft: 1d2 small craft (1-99 tons) have been hit. Treat as if an attack had hit each vessel and apply the damage from this attack against each normally.

Staterooms: 1d20 staterooms have been damaged or rendered unusable, reducing the available living space for the crew and passengers.

Vehicle Shop: One of the vehicle shops aboard the vessel has been damaged or rendered inoperable, reducing the available machining and workshop support for the vehicle and mechanical staff.

Ship's Weaponry Damage Explanations

50-ton Weapon Bay: Reduce the bay's attack rating by 1. If the attack rating is ever reduced to zero or less, the bay is rendered inoperable.

100-ton Weapon Bay: Reduce the bay's attack rating by 1. If the attack rating is ever reduced to zero or less, the bay is rendered inoperable.

Battery: A battery, whether it consists of 1 turret or 10 or more, has been struck and damaged. Reduce the battery's attack rating by 1. If the attack rating is ever reduced to zero or less, the battery is rendered inoperable.

Magazine: 10% of the ammo stored in the ship's magazines has been destroyed (causing no additional damage).

Meson Screen: Reduce the defense rating of the system by 1. If reduced to zero or less, the system is rendered inoperable.

Nuclear Dampers: Reduce the defense rating of the system by 1. If reduced to zero or less, the system is rendered inoperable.

Repulsors: Reduce the defense rating of the system by 1. If reduced to zero or less, the system is rendered inoperable.

Spinal Mount: Reduce the weapon's attack rating by 1. If the attack rating is ever reduced to zero or less, the weapon is rendered inoperable.

weaponry), all systems listed under the Affected Area take full damage. If there are sub-areas listed, the damage is applied only to those systems listed under the sub-area. For example, a hit to a vehicle's engine compartment would affect the fuel tanks, drive train, power plant, and control system. If the hit were in the Chassis, specifically in the External Electronics sub-area, the only systems affected would be miscellaneous, visual, comm., and sensors. Appendages, weapon mounts, and control systems would not be affected even though they are part of the chassis because they are listed as part of a separate sub-area instead.

SMALL CRAFT AND STARSHIP INTERNAL DAMAGE LOCATIONS

If a small craft or starship takes any SI damage after any armor has reduced the total, roll once on the appropriate Internal Damage Location table. If a component rolled does not exist, move one row down on the table until a result occurs with a component that does exist. If the end of the table is reached and no installed component has been found, the shot passes through the vessel without causing further damage.

Use this section for determining hit locations on small craft and starships, and tracking damage to the vessel. All tables use 1d100.

BATTLEFIELD REPAIRS

Field repairs are no substitute for a complete repair job, but when time is of the essence, these 'patches' may mean the difference between survival and extinction. A damaged system can be temporarily repaired up to an effective factor equal to its original undamaged factor -1. When such repairs are complete the system will begin functioning at its repaired level. When not in combat, an appropriate skill check (DC15) should be made by the chief engineer/mechanic every 1d6 days to be sure that nothing goes amiss with the patches until a proper repair job can be carried out.

DAMAGE CONTROL OFFICER

One character should be designated damage control officer (DCO). This person is responsible for oversee all in-battle repairs, and thus will make all dice rolls for that position. It is best if this person has appropriate skills (Leader, plus Technical: Engineering, Mechanical, Electronics, or Gravitics) and feats such as Damage Control, Jury Rig, and/or Miracle Worker. On smaller ships the DCO is most likely the Chief Engineer. If there is no Chief Engineer and no-one has any appropriate feats and skills, select any character not otherwise occupied to make all DCO rolls.

Damage Control: This feat allows the chief engineer or DCO to more quickly and accurately assess the damage and implement a plan of repair. Reduce the repair DC by 5.

Jury Rig: Unorthodox but usually effective solutions are the hallmark of this feat, giving a +2 bonus to all repair checks.

Miracle Worker: When attempting to repair a system, the chief engineer may attempt to use this feat, but it must be declared before the repair check roll is made. If the skill check is successful, the system is automatically repaired to its original rating less one factor. This feat can only be used once per damaged system until fully repaired.

Skill Synergy: For every 5 ranks, or portion thereof the DCO possesses in the appropriate skill (e.g. Gravitics for a maneuver drive) for the repair add +1 to all repair checks.

THE ENGINEERING CREW

For the Engineering crew to be most effective, it must be fully staffed. If the vessel has taken crew losses in the battle, these will affect the performance of the engineering crew by an equivalent factor.

Each round the DCO must specify the percentage of the engineering crew she needs for damage control, in 5% increments, up to the remaining percentage of the crew. For example, if a ship has suffered 45% crew losses so far, the DCO can request up to 55% of the crew, in 5% increments (100% - 45% losses = 55% remaining). These crewmembers are not available for any other task this round.

Every 10% (or less) shortage in available engineering crew incurs a -1 penalty to all repair checks this round. So if the DCO allocated only 75% of the total crew to damage control, she would suffer a -3 penalty.

REPAIR RANK

The repair rank of the engineering crew is equal to the average appropriate skill rank of each member of the engineering crew (round down). This will be used when making any repair checks.

ENGINEERING SHOPS

A sufficient number of available engineering shops to support the engineering crew (1 shop per 20 engineers) will greatly improve the chances of expedient repairs by adding a +2 bonus to all repair checks.

MAKING A BATTLEFIELD REPAIR

Using theBattlefield Repairs table, find the skill and DC required for the repair. If the chief engineer or DCO has the Damage Control feat, reduce the DC by -5.

The chief engineer or DCO now rolls 1d20, adding the Repair Rank of the engineering crew for the appropriate skill and any shop bonus, crew loss penalties, or other bonuses the chief engineer/DCO provides. If the roll total is greater than the required DC, remove one recorded hit

BATTLEFIELD REPAIRS

System to be Repaired	*Skill Required*	*DC*
Engineering	-	-
Jump Drive	T/Engineering	40
Maneuver Drive	T/Engineering	36
Power Plant	T/Engineering	26
Screens	T/Electronics	38
Fire Control or Vehicle Weapons	T/Electronics or T/Mechanical	36 or 34
Low Berths	T/Medical or T/Electronics	36 or 34
Electronics	T/Electronics	24
Mechanical	T/Mechanical	22
Other Miscellaneous	T/Mechanical or T/Electronics	20 or 20
Grav Units	T/Gravitics	20
Personal Equipment	T/Electronics or T/Mechanical	20 or 20

from the system. For example a maneuver drive that had taken 3 previous hits would now be marked as having taken only 2 hits, improving its effective factor by 1.

A critical success (a natural 20 on the skill check die roll) will result in one extra hit being repaired on the system this round. If the extra repair was not needed, it is wasted and may not be applied to another system.

These DCs assume 6-second personal combat rounds. A repair check is a full round action for both the chief engineer/DCO and the members of the engineering crew applied to the task.

Take10: Increase time required to 1 minute (1 vehicle combat round, 10 personal combat rounds), reduce DC by 10.

Take20: Increase time required to 1 hour (1 ship combat round, 60 vehicle combat rounds, 600 personal combat rounds), reduce DC by 20

PERMANENT REPAIRS

Battlefield repairs will get a vessel by temporarily, but sooner or later (usually sooner), the damage will need to be completely repaired at a proper shipyard or maintenance facility. A class C starport will typically have sufficient facilities to handle repairs to any vessel under 1000 tons, but will be unable to handle repairs to Jump drives. Repairs can be completed at a rate of 1 SI damage per day of repair work, and 1 system can be repaired completely (regardless of the amount of damage) per week.

Material costs for repairing SI damage are Cr100 per point of damage repaired or (if necessary) the total cost of replacement. For systems the material cost is 10% of the original value of the system per hit it has taken. If someone other than the engineering crew is hired to handle the repairs, the cost will be Cr1,000 per day plus material expenses.

For class B starports, any vessel up to 10,000 tons may be accommodated and Jump drives can be repaired, but the costs will increase to Cr120 per point of SI repaired. Up to 2 SI can be repaired per day, and up to 2 systems repaired per week.

Class A starports can accommodate any size vessel and also repair Jump drives. Costs at these starports rise to Cr150 per SI repaired, but up to 5 SI can be repaired per day, and up to 3 systems per week.

ADVANCED VEHICLE AND STARSHIP COMBAT

The advanced rules presented here are for those who enjoy a detailed representation of combat, and are designed for use with miniatures without requiring large amounts of room. You should be aware that these rules are much more complex and involved than the basic rules, and it will take considerably more time to run.

Two Megahex maps are needed for advanced combat. A megahex (pg. 171) is a large hex made up of smaller hexes. Each small hex should be able to fit a 25mm miniature or other token to represent the vessels involved in the battle. The larger hex should be 20 smaller hexes across in size. One of these megahexes will represent the Strategic Plot for the combat; the other will represent the Tactical Plot.

Strategic Plot: The strategic plot is used to plot the movements of all vessels at short range or farther from one another (1 or more hexes). Vessels enter the Strategic Plot along the megahex side opposite of their direction of travel. If a vessel moves beyond the edge of the Strategic Plot megahex, the combat encounter is ended as the vessel is out of range.

Because of the large amounts of time involved at this level, a vessel on the strategic plot may choose to add +5 to its attack rolls or +5 dice of damage to any attacks that hit each round, but not both. This reflects the large number of attacks that could be mounted within such a long round of combat. Vessels at the strategic level may still attack vessels currently at the tactical level as long as they are within range.

Strategic Plot Ranges

Range	*Hexes*
Close	0 (same)
Short	1-3
Medium	4-5
Long	6-8
Very Long	9-16
Extreme	17+

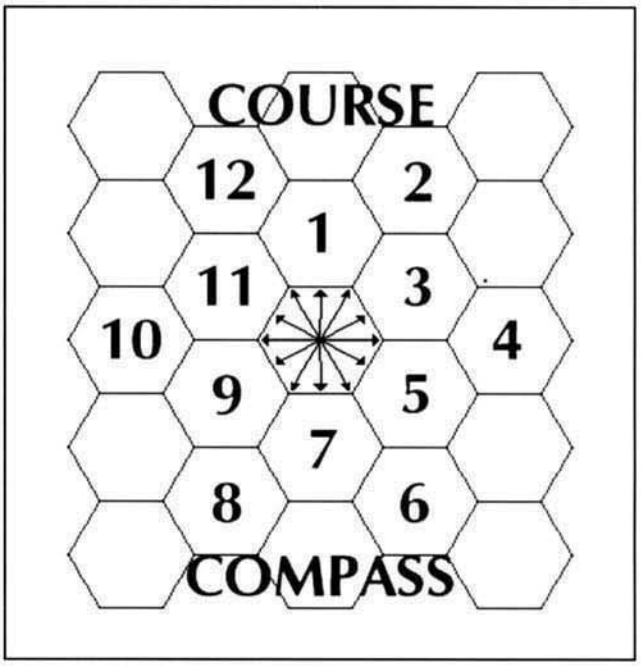
Tactical Plot: The Tactical Plot is used to plot the movements of all vessels at short range or closer to one another (in the same hex on the strategic plot). Vessels at the tactical level may attack with their weaponry every round, but do not enjoy the attack or damage bonuses that vessels at the strategic level do. Vessels at the tactical level may still attack vessels currently at the strategic level as long as they are within range.

Vessels enter the Tactical Plot along the appropriate megahex edge corresponding to the hex side they crossed on the Strategic Plot. The Referee rolls 1d6 to determine the exact hex a vessel will start in. A vessel retains its original speed and heading. If the vessel is 'moving through' the hex and has not ended its turn yet, it may continue to maneuver at tactical level. The opposing vessel(s) may each make an Attack of Opportunity on the passing vessel at any point during its maneuvers through the Tactical Plot. Of course the passing vessel may also engage other vessels present in the Tactical Plot if they wish.

If a vessel moves out of the borders of the Tactical Plot megahex, combat immediately switches back to the strategic level and the vessel should be moved to its new location on Strategic Plot. All vessels involved should immediately finish resolving this round of combat at the strategic level with the following bonus adjustments depending on the number of tactical rounds that were remaining.

Shortened Tactical Combat

Rounds Left	*Adjusted Strategic Plot Combat Bonuses*
1	No further attacks
2-3	+1 to hit or +1 dice of damage
4-9	+2 to hit or +2 dice of damage
10-19	+3 to hit or +3 dice of damage
20	+5 to hit or +5 dice of damage



Course Heading: The course heading of the vessel determines the direction it will travel when in moves each round. There are 12 possible course headings that a vessel may have, but it may only be traveling in a single direction at one time. Each course heading is equal to 30 degrees on a compass. If a vessel's course heading would even exceed 12, start again a 1 and continue clockwise. If the course heading would fall below 1, instead start again at 12 and continue counter clockwise.

When moving along a course heading of 2, 4, 6, 8, 10, or 12, the course is first plotted to a position equal to course heading -1, and next moved to its normal course heading position. For example, a vessel with a course heading of 2 would first move to the hex marked 1 on the Course Compass, and its next move would be to the hex marked 2. If the vessel course heading were 10, it would move first move to position 9, and next to position 10.

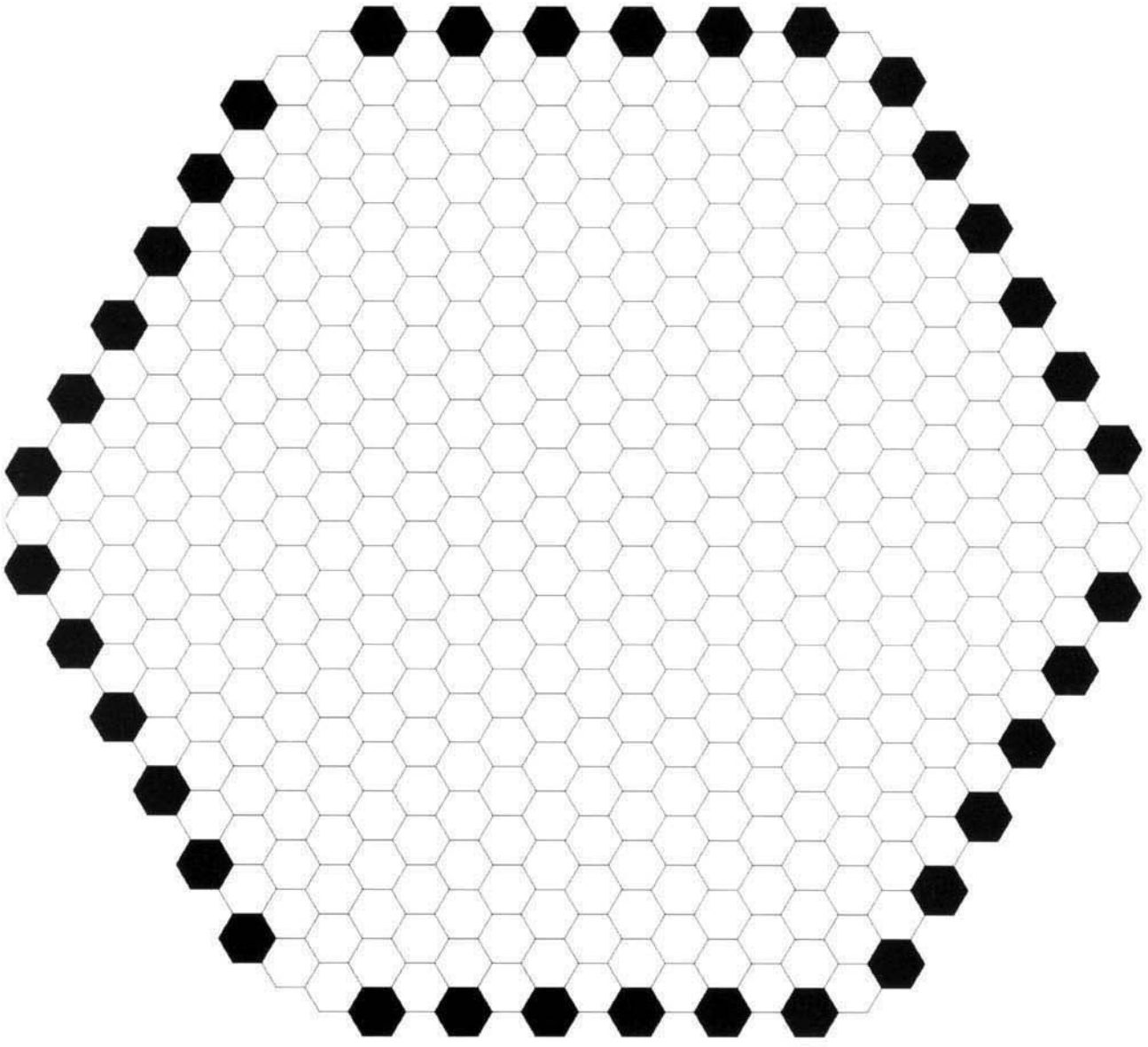
MULTILEVEL COMBAT

If there are vessels involved in the combat at both the strategic and tactical levels, handling the time difference in rounds can be handled in one of two ways.

1) Vessels on the Strategic Plot may attack each 'tactical' round (losing their normal to hit or damage dice bonus), but may only move once every 20 tactical rounds.

2) Vessels on the Strategic Plot may only move and attack once every 20 rounds, but enjoy their to hit and damage dice bonus even when attacking vessels on the Tactical Plot.

ADVANCED COMBAT MEGAHEX



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Conditions/Speeds	*Check Modifier*
Speed	
Very Slow	+2
Slow	+1
Cruising Speed	0
Fast	-2
Maximum Speeds	-5
Obstructions (Ground Vessels only)	
Moderate (undergrowth, mild traffic)	-2
Heavy (thick undergrowth, heavy traffic)	-4
Obstructions (Flying Vessels only)	
Moderate (low hills, mild air traffic)	-2
Heavy (mountains, cityscape, heavy air traffic)	-4
Surface Conditions (Ground Vessels only)	
Poor (Uneven terrain)	-2
Bad (Ice, snow, mud, uneven slope)	-4
Very Bad (Deep snow)	-6
Atmospheric Conditions (Flying Vessels only)	
Poor (slight turbulence)	-2
Bad (heavy turbulence, storms)	-4
Very Bad (severe turbulence, hurricane)	-6
Visibility	
Poor (night, fog, moderate rain)	-1
Bad (moonless night, heavy storm)	-2

If the check is successful, the maneuver is completed without incident, and the vessel may continue its turn normally.

ADVANCED VEHICLE COMBAT

THE COMBAT ROUND

Each round on the Strategic Plot represents 10 minutes in the game environment, while each hex is roughly equal to 1.5 kilometers. On the Tactical Plot, each hex is roughly 75 meters across, while each round represents 30 seconds in the game environment.

ATTACKS OF OPPORTUNITY

The threat area of a vehicle in combat on the Tactical Plot is 75m, or every hex/square adjacent to its current position. Attacks of opportunity are not possible on the Strategic Plot. Any crewmember serving as a gunner on a vehicle with an attack of opportunity and with a weapon capable of coming to bear may take action against the target.

ADVANCED ACTIONS

Except for the Astrogator and Pilot (or Driver), all actions from the basic rules for crewmembers of a vehicle remain the same under the advanced combat rules. Astrogators are not used on planetary-based vehicles and should be ignored, while Pilots and Drivers have a completely different set of actions available to them. The basic pilot/driver actions should be ignored.

Pilot/Driver Actions

A driver operates all ground and water based vehicles, including hovercraft. Pilots operate everything else, including flying small craft and starships within a planetary atmosphere. When operating in a vacuum, the pilot of a small craft or starship has a different set of actions available to him (see Advanced Space Combat pg. 176).

All move actions and some full round actions require the vessel pilot or driver to make a maneuver check when attempting these maneuvers. The pilot or driver must make an appropriate skill check vs. the listed DC for the action. Apply any of the following condition modifiers listed below that may be appropriate to the current situation.

Maneuver Skill Check: 1d20 + Pilot or Driver Skill + Vehicle or Ship Agility

Accelerate/Decelerate: A vessel may increase or decrease its speed by an amount equal to its standard acceleration rate. A vessel may never exceed its maximum rated speed, unless using emergency agility. This is a move action with a base DC of 0. A skill check should only be needed when making this maneuver on difficult terrain.

Bank/Turn: Move full speed for half distance, change direction by up to 45 degrees (1 hex facing), move remaining distance in the new direction. This is a move action with a base DC of 5.

Bootleg Turn: Move full speed for half distance, change direction by up to 180 degrees (3 hex facings), move remaining distance in the new direction. Legged vessels may not perform this action. This is a full action with a base DC of 25, and may provoke an Attack of Opportunity. Applied to non-legged ground vehicles ground only.

Climb/Dive: May increase or decrease altitude by changing the angle of climb by up to 45 degrees. Move the vehicle its full distance along its current heading, after which you may increase or decrease the range between two vehicles by an amount equal to 1 hexes per 10kph of acceleration. A dive will also add to the speed of the craft by an amount equal to its acceleration rate (the effects of which apply on the next round). A climb adds no speed. Applies to flying and subsurface vessels only. This is a move action with a base DC of 0. A skill check should only be needed when making this maneuver in difficult conditions such as bad weather.

Curve/Slip: Move full speed. At any point during movement, the vessel may shift left or right one hex but still continue to move in the original direction and heading. This is a move action with a base DC of 0. A skill check should only be needed when making this maneuver on difficult terrain or at higher speeds.

Emergency Deceleration: Increase or decrease the vessel speed by an amount equal to three times its standard acceleration rate. This is a full action with a base DC of 25, and may provoke an Attack of Opportunity.

Extreme Climb/Dive: May increase or decrease altitude by changing the angle of climb by up to 90 degrees. Move the vehicle its full distance along its current heading, after which you may increase or decrease the range between two vehicles by an amount equal to 2 hexes per 10kph of acceleration. An extreme dive will also add to the speed of the craft by an amount equal to twice its acceleration rate (the effects of which apply on the next round). An extreme climb adds no speed. Applies to flying and subsurface vessels only. This is a full action with a base DC of 15, and may provoke an Attack of Opportunity.

Hard Bank/Sharp Turn: Move full speed for half distance, change direction by up to 120 degrees (2 hex facings), move remaining distance in the new direction. This is a full action with a base DC of 15, and may provoke an Attack of Opportunity.

Hard Curve/Swerve: Move full speed. At any point during movement, the vessel may shift left or right two hexes but still continuing to move in the original direction and heading. This is a move action with a base DC of 10, and may provoke an Attack of Opportunity.

Hover: Vessel hovers in place without any movement. This may only be attempted once a vessel has reached a speed of zero. This is a full action with a base DC of 10, and may provoke an Attack of Opportunity. Applies to rotary aircraft, hovercraft, grav vessels, small craft, and starships only.

Land: Return the vessel to the ground safely and reducing speed to zero. Applies to flying vessels only, and does not require any additional deceleration checks. This is a full action with a base DC of 15, and may provoke an Attack of Opportunity.

Loop: Move in a full vertical circle, ending the loop where you began it. This is actually a two round maneuver, with the loop being completed at the end of the second round after it was begun. The skill check must be made both rounds to complete successfully. Applies to flying vessels only. This is a full action with a base DC of 25, and may provoke an Attack of Opportunity.

Move: The pilot/driver keeps the vessel on its current course and heading, remaining at the current speed. This is a free action with a base DC of 0. A skill check should only be needed when making this maneuver on difficult terrain.

Rapid Acceleration/Deceleration: Increase or decrease the vessel speed by an amount equal to twice its standard acceleration rate. This is a full action with a base DC of 10, and may provoke an Attack of Opportunity.

Regain Control: Regain control of a vessel after failing a previous maneuver attempt. This is a full action with a base DC of 20, and may provoke an Attack of Opportunity.

Take Off: Bring the vessel off the ground and up to cruising speed. Applies to flying vessels only, and does not require any additional acceleration checks to bring the vessel up to speed. This is a full action with a base DC of 10, and may provoke an Attack of Opportunity.

Tight Loop: Move in a full vertical circle, ending the loop where you began it. Unlike the Loop, the tight loop only takes one round to complete but is much more difficult. The loop is completed at the end of the round after all other vehicles have moved. If more than one vehicle is performing a tight loop in the same round, they will complete their loops in Initiative order. Applies to flying vessels only. This is a full action with a base DC of 35, and may provoke an Attack of Opportunity.

FAILED DRIVING MANEUVERS

If the driver of a ground or water based vehicle fails to make a Maneuver check, they lose temporary control of the vessel. Each subsequent round, first check to see if the vehicle crashes. If the vehicle does not crash, the pilot/driver may once again attempt to regain control of the craft. This may continue until the vessel either crashes, the driver/pilot regains control, or the driver/pilot gives up. The latter is only an option where escape craft or ejection seats are available. Roll 1d100 and consult the table below to determine the severity of the loss of control encountered. This roll is modified by the current speed of the vessel.

1d100	*Loss of Control Result**	*Regain Control DC*	*Chance of Crash*
01-51	Minor Loss of Control	10	10%
52-84	Major Loss of Control	16	25%
85-100	Severe Loss of Control	22	50%

* Applies to ground vehicles only

Speed	*Modifier*
Very Slow	-25
Slow	-10
Cruising Speed	+/-0
Fast	+10
Max Speed	+25

CRASH DAMAGE

Speed	Base Damage	Penetrating Damage
Very Slow	1d3-1	1d4-2 rolls on the Internal Damage Table
Slow	1d4	1d6-2 rolls on the Internal Damage Table
Cruising Speed	1d6	1d6 rolls on the Internal Damage Table
Fast	1d8	1d8 rolls on the Internal Damage Table
Max Speed	1d10	1d10 rolls on the Internal Damage Table

Vehicle or Item Size	Damage Multiplier	Ship Size
up to 0.05vl	0.1	-
0.05 to 0.5vl	0.2	-
0.5 to 5vl	0.5	-
5 to 30vl	1	-
30 to 250vl	2.5	-
250 to 2000vl	5	1 ton
2000 to 15,000vl	7.5	1-9 tons
15,000 to 115,000vl	10	10-99 tons
115,000 to 1,315,000vl	25	100-999 tons
1,315,000+ vl	50	1000-9999 tons
-	75	10,000-99,999 tons
-	100	100,000+ tons

Minor Loss of Control: The vessel begins maneuvering somewhat erratically. If maintaining the current speed is dependent on active control of the pilot/driver, the craft will begin to lose speed at a rate equal to its acceleration rate. Aircraft will not lose speed, but will instead lose altitude at a rate equal to one-third of their current speed. All crew and passengers are at -2 to all attack rolls, skills checks, and saving throws until control is regained.

The vessel will pretty much stay on its present course. In all cases, check for possible collisions with other vehicles, buildings, structures, the ground, etc, which may now be in the path of the craft.

Major Loss of Control: The vessel enters a severe skid or dive, dramatically reducing the efficiency of any crew or passengers within, resulting in a -4 modifier to all attack rolls, skills checks, and saving throws until control is regained. If maintaining the current speed is dependent on active control of the pilot/driver, the craft will begin to lose speed at a rate equal to its acceleration rate. Aircraft will not lose speed but will lose altitude at a rate equal to two-thirds of their current speed.

If using squares for mapping roll 1d4 to determine the new direction of travel for the vessel. For hexes, roll 1d6. In all cases, check for possible collisions with other vehicles, buildings, structures, the ground, etc, that may now be in the path of the craft.

Severe Loss of Control: The vessel enters a spin, extreme dive, or other severe situation, which should be determined by the Referee as appropriate. Those within can do nothing much beyond clinging on to something, resulting in a -8 modifier to all attack rolls, skills checks, and saving throws until control is regained. If maintaining the current speed is dependent on active control of the pilot/driver, the craft will begin to lose speed at a rate equal to its acceleration rate. Aircraft will lose altitude at a rate equal to their current speed.

Be sure to check for possible collisions with other vehicles, buildings, structures, the ground, etc., that may now be in the path of the vessel.

Regain Control: This is the pilot or driver skill check DC required to successfully regain control of the craft.

Chance of Crash: This is the percentage chance that a ground vehicle will crash each round the vessel remains out of control. The vessel does not necessarily hit anything; it may flip, roll over, etc.

Crashes

If a vehicle crashes on its own (i.e. it was not involved in a collision with another vehicle, a building, etc.) the amount of damage it suffers will depend on how big the vehicle is and what speed it was travelling. Roll the base damage listed for the speed of the vehicle, and multiply this by the size damage multiplier as determined on the Crash Damage table. The damage is adjusted SI damage is expressed in the percentage of the total original SI value of the vessel that is lost in damage.

Collisions

A collision occurs whenever a vessel impacts with something else such as another vessel, a building, a space station, the ground, etc. Speed plays a very large part in the damaging effects of collisions, as does the type of collision. Apply the damage total in full to both vessels. See Crashes above for information on determining the speed-related damage of a vessel when it collides. Note that if one vessel is totally destroyed in the crash, it inflicts only the amount of damage necessary to destroy it on the other craft. After that, there is nothing left to cause damage!

Head-on: Both vessels are headed almost directly at one another. Add the speed damage of both vessels together, and apply this damage to both craft.

Opposing Angle: Both vessels are headed at a 30-60

ROUNDS UNTIL IMPACT

Altitude	*Distance*	*RUI*	*Notes*
Orbital	10,000km or higher	105	
Extreme	1000km to 10,000km	33	Sub orbital
Very High	100km to 1000km	11	
High	10km to 100km	3	Above most storm systems and weather patterns
Average	2km to 10km	2	
Low	1km	1	
Very Low	100m to 1km	1	+5 to the Regain Control DC
Treetop	under 100m	0	Immediate crash, no chance of control

degree angle or less towards one another. Add one half the speed damage of the target vehicle to the speed damage of the striking vessel.

T-Bone: A vessel strikes another vessel at a near 90-degree angle, or strikes a building or other stationary object. Use the speed damage of the striking vessel.

Complimentary Angle: Both vessels are headed in a direction similar to one another (within 30-60 degrees). Subtract one half the speed damage of the target vessel from the speed damage of the striking vessel.

From Behind: One vessel strikes another directly from behind. Subtract the speed damage of the target from the speed damage of the striking vessel.

FAILED PILOTING MANEUVERS

If a pilot in control of an aircraft, grav vehicle, or a starship or spacecraft operating in atmosphere fails a Maneuver check, another check should immediately be made at the same DC as the Maneuver check. If this second check is also failed, the vessel has gone into a flat spin making it even more difficult to regain control of (+5 to the Regain Control Maneuver DC). To make matters worse, each round that a vessel is in flat spin the pilot and any passengers on board must make a Fortitude save (DC15) to avoid blacking out from the excessive G forces being caused by the spin.

While a vessel in flight is not under the control of a pilot (or auto-pilot), it will begin to lose altitude. The table above shows how many Round Until Impact (RUI) it will take before the vessel impacts with the surface, based on the original altitude of the craft. The pilot may attempt each round to regain control of the craft up until the time of impact.

If all attempts to control the vessel have failed, the vessel will crash into the surface. Just before this happens, the pilot has one further chance to try and at least make it a somewhat controlled crash (same DC as previous attempts). If the crash is controlled, subtract the DC from the skill check roll total. The occupants of the ship (including the pilot) may use this difference as a modifier to their Fortitude save (DC25) to see if they survive the crash.

A vessel that crashes in this manner is effectively destroyed and cannot be rebuilt into a serviceable machine again. Individual components and subsystems may have survived the impact intact or only partially damaged.

If someone does survive, roll on the table below to determine the severity of their injuries. The pilot modifier used to survive may also be applied to the roll on this table, as may any Fortitude modifier the PC or NPC has.

Crash Survival

1d20	*Extent of Injuries*
1-5	Life Threatening: Both Stamina and Lifeblood reduced to 0.
6-15	Serious: Lose all but 1 Stamina and one-half remaining Lifeblood.
16-20	Minor: Lose one-half remaining Stamina and one-quarter remaining Lifeblood
21+	Cuts and bruises. Lose one-quarter remaining Stamina and 1d4 Lifeblood.

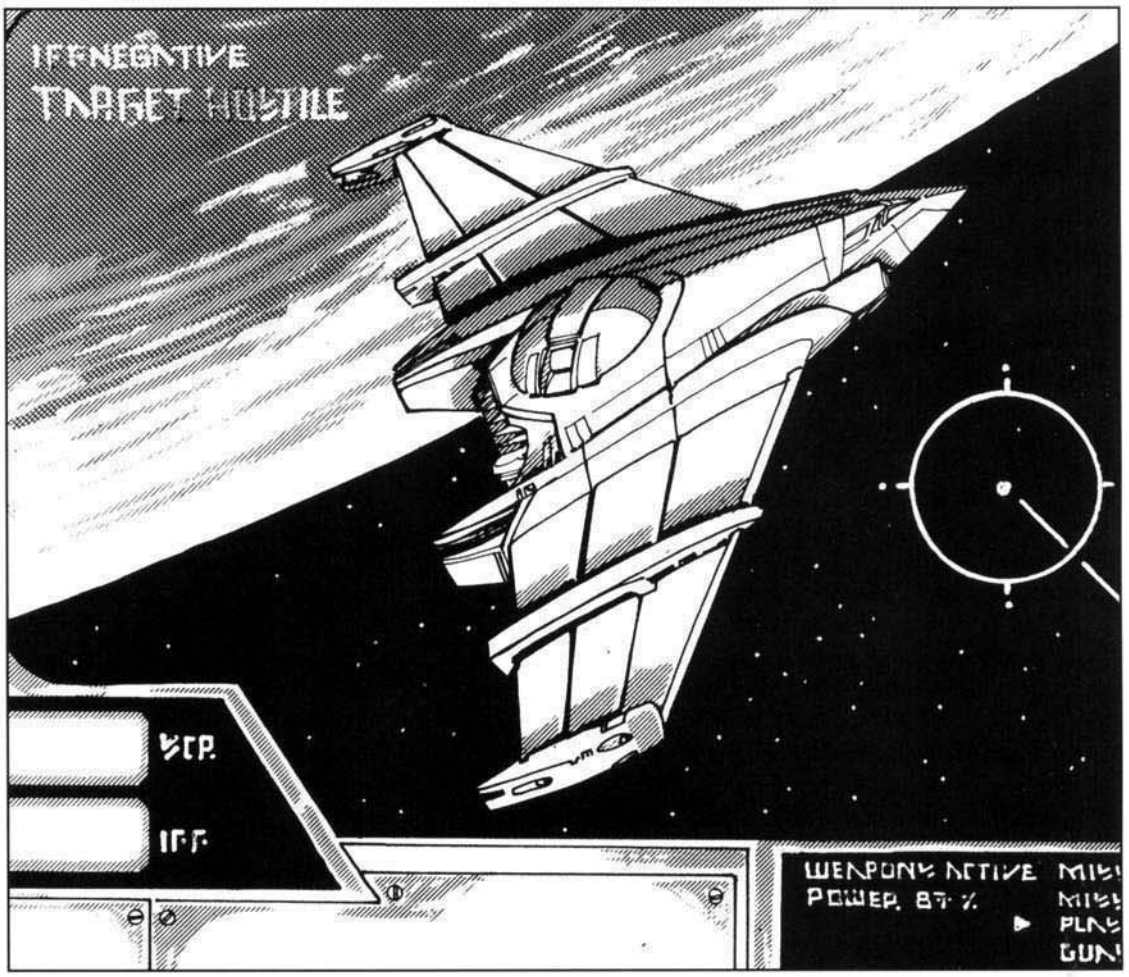
VEHICLE DAMAGE AND INTERNAL HITS

Under these advanced rules, each internal subsystem and component onboard a vehicle has a specific SI rating based on its size. Rather than immediately rendered inoperable when hit, subsystems take damage against their SI rating, and only if that SI rating is reduced to 0 or lower are any consequences suffered. Specific consequences are specified under the Internal Damage descriptions.

Critical Threats to Vehicles: A critical threat on a vehicle will still cause internal damage if the attack succeeds and penetrates any armor installed, even if the hit turns out not to be a critical hit. Half of the total damage is applied against the SI rating of the vehicle's chassis just like a normal attack. To determine where the remainder of

the damage is applied, the attacker rolls once on the Vehicle Internal Hit Location table (above).

For example, an attacker rolls a natural 20 on his attack roll, scoring a critical threat but fails (rolling a 12) on his next throw to see if the hit is a critical one. He still may roll on the Internal Hit Location table and apply damage to a subsystem or component if he does enough damage to get through the target's armor.



Critical Hits to Vehicles: A critical hit on a vehicle allows the attacker to ignore the armor rating of the vehicle and inflict the full amount of damage rolled. For most weapons, this damage is doubled on a critical hit (though some weapons may have a greater multiplier). Half of the total damage is applied against the SI rating of the vehicle's chassis just like a normal attack. To determine where the remainder of the damage is applied, the attacker rolls once on the Vehicle Internal Hit Location table (above).

Carrying Over Damage: If a system or component is destroyed, and some remains to be applied, follow the specified flow of damage listed for that system. For example, a hit is applied to the Visual Systems of a vehicle, and there still remain a few points of damage to apply even after rendering the visual systems inoperable. The description for a Visual System hit states that if there are no installed or intact visual systems onboard the vehicle, treat the hit as a Comm. system hit. So the remaining damage would now be applied against the SI rating of the Comm. System.

ADVANCED SPACE COMBAT

When operating within the atmosphere of a world, moon, or other celestial object, a small craft or starship functions as if they were nothing more than oversized and megapowered vehicles. But when they leave the confines of that atmosphere, the speeds and distances involved require somewhat different handling. Space is big and to get anywhere within a reasonable amount of time involves traveling at incredible speeds.

THE COMBAT ROUND

Each round on the Strategic Plot represents 20 minutes in the game environment, while each hex is roughly equal to 15,000 kilometers. On the Tactical Plot, each hex is roughly 750 kilometers across, while each round represents 1 minute in the game environment.

The ship's Astrogator rather than the Pilot should handle all ship maneuvers on the Strategic Plot. If two ships enter the same hex, further combat between them should be resolved on the Tactical Plot. They do not have to end their turn in the same hex; merely passing through is sufficient to trigger the switch to the Tactical Plot.

This swapping of responsibility also has the advantage of allowing a player with an Astrogator character to have

an active part within the combat rather than simply being an observer.

ATTACKS OF OPPORTUNITY

The threat area of a vehicle in combat on the Tactical Plot is 750km, or every hex/square adjacent to its current position. Attacks of opportunity are not possible on the Strategic Plot. Any crewmember serving as a gunner on a ship with an attack of opportunity and with a weapon capable of coming to bear may take action against the target.

ADVANCED ACTIONS

The following actions replace the actions available to the Astrogator and Pilot under the basic rules.

Accelerate: The ship moves forward 1-6 hexes (based on the maneuver drive rating of the vessel) in the exact direction of the current heading. Actual ship heading does not change, but speed increases by the number of hexes shifted. This is a move action with a base DC of 0.

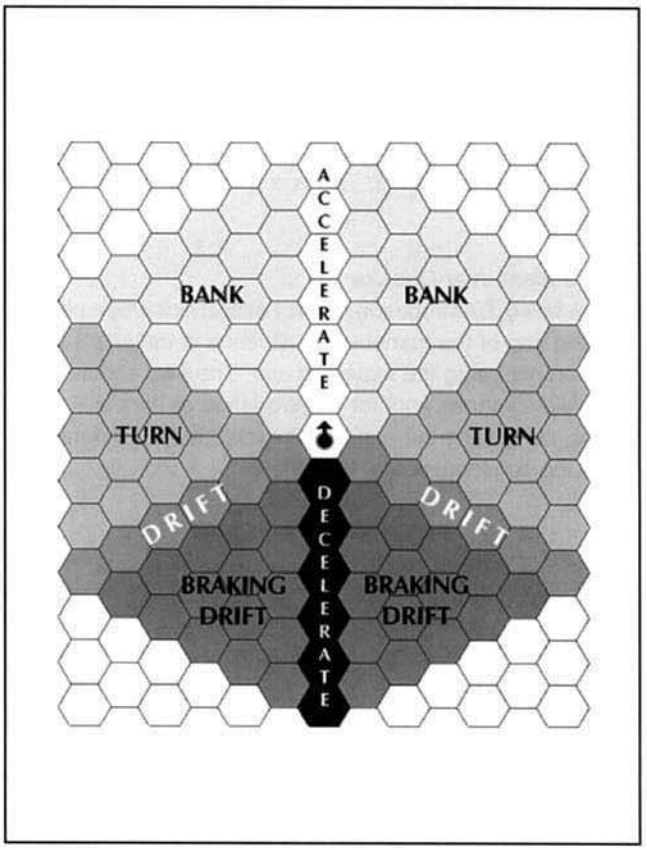
Atmospheric Entry: The pilot may attempt to transition the ship out of orbit and into the atmosphere of a planet. Once a ship has successfully entered an atmosphere, all movement is handled as if it was any other aircraft in flight and now uses the Vehicle Manuever Actions instead. This is a full action with a base DC equal to the World Atmosphere UWP rating + the World Size UWP rating. Exotic, Corrosive, or Insidious atmospheres should be treated as Standard unless specified otherwise. Attempting this action may provoke an Attack of Opportunity.

Bank: Shift the ship forward, right or left, up to a number of hexes equal to its maneuver drive rating. Adjust the recorded heading of the ship by 2 in the direction of the bank. Banking left reduces the heading, banking right increases the heading. Speed increases by the number of hexes shifted. This is a move action with a base DC of 10.

Braking Drift: Shift the ship backward, right of left, up to a number of hexes equal to the maneuver drive rating of the ship. Actual ship heading does not change, but speed decreases by the number of hexes shifted. This is a move action with a base DC of 10.

Decelerate: The ship moves back 1-6 hexes in the exact opposite direction of the current heading. Actual ship heading does not change, but speed decreases by the number of hexes shifted. This is a move action with a base DC of 0.

Dock: The pilot may attempt to dock one ship with another ship or a stardock, allowing passage between both ships for cargo and crew. This is usually a small craft docking with a starship, but it is possible to dock some starships together. Both ships must be moving at the same speed, and there must be no opposition to the attempt. If this is a hostile docking attempt, the target ship must have been rendered incapable of maneuvering. This is a full action with a DC of 20, and may provoke an Attack of Opportunity.



Drift: Shift the position of the ship along Heading 5 up to a number of hexes equal to the maneuver drive rating of the ship. Adjust the recorded heading of the ship by 1 in the direction of the drift. Drifting left reduces the heading, drifting right increases the heading. Speed does not change. This is a move action with a base DC of 0.

Evade: Adds the Pilot's skill to the AC of the ship this round. This is a full action with a base DC of 0, and may only be attempted at Short or Close range.

Maintain Course and Speed: The ship does not accelerate or otherwise maneuver this round. Speed and Heading remain the same. This is a move action with a base DC of 0.

Move: You must move the ship a number of hexes equal to its current speed in the direction of its current heading. This is a required free action with a DC of 0, and must be performed before any other action by the ship this round.

Orbital Insertion: The pilot may attempt to insert the ship into orbit around a planet. In an orbital insertion fails, the ship fails to enter the proper orbit, and the orbit will steadily begin to decay drawing the ship towards the planet's atmosphere in an uncontrolled reentry (see Atmospheric Reentry). This is a full action with a base DC of 15, and may provoke an Attack of Opportunity.

Turn: Shift the position of the ship left or right anywhere from 2 to the maneuver drive rating of the ship in hexes. Adjust the recorded heading of the ship by 3 in the direction of the turn. Turning left reduces the heading, turning right increases the heading. Speed increases by the number of hexes shifted. This is a full action with a base DC of 20.

Failed Maneuver Checks

A failed T/Astrogation or Pilot skill check when performing any of the maneuvers will result in the ship's final location not being the expected one. The pilot should immediately make another T/Astrogation or Pilot skill check, comparing the result to the table below to determine the consequence of the failure.

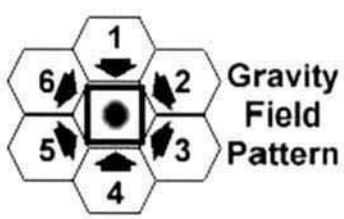
Failed Maneuver Check

Result	*Consequence*
1-15	Course is off by 60 degrees: Accelerate becomes a Drift. A Bank becomes a Braking Drift. A Turn becomes a Decelerate. A Drift becomes Accelerate. A Braking Drift becomes a Bank. Decelerate becomes a Turn.
16-25	Course is off by 30 degrees: Accelerate becomes a Turn. A Bank becomes a Drift. A Turn becomes a Braking Drift or Accelerate. A Drift becomes a Bank or Deceleration. A Braking Drift becomes a Turn. Decelerate becomes a Drift.
26+	Course is off by 15 degrees: Accelerate becomes a Bank. A Bank becomes a Turn or Accelerate. A Turn becomes a Drift or Bank. A Drift becomes a Braking Drift or Turn. A Braking Drift becomes a Drift or Decelerate. Decelerate becomes a Braking Drift.

SPECIAL CONSIDERATIONS

Certain factors can make starship maneuvering more tricky than usual.

Gravity: The gravity of a world or large planetary body can affect the course of a ship if it passes within its gravity well. The gravity well of a world or similar body (e.g. a large asteroid or gas giant moon) consists of the 6 hexes immediately adjacent to the hex containing the body itself. Larger bodies, such as gas giants, may cover several hexes and will have a proportionately larger "gravity well". Each hex will affect the course of ship slightly differently.



Apply the following effects to a ship's position after it finishes its initial movement at speed, but before the ship makes any other maneuvers or actions:

Hex	*Adjustment*
1	Move ship down one hex
2	Move the ship one hex to the (lower) left adjacent hex
3	Move the ship one hex to the (upper) left adjacent hex
4	Move the ship up one hex
5	Move the ship one hex to the (upper) right adjacent hex
6	Move the ship one hex to the (lower) right adjacent hex

These effects do not change the ship's course heading, only its actual position.

Orbit: If a ship ends its movement in the gravity well of a planet with a speed of 1, it will enter orbit. A successful Orbital Insertion maneuver is also required.

Landing: If a ship ends it movement in the same hex as a planet with a speed of 1, they will have landed safely. A successful Atmospheric Entry maneuver is required if the planet has an atmosphere.

Crashing: If a ship ends its movement or moves through the same hex as a planet with a speed greater than one will crash.

Boarding: If two ships end their turn in the same hex with the same speed, they may attempt to board.

Missiles: Once launched, a missile moves in a manner similar to a ship, from the location it was first launched in the programmed heading accelerating at a constant rate of 6G per round for a maximum of 6 rounds. The difference is that a missile may only change its course (alter its future position marker placement) by a total of 6 hexes during the course these 6 rounds. Once it has altered its course by a total of six hexes it may no longer maneuver.

SQUADRONS

Ships of the same type and armament are often grouped together in multiples of up to 10. These groups are known as squadrons. A squadron moves and fights as if it were a single ship, its weapons organized into batteries. Each squadron will have a BAB equal to the average Gunnery skill rank of the weapon gunners aboard each ship. The AC of a squadron is equal to average AC of all ships in the squadron.

At the start of the squadron's round, the squadron commander may attempt to make a Leader skill check against a DC equal to the AC of the targeted ship. If successful, the squadron commander may add +2 to her attack rolls for the squadron this round.



BIG GAME HUNTER

	Base Attack Bonus	Fort Save	Ref Save	Will Save	Special
1st	+1	+0	+1	+1	Trapping
2nd	+2	+0	+2	+2	Sixth Sense
3rd	+3	+1	+2	+2	Far Shot
4th	+4	+1	+2	+2	Species Specialization
5th	+5	+1	+3	+3	Deliberate Shot
6th	+6	+2	+3	+3	Animal Specialization
7th	+7	+2	+4	+4	Intuitive Tracking
8th	+8	+2	+4	+4	Species Specialization
9th	+9	+3	+4	+4	Animal Specialization
10th	+10	+3	+5	+5	Animal Specialization

BIG GAME HUNTER CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Animal Empathy*	Cha	Liaison	Cha
Gambling	Int	Handle Animal	Cha
Hide	Dex	Intuit Direction	Wis
Jump	Str	Knowledge	Edu
Leader	Int	Listen	Wis
T/Medical	Edu	Move Silently	Dex
Navigation	Edu	Ride	Dex
Search	Int	Spot	Wis
Survival	Wis		

*Exclusive Skill

Skill Points per Level: 4 + Int modifier

SPECIES SPECIALTIES

Carnivores	Herbivores	Omnivores	Scavengers
Siren	Filter	Gatherer	Carrion-eater
Pouncer	Intermittent	Eater	Reducer
Killer	Grazer	Hunter	Hijacker
Trapper			Intimidator
Chaser			

BIG GAME HUNTER
PRESTIGE CLASS

The worlds of charted space have produced some terrifyingly powerful or cunning creatures. The Big Game Hunter takes their existence as a challenge and matches his stealth and cunning against their formidable natural abilities. He may or may not kill the animal after stalking it; many hunters use a holo camera rather than a rifle.

Characteristics: A Hunter is self-reliant and confident in his or her abilities. Often contemptuous of clumsy city-dwellers, the Hunter is proud of his knowledge of the environment and the habits of his prey. He may take this attitude to an extreme, seeking ever more dangerous creatures to stalk or choosing ridiculous challenges like hunting giant armored carnivores armed only with a crossbow. Other hunters are obsessed with obtaining the finest high-tech tools and gadgets to augment their skills. All Hunters prefer stealth and subtlety to a direct approach to problems.

Background: A Hunter can come from any background, though he or she will usually have a "Backwoods" upbringing. A Hunter's most important attributes are intelligence and stealth skills - plus weapon proficiency, of course.

Adventuring: Hunters can be very useful in the wilds of a planet, and often have good weapon skills too. An individual may know several powerful people, having acted as a guide on safaris or hunting trips, or may have poached rare animals for a rich person's collection.

GAME RULE INFORMATION

Requirements: To become a Hunter, a character must meet the following requirements:

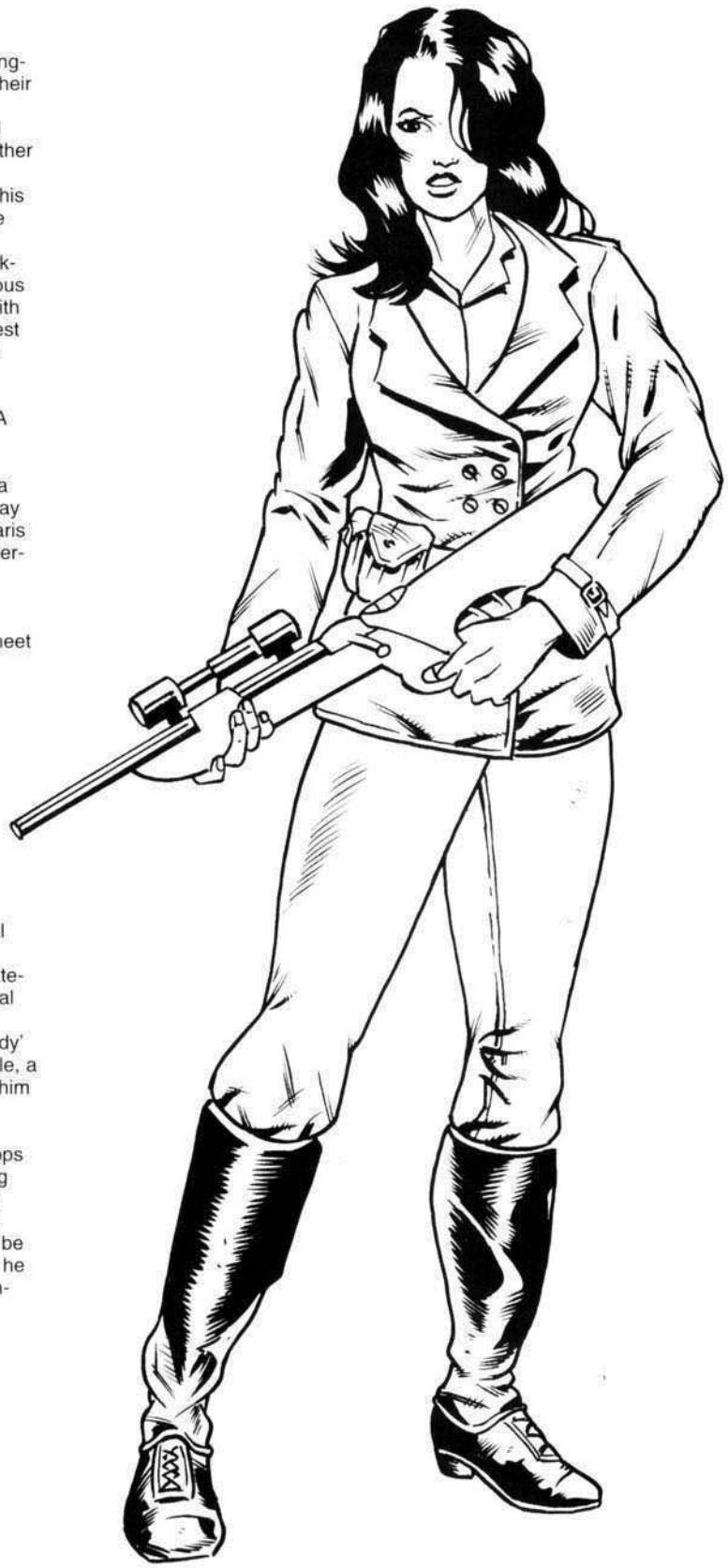
BAB: 5+
Skills: Survival 4+, P/Hunting 6+
Feats: Tracker
Stamina Dice: d8 + Con modifier per level

Species Specialty: The Hunter has studied and learned the habits and tendencies of a general category of animal types such as Pouncers or Grazers. Add a +2 circumstance bonus to all Tracking and Survival checks when hunting the specified category of animals.

Animal Specialization: The character has studied and learned the habits and tendencies of a specific (named) animal such as Grizzly Bears, or the Greater Crested Tusk-Boar. Requires Species Specialization (for the appropriate animal category). Add a +4 circumstance bonus to all Tracking and Survival checks when hunting this specific animal.

Deliberate Shot: Once per combat the Hunter may 'ready' a shot as a free action rather than standard action. For example, a Hunter moves to cover and sets up a deliberate shot allowing him to shoot the next creature to emerge from the nearby lake. Without the feat he could not both move and ready the shot.

Intuitive Tracking: The skilled Hunter eventually develops an 'intuition' when it comes to tracking their prey, often allowing him to pick up a trail even after it has 'gone cold'. In situations where the Hunter fails a P/Hunting skill check while tracking a creature, or in situations where the Hunter would not normally be allowed to make a skill check to pick up the trail of a creature, he may make a Wisdom check (DC15). If successful, he has managed to guess the correct direction the prey has taken.



TAS FIELD REPORTER

	Base Attack Bonus	Fort Save	Ref Save	Will Save	Special
1st	+0	+0	+1	+1	Press Pass and Expense Account
2nd	+0	+0	+2	+2	Connections +1
3rd	+1	+1	+2	+2	Research +1
4th	+1	+1	+2	+2	Connections +2
5th	+1	+1	+3	+3	Carousing
6th	+2	+2	+3	+3	Connections +3/ Research +2
7th	+2	+2	+4	+4	TAS Membership
8th	+2	+2	+4	+4	Connections +4
9th	+2	+3	+4	+4	Research +3
10th	+3	+3	+5	+5	Connections +5

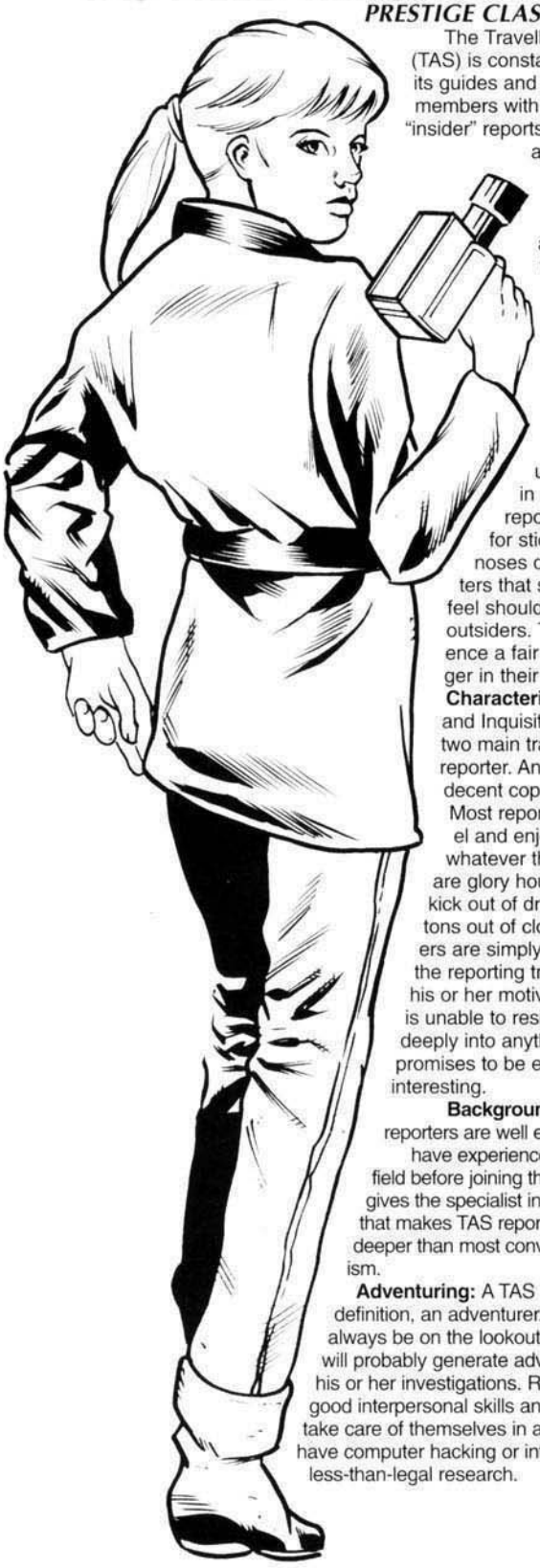
TAS FIELD REPORTER CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Administration	Int	Bluff	Cha
Bribery	Cha	T/Communications	Edu
T/Computer	Edu	Liaison	Cha
Gather Information	Cha	Intimidate	Cha
Knowledge	Edu	Listen	Wis
Profession/Journalist	Wis	Read/Write Language	None
Sense Motive	Wis	Speak Language	None

Skill Points per Level: 8 + Int modifier

TAS FIELD REPORTER

PRESTIGE CLASS



The Travellers' Aid Society (TAS) is constantly updating its guides and providing its members with impartial, "insider" reports on events across charted space. A Field Reporter researches and prepares these reports. In some quarters a TAS press card is highly respected. In others, it is an incitement to being beaten up and dumped in an alley. TAS reporters are known for sticking their noses deeply into matters that some people feel should not concern outsiders. They experience a fair amount of danger in their work.

Characteristics: Integrity and Inquisitiveness are the two main traits of the TAS reporter. An ability to write decent copy is useful too. Most reporters like to travel and enjoy investigating whatever they find. Some are glory hounds who get a kick out of dragging skeletons out of closets, while others are simply dedicated to the reporting truth. Whatever his or her motivation, a reporter is unable to resist digging deeply into anything that promises to be even remotely interesting.

Background: Most TAS reporters are well educated and have experience in some other field before joining the TAS staff. This gives the specialist insider information that makes TAS reports so much deeper than most conventional journalism.

Adventuring: A TAS Reporter is, by definition, an adventurer. He or she will always be on the lookout for a story, and will probably generate adventure leads by his or her investigations. Reporters have good interpersonal skills and can usually take care of themselves in a fight. Some have computer hacking or intrusion skills for less-than-legal research.

GAME RULE INFORMATION

Requirements: To become a TAS Field Reporter, a character must meet the following requirements:

Skills: P/Journalism 4+, Gather Information 8+, T/Electronics 4+

Stamina Dice: d6 + Con modifier per level.

Carousing: At 5th level a TAS reporter automatically gains this feat (as per the standard feat, see pg. 100). If the character has already selected this feat, they may select any other standard feat they are qualified for instead.

Connections Beginning at 2nd level and at every level after that (4th, 6th, 8th, and 10th) you develop an increasing range of contacts and informants in your personal news and information-gathering network. Add +1 per Connection bonus to any Gather Information checks when utilizing these contacts.

Expense Account: A reporter has an open expense account equal to Cr5000 per level per month. Expense funds not used one month do not carry over to the next month. If not used they are lost at the end of the month. These funds must be spent on story-related expenses, and the reporter must turn in a detailed expense report at the end of each month to account for its use. Any equipment or other non-consumable/expendable items must be turned into the local TAS bureau office. If the reporter wishes to keep an item bought using the expense account, he or she must reimburse the TAS bureau the full cost. If an expense report is not turned in, the amount spent will be deducted from the next month's expense account.

Press Pass: Having a valid press pass will gain a reporter access to some areas, people and information not available to the general public, such as the scene of a crime or access to certain governmental records. As a reporter becomes more experienced (and typically more well known) the value of their press pass also grows. For every 2 class levels, the TAS Field Reporter may add +1 to any Bluff or Intimidate skill check when dealing with authorities or company bureaucrats in an attempt to gain access to an area, view documents, or interview someone.

This may only be attempted once per encounter with any given group or individual.

Research: The character is skilled at sifting and analyzing data and information from various sources for the clues and evidence needed to put a report together. Allows the synergetic use of Knowledge and another information-related skill together with Gather Information skill. Beginning at 3rd level and at every level after that (6th and 9th), the character earns a +1 Research bonus.

Circumstances	*Gather Knowledge Roll Adjustment*
Multiple Sources	-1 per Knowledge or other skill used, if more than one is involved.
Per Research bonus	+1
Per Successful Source Skill Check	+5

TAS Membership: By 7th level, the TAS Reporter has usually done sufficient good work for the bureau that they are rewarded with a free membership in the Traveller's Aid Society. See the Traveller's Aid Society (pg. 17) for more information.

ACE PILOT

	Base Attack Bonus	Fort Save	Ref Save	Will Save	Special
1st	+0	+0	+2	+0	Vessel Specialization
2nd	+1	+0	+3	+0	Personal Vessel
3rd	+1	+1	+3	+1	Unpredictable Maneuvers
4th	+2	+1	+4	+1	Vessel/Starship, Small Craft, Aircraft, or Grav
5th	+2	+1	+4	+1	Vessel Specialization
6th	+3	+2	+5	+2	Personal Vessel
7th	+3	+2	+5	+2	Ace Evasion
8th	+4	+2	+6	+2	Vessel/Starship, Small Craft, Aircraft, or Grav
9th	+4	+3	+6	+3	Vessel Specialization
10th	+5	+3	+7	+3	Personal Vessel

ACE PILOT CLASS SKILLS

Class Skill	Key Ability	Class Skill	Key Ability
Gather Information	Cha	T/Communications	Edu
T/Computer	Edu	Driving	Dex
T/Electronics	Edu	Gambling	Int
Gunnery	Wis	Leader	Int/Cha
Knowledge	Edu	T/Mechanical	Dex
Pilot	Int/Dex	Recruiting	Edu
Spot	Wis	Survival	Wis

Skill Points at per Level: 2 + Int modifier

ACE PILOT
PRESTIGE CLASS

Some pilots are just plain special, with skills far beyond the ordinary. Some are smugglers, some naval fighter pilots, others serve in the Scout Service or do amazing things with a humble Free Trader starship.

Characteristics: Ace Pilots are usually arrogantly confident and just can't do something the safe and easy way if there's a flashier option. Most have dangerous hobbies like racing performance grav bikes. The typical Ace is obsessed with pushing the limits of his abilities and his craft, and is often insubordinate when given orders.

Background: Ace Pilots can gain their basic skills in a variety of services and careers. Anywhere that a character can find a suitable vehicle, he can become an Ace Pilot. Thus they can be found among Army grav tank pilots, Marine assault pilots or even commercial shuttle crewmembers.

Adventuring: An Ace Pilot can do things with a vehicle or starship that almost defy belief. They can land where a lesser pilot would simply crash, evade pursuit or give the captain an edge in space combat. It the team has a vehicle, an Ace Pilot can get the most out of it.

GAME RULE INFORMATION

Requirements: To become an Ace Pilot, a character must meet the following requirements:

Skills: Pilot 8+

Feats: Ship Tactics, and Vessel/Starship, Vessel/Small Craft, Vessel/Grav, or Vessel/Aircraft.

Stamina Dice: d8 + Con modifier per level.

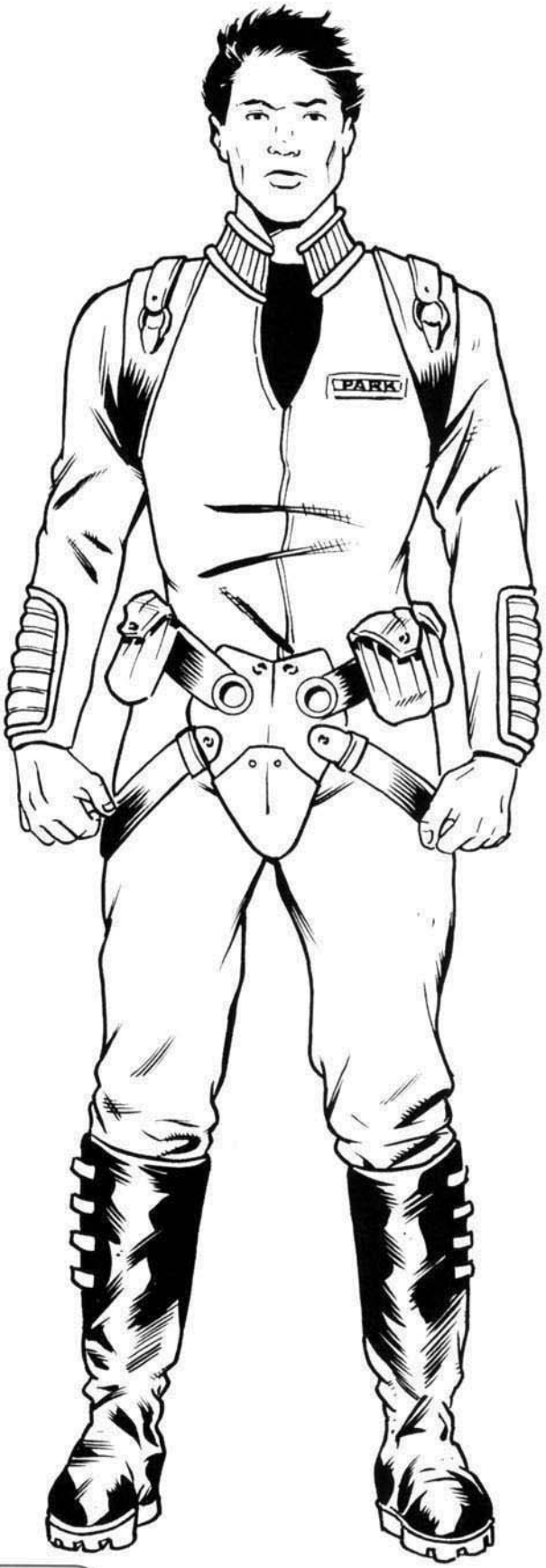
Ace Evasion: Once per round, if the vehicle an Ace is flying is hit for damage, he may make a Pilot skill check (DC equal the attack roll made to hit). If successful, the Ace has managed to evade the attack and the vehicle takes no damage.

Personal Vessel: The character has chosen and in a sense, bonded with, a specific vehicle. When flying this specific vessel the character may add +4 to all piloting and gunnery skill checks. A character may only select one specific vessel per vehicle type (Starship, Small Craft, Aircraft, or Grav). A character may select a new vessel as their personal vessel at any time, but the character has only a +2 bonus with either vessel for the first year as they become accustomed to the new vessel and its idiosyncrasies. After a year of transition the character will enjoy the full +4 bonus when piloting the newly selected vessel, and lose all bonuses when piloting the former vessel.

Unpredictable Maneuvers: When an Ace Pilot is flying a craft, and makes any maneuver that is a Move action, they may add +2 to the AC (not AR) of the vessel against incoming computer (non-gunner) controlled attacks.

Vessel Specialization: The character is extremely familiar with a given general class of ship or craft, such as 200-ton Free Traders, 100-ton Scout Ships or 50-ton Fighters. When flying a vessel of this type the character may add +2 to all piloting and gunnery skill checks. This does not stack with personal vessel.

Vessel/Starship, Small Craft, Vessel/Aircraft, or Grav: The character may select any of these three feats that they do not already have. If the character already has all three feats, they may select any feat from the general Feats list that they are qualified for.



PSIONICS

The powers of the mind are incredible. Most intelligent beings have some latent psionic ability. But while this potential exists only a very rare few have learned how to harness these powers, whether through natural talent or more formal training.

PSIONICS INSTITUTE

The Institute will examine those seeking to determine their psionic potential, and train those who wish to be trained, for the appropriate fees. Unfortunately, most Institutes do not advertise in the local paper and can be rather hard to find. Locating a Psionics Institute is often a source of adventure unto itself.

DETERMINING PSIONIC POTENTIAL

A comprehensive examination will take two weeks time, cost Cr5000, and at the end of which the character will be provided with a comprehensive measure of their psionic potential. It should be noted that psionic potential severely declines as one gets older. The earlier someone is tested and trained, the more potential they are likely to have.

Some charity is available for the truly indigent who apply (Referee's decision, then have the character make a Charisma check (DC18) to be given a free examination). Characters being examined by the Institute due to selecting the PSI Training feat have this fee waived.

The Examination: The character determines his psionic potential by rolling 3d6, subtracting -1 for every 4 years of age (or fraction thereof) he is over the age of 18. For example, a 54 year old character being tested would roll 3d6-9 to determine his psionic potential (54 - 18 = 36 / 4 = +9).

If a character has previously taken this exam, they do not roll again. Instead simply use the previous potential. If the character has aged a year or more since the last examination, the effects of age still apply and may reduce their potential if enough time has passed.

TRAINING

Once it has been determined that a character has a psionic potential of 1 or more, he must be trained in the use of that potential immediately or it will continue to degrade with age. The only way to avoid the loss in potential with age is to be trained. The Institute of course offers such training for a fee of Cr100,000. The training takes 4 months of intensive study and training, during which time the character will be unable to attend to anything other than his basic needs.

Characters attending the Institute by selecting the Psi Training feat have this fee waived. Extremely gifted individuals (Psi score of 12 or higher) may apply for a scholarship if they cannot otherwise afford the training. In such cases, the Institute will take 95% of the character's assets and possessions and waive the remainder of the fee.

Once trained, the character may now record their psionic potential as their actual PSI score, and need no longer worry about the effects of further aging on their psionic ability.

PSIONIC STRENGTH (PSI)

PSI represents the total psionic power a character is able to call upon before become too mentally exhausted to continue using their psionic abilities. Psionic feats, called talents, require a specific cost in Psi to empower

PSIONIC STRENGTH BY AGE

Age	*Max PSI**	*Roll for PSI*	*Age*	*Max PSI**	*Roll for PSI*
up to 18	18	3d6	58	8	1d6-10
22	17	3d6-1	62	7	1d6-11
26	16	3d6-2	66	6	3d6-12
30	15	3d6-3	70	5	3d6-13
34	14	2d6-4	74	4	3d6-14
38	13	2d6-5	78	3	3d6-15
42	12	2d6-6	82	2	3d6-16
46	11	2d6-7	86	1	3d6-17
50	10	1d6-8	90	0	3d6-18
54	9	1d6-9			

* At the time of testing only



its effects. When a talent is used, the cost is applied against the character's current PSI score. If the cost of using the talent would reduce the character's current PSI rating to less than 0, that talent cannot be used at that time.

If the use of a talent ever reduces the character to exactly 0 PSI points, the character will immediately fall comatose for the next 2d6 hours. The character can make a Will save (DC15) to cut this time in half. It will be impossible to wake the character during this comatose state. After the given number of hours, the character will awaken from the coma on his own, with the effect of having had the equivalent of a full night of rest and recovery.

Recovery: A character will recover 1 PSI point per hour of standard activity (i.e. no combat or use of other psionics). A full night of rest will fully restore any expended PSI points.

Note: PSI is not an ability score. A character's PSI score cannot be improved except through the use of psi-enhancing drugs.

THE FIVE POSSIBLE SPHERES

There are five possible spheres of influence that a psionicist may be capable of manipulating though it is very unlikely that anyone would be capable of activity in all spheres. When the character receives training at a Psionics Institute, it will be determined which spheres the character has an affinity for.

A character will always have an affinity for at least one sphere, but which one is not necessarily up to them. The character may list which of the spheres they would prefer to have an ability in, from most preferred to least preferred. If the character is a natural talent and already has one sphere of influence noted, the character will skip that sphere and list the remaining spheres as previously described.

Starting with the character's first choice on the list and consulting the Sphere Affinity table. the character must rolls 1d20 against the DC listed for the appropriate sphere. If the roll is successful, the character may develop talents within that sphere.

Continuing down the character's list, each sphere is similarly checked to see if the character may also develop talents within these spheres. A cumulative modifier of -2 is add to each roll after the checking the first sphere on the character's list; -2 for the second roll, -4 for the third roll, and so on.

If the last sphere on the character's list is reached and no other spheres have yet to be gained, then this will be the one and only sphere the character has an affinity with. Otherwise, check for affinity normally.

SPHERE AFFINITY

Sphere	*DC*
Telepathy	4
Clairvoyance	7
Telekinesis	7
Awareness	9
Teleportation	15

EFFECTS OF TRAINING

Psionics is very much a mystical art rather than a precise science. Thus training at the Institute can merely acquaint the character with basic concepts and theories of control over his newfound gifts. As little as the training really is, it provides enough knowledge to allow the character to begin actually developing his abilities.

SPHERES OF INFLUENCE

The talents available to a psionicist are divided into five different spheres of influence: Telepathy, Clairvoyance, Awareness, Telekinesis, and Teleportation. A psionicist develops his capability within a given sphere, but the number of different spheres of influence a psionicist may control limited to those acquired during training at the Institute.

SPHERE DEVELOPMENT

Once a character has an affinity with a sphere of influence and has been trained, he may list and develop it as if it were a normal cross-class skill, except that the character's skill rank in the sphere may never exceed his Psi score. For example a character with a Psi score of 8 could not develop any sphere higher than a skill rank of 8, regardless of his actual level.

The skill rank of a character within a sphere of influence determines which of the Talent feats the character is eligible to learn. If a Talent feat has a skill rank requirement of 7 and the character only had a skill rank of 6 within that talent's sphere of influence, the character could not yet select that talent.

Note that a character with the Natural Talent feat will always have an effective skill rank of 2 higher than their actual skill rank within their natural sphere of influence.

PSIONIC TALENTS

The things a psionicist can do with his or her mind are called talents. A talent is similar to a magical spell in other d20 games. Indeed, to folks of lower technology levels, psionics may appear to be evidence of real magic. However, a psionic talent has no necessary 'components' of any sort. A psionicist merely need to think of doing something and will it to be done, immediately.

Each talent must be selected as if it were a normal feat, and the character must have a skill rank in the appropriate sphere of influence at least equal to or greater than

PSIONIC RANGE TABLE

Range	Telepathy	Clairvoyance	Telekinesis	Teleport	Range Descriptions
Close	0	0	0	2	in physical contact, touching.
Short	2	2	2	3	sword or polearm point. 1 to 5 meters.
Medium	3	2	3	5	pistol range. 6 to 50 meters.
Long	4	3	7	5	rifle range. 51 to 250 meters
Very Long	5	3	14	5	extreme range. 251 to 500 meters.
Distant	6	5	-	7	beyond normal contact. 501 to 5000 meters.
Very Distant	7	5	-	7	out of sight. 5 to 51 kilometers.
Regional	8	6	-	8	51 to 500 kilometers.
Continent	8	6	-	8	501 to 5000 kilometers
Planetary	9	6	-	8	5001 to 50,000 kilometers.

the rank of the talent itself before it may be selected. The character must also be able to satisfy any other prerequisites that may be listed for a talent.

USING TALENTS

RANGE

Each psionic talent has a cost associated with the range at which it is used, in addition to the base cost listed for the talent itself. Consult the chart above to determine these costs.

TALENT FORMAT

Each talent follows the same format as described below.

TALENT NAME

Sphere: A character must have at least a skill rank of 1 or higher within the listed sphere of influece for that talent.
Prerequisites: Some talents require the possession of other lesser but related talents before they may be taken.
Rank: Each talent lists the minimum skill rank that a psionicist must have in order to use that talent. For example, a psionicist trained in the Telepathy sphere with a skill rank of 7 could not use the Probe (Rank 9) or the Assault (Rank 10) talents.
Cost: To use a talent, the psionicist must temporarily expend their Psionic Strength (PSI) to empower it. If a psionicist does not have sufficient PSI remaining to empower a talent, he may not use it at that time.
Duration: Some talents are immediate in effect, other may last for seconds, minutes, or even hours. Each talent details the amount of time the talent will be remain in effect.

A descriptive text will follow the statistics of each talent.

TELEPATHY SPHERE

Telepathy is the ability to communicate directly with other minds. In its most basic form, telepathy allows a character to detect or project feelings and emotions only. In its more advanced forms, telepathy allows for direct transfer of mental images and thoughts, or even a psychic assault against another mind.

SHIELD

Sphere: Telepathy
Rank: 1
Cost: 0
Duration: Always in effect
Benefit: All Psionicists trained in the telepathy sphere are taught how to erect a mental shield, protecting them against unwanted outside telepathic interference. This shield is in force at all times and requires no effort or expenditure of Psi Strength to maintain it. The shield will stop any type of telepathic talent short of an Assault, when directed against the psionicist. Of course, the psionicist may lower this shield at any time to allow another telepath access to his or her thoughts, if so desired.

LIFE DETECTION

Sphere: Telepathy
Rank: 1
Cost: 2
Duration: Up to 60 seconds
Benefit: The Psionicist can detect the presence of other minds. This ability enables a character to sense the pres-

ence of other minds, the number of minds present, the general type of minds (animal, human, Vargr, etc.) and their approximate location.

TELEMPATHY
Sphere: Telepathy
Prerequisites: Life Detection
Rank: 2
Cost: 2
Duration: Up to 60 seconds
Benefit: The Psionicist can sense and communicate emotions and basic feelings. Telempathy allows the character to read the emotions and feelings of both animals and members of their own race. The character may also send emotions such as love, hate, fear, trust, and others to influence other animals and members of their own race.

READ SURFACE THOUGHTS
Sphere: Telepathy
Prerequisites: Telempathy
Rank: 4
Cost: 3
Duration: Up to 60 seconds
Benefit: The Psionicist can read the thoughts of other (sentient) individuals. They may read and comprehend the active, current thoughts of a subject who will (if not herself psionically talented) remain unaware of the action. If the subject is psionically talented, their thoughts cannot be read due to their natural shields, and they will immediately be aware of the attempt.

SEND THOUGHTS
Sphere: Telepathy
Prerequisites: Read Surface Thoughts
Rank: 5
Cost: 3
Duration: Up to 120 seconds
Benefit: The Psionicist may send thought messages to anyone, though psionically talented individuals may choose to shield out such thoughts if desired.

PROBE
Sphere: Telepathy
Prerequisites: Read Surface Thoughts
Rank: 9
Cost: 12
Duration: Up to 10 minutes
Benefit: The Psionicist may question a subject using Probe and easily determine deliberate untruths that may be told (or thought). Probe cannot be used on a shielded mind.

ASSAULT
Sphere: Telepathy
Prerequisites: Send Thoughts
Rank: 10
Cost: 14
Duration: 2 seconds
Benefit: An assault against an unshielded mind will reduce the target to 0 Stamina, rendering them immediately unconscious immediately and will additionally inflict 2d6+6 points of Lifeblood damage. Against a shielded mind, the attack must make an opposed PSI check. If the target has the higher PSI check roll, there is no effect from the assault.

CLAIRVOYANCE SPHERE

Clairvoyance is the ability to sense events occuring or 'see' items located out of the direct view of the character. Early ability with this sphere is restricted to vague and basic 'views' at very limited range, and grows in range and capability with the increased development.

SENSE
Sphere: Clairvoyance
Rank: 2
Cost: 2
Duration: Up to 30 seconds
Benefit: A character will become aware of the most basic characteristics of a location when using this talent, such as 'a room containing four dogs' or 'an open plain with a single tree'. Generally the most interesting or important features will be sensed.

CLAIRVOYANCE
Sphere: Clairvoyance
Prerequisites: Sense
Rank: 5
Cost: 3
Duration: Up to 30 seconds
Benefit: The character can view the activity and features of a specific distant location.

CLAIRAUDIENCE
Sphere: Clairvoyance
Prerequisites: Sense
Rank: 5
Cost: 3
Duration: Up to 30 seconds
Benefit: The character hears the any sounds and noises occurring at a specific distant location.



COMBINED CLAIRAUDIENCE AND CLAIRVOYANCE

Sphere: Clairvoyance
Prerequisites: Clairaudience and Clairvoyance
Rank: 9
Cost: 3
Duration: Up to 30 seconds
Benefit: Imparts the benefits of both talents.

AWARENESS SPHERE

Awareness deals with the sense and control of one's own body.

SUSPENDED ANIMATION

Sphere: Awareness
Rank: 2
Cost: 5
Duration: Up to 7 days
Benefit: The character can enter a state of suspended animation similar to cryosleep, but without the dangers, and remain suspended without need of food and water for up to 7 days. An external stimulus is required to awaken the sleeper, such as an alarm clock, or a friend).

PSIONICALLY ENHANCED STRENGTH

Sphere: Awareness
Prerequisites: Suspended Animation
Rank: 4
Cost: Varies
Duration: 60 minutes (peak effectiveness)
Benefit: For each PSI point spent using this talent, the Psionicist may temporarily add 1 point to his or her strength score. This effect will last for 60 minutes, after which it will begin to quickly return to normal at a rate of 1

point per minute.

PSIONICALLY ENHANCED CONSTITUTION
Sphere: Awareness
Prerequisites: Suspended Animation
Rank: 5
Cost: Varies
Duration: 60 minutes (peak effectiveness)
Benefit: For each PSI point spent using this talent, the Psionicist may temporarily add 1 point to his or her constitution score and 1 point to Lifeblood score. This effect will last for 60 minutes, after which it will begin to quickly return to normal at a rate of 1 point per minute.

REGENERATION
Sphere: Awareness
Prerequisites: Psionically Enhance Strength and Psionically Enhance Constitution
Rank: 9
Cost: Varies
Duration: Immediate
Benefit: For each PSI point spent using this talent, the Psionicist may recover 1 point of Lifeblood damage and 10 points of Stamina damage. Healing occurs immediately. This talent includes the ability to growing new limbs and organs to replace lost ones, and may also be used to heal old injuries suffered before the character was trained. This talent cannot counteract the effects of aging.

TELEKINESIS SPHERE

Telekinesis is the ability to manipulate objects without physically touching them. There is but one talent associated with this sphere; Telekinesis. How large and object and how long it can be manipulated is based on the PSI rating and skill rank of the character.

TELEKINESIS
Sphere: Telekinesis
Rank: Varies
Cost: Varies
Duration: up to 60 seconds
Benefit: A character can manipulate (use) any item or object as if he or she were physically touching it, but is not subject to any physical danger, pain, stimuli, or other consequences that would normally befall anyone in contact with the object.

Weight	*Rank*	*Cost*	*Duration*
1 gram	1	2	60
10 grams	2	3	60
100 grams	3	5	60
1 kilogram	5	8	60
10 kilograms	8	12	60
100 kilograms	10	14	60
1000 kilograms	14	16	60
10,000 kilograms	18	18	60

TELEPORATION SPHERE

Teleportation is the ability to instantaneously move from one point to another, without regard to intervening matter. Like telekinesis, there is only one talent within this sphere; Teleportation. How much weight one may move and how far are based on the PSI rating of the character and his skill rank with this sphere.

TELEPORTATION
Sphere: Teleportation
Rank: Varies
Cost: Varies
Duration: Instantaneous
Benefit: If the Psionicist can see the destination at a distance, is already familiar with the destination, or can have the mental image of the destination implanted into her mind by a telepath, she may use this talent to move immediately to the destination location.

PSI DRUGS

Chemical means are available to enhance a character's psionic strength on a temporary basis.

Booster: The basic psi-drug, available in a small one-dose pill. It will temporarily increase the user's PSI score by 5 if the user is at full psionic strength, otherwise it will only increase the PSI score by 3. The effects will last one hour. Additional doses taken during that hour will have no effect.

Double: A more potent form of Booster, available in the same small one-dose pill. Double will increase the user's Psi score temporarily by +8 (+5 if not currently at full psionic strength). The effects will last one hour.

TELEPORTATION

Circumstance	*Rank*	*Cost*	*Max Weight*
Self, unclothed	5	Range	Body Weight
Self, clothed	7	Range	+ 1000g
Self, with light equipment	9	Range	+ Str x 1kg
Self, with moderate equip.	12	Range +2	+ Str x 10kg
Self, with heavy equip.	15	Range +5	+ Str x 20kg



Additional doses taken during that hour will have no effect.

Special: The rarest of psi-drugs, special is only available in liquid form and must be taken by injection. Once taken the user's PSI score will gradually increase to 18 at the rate of one point per hour. It will remain at 18 (if unused) for four hours, and then slowly begin to wear off, again at a rate of one point per hour. There is a danger when using Special, of permanently losing one point from the user's PSI score (Con save vs. DC5 to avoid this effect)

PITFALLS

The abuse of psi-drugs can lead to the loss of psionic ability and physical debilitation. If a character takes 3 doses of any psi-drug within three days, there is a chance (Con save vs. DC6 to avoid) of an overdose within six hours of the last dose taken.

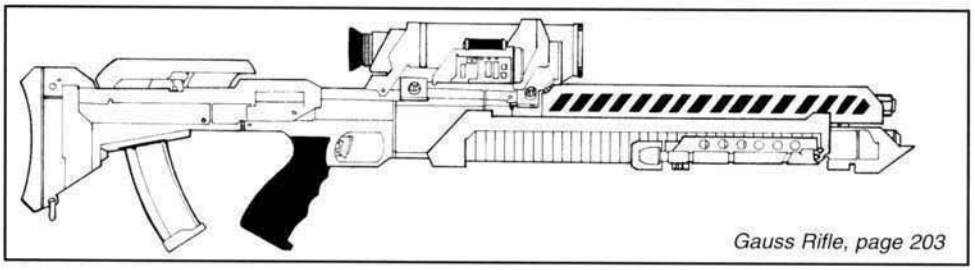
If an overdose occurs, the character becomes seriously ill, lapses into unconsciousness, and takes 3d6 Lifeblood damage from the effects. If the character recovers, they will have permanently lost 1 from their PSI score (Con save vs. DC16 to avoid the loss).

TECHNOLOGY AND EQUIPMENT

Technology in Traveller is rated according to a series of "tech levels" that give a general idea of the level of sophistication available to the local population. The following tables summarize the most advanced technology available to a culture of any given tech level.

	WEAPONRY			ELECTRONICS	
	Personal	*Armor*	*Heavy*	*Computers*	*Communications*
0	club, cudgel spear				runners
1	dagger, pike	jack	catapult	abacus	heliograph
2	halberd, matchlock broadsword		cannon		
3	foil, cutlass, flintlock blade, bayonet				
4	revolver shotgun		artillery	adding machine	telephones
5	carbine, rifle pistol, submachinegun	steel plate	sandcasters	Model/1	radio
6	auto rifle light machine gun	cloth	missiles missile launchers	Model/1 bis	television
7	body pistol assault rifle	mesh flak jacket	pulse/beam laser grenade launcher	Model/2 hand calculator	
8	laser carbine snub pistol	vacc suit	auto-cannon	Model/2 bis artillery computer	
9	laser rifle accelerator rifle	ablat		Model/3 battle computer	
10	advanced combat rifle	reflec cbt environment suit	VRF gauss gun	Model/4	
11		combat armor		Model/5 hand computer	
12	PGMP-12 gauss rifle laser pistol	hostile envir. suit	light assault gun	Model/6	
13	PGMP-13	battle dress		Model/7	
14	PGMP-14 FGMP-14				
15	FGMP-15				
16			disintegrators	artificial intelligence	
17					
18					
19					
20					

	TRANSPORTATION				POWER
	Water	*Land*	*Air*	*Space*	*Energy*
0	canoes rafts	carts			muscle
1	galleys	wagons			
2					wind
3	sailing ships		hot air balloons		water wheel
4	steamships	trains	dirigibles		coal
5	ground cars		fixed wing aircraft		oil
6	submersibles	ATV AFV	rotary wing aircraft		Fission
7	——————hovercraft——————			non-starships	Solar
8		air/rafts			Fusion
9				Jump-1	
10	——————————grav vehicles——————————				
		grav tanks			
11				Jump-2	
12			grav belts	Jump-3	
13				Jump-4	
14				Jump-5	
15				Jump-6	
16	——————————matter transport——————————				
17					anti-matter
18					
19					
20					



Gauss Rifle, page 203

The tech level rating assigned to a world is intended to indicate the highest level of technology in common use. It does not matter whether this technology is locally produced or imported on a regular basis, so long as the world can support it with maintenance or new imports.

The rated level of technology is likely to be encountered close to the Starport or capital, and in major industrial or commercial centres. Further out from the main regions, tech level is likely to be lower. This is particularly true of mid-tech worlds (TL 5-9) where large segments of the population live in rural areas with much more limited technology than their urban cousins. Low-tech (0-4) and High-tech (9+) worlds tend to be more uniform in technology distribution.

The tech level chart is not a hard and fast rule. Examples of higher-tech equipment may exist, for example in the homes or businesses of the ruling elite, or in the hands of special military units. The tech level rating ignores items like this, since they form a small proportion of the available tech base.

For example, a TL 6 world that relies heavily on steam-powered rail transport may choose to import an advanced fusion-powered locomotive for the "Royal Train", and arm the security staff aboard it with laser rifles. The world is still rated as TL6, since the technology available to an ordinary citizen is of this level and the Royal Train represents an expensive imported (and non-sustainable using local resources) luxury.

The following section attempts to give an overview of each Tech Level. Note that there will always be variations. There are other ways to do things, and sometimes a high-tech device can be copied crudely at lower tech levels; more advanced versions of a lower-tech item may be in use. People are always full of surprises, especially on unusual worlds where alternate technologies have been explored. Stone-age laser weaponry should be rather rare, though...

Note also that social development can be (and usually is) entirely independent of technology. While some forms of government need technological assistance, the majority can exist anywhere. Advanced republics are possible at the stone age level of technology, while brutal anarchies or dictatorships are possible no matter how advanced the material technology of the world may be. It is particularly important to realize that comparisons between TL and Terran technology do not mean that society will be in any way similar to the equivalent period of Earth's history. TL 7 does not mean flares, white suits and medallions in the disco...

TECH LEVEL 0 (STONE AGE)

Dwelling in natural caves or crude shelters, TL 0 citizens generally have no writing and preserve knowledge through oral tradition. They are capable of domesticating animals for travel and work purposes and of constructing crude boats such as dugout canoes. Muscle is the only energy source available. Hunting and simple agriculture feed the people, who arm themselves with spears and clubs for the hunt and for war. Medicine is a matter of mystical tradition, and may include brutal or wildly incorrect "treatments" alongside excellent herbal remedies. Common injuries (such as broken limbs) can be treated reasonably effectively.

TECH LEVEL 1 (BRONZE AGE, IRON AGE TO EARLY MIDDLE AGES)

Dwellings range from wooden huts to houses of stone or fired brick, and may be grouped into large settlements or even cities. Castles and other fortifications are possible. These settlements are supported by irrigated agriculture and may utilize water power. Communication is by messenger, and perhaps technological means such as signal fires, smoke and heliographs. Early wheeled vehicles (carts and chariots) are used in work, trade and war, while coastal voyages by galleys and early sailcraft are possible. Warfare is conducted with swords, bows and metal body armor, with sieges supported by catapults and similar engines. Advances in mathematics (devices such as the abacus and functions like trigonometry) make such weapons effective. Medicine is somewhat advanced, and many diseases can be diagnosed, though treatments are rather crude and often ineffective.

TECH LEVEL 2 (CIRCA 1400 TO 1700)

Increasingly large cities are connected by good roads and canals to facilitate trade and communication. Quite advanced (animal-powered) wheeled vehicles with early suspension use these roads, while at sea large sailing vessels make long voyages aided by advances in mathematics (including algebra) that lead to crude but effective navi-

gation methods. In the cities, printing presses make the written word available to a larger segment of the population, while wind power increases productivity. Warfare is conducted with advanced versions of TL 1 weapons, plus primitive firearms and cannon. Medicine advances to an understanding of internal anatomy.

TECH LEVEL 3 (CIRCA 1700 TO 1860)

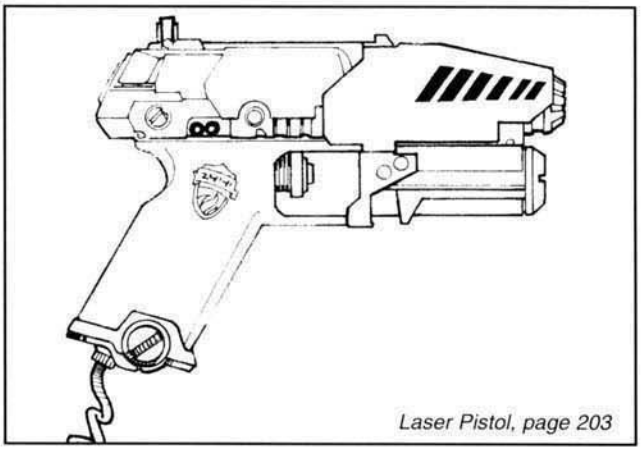
The road network is more or less universal, and travel is increasingly common. Stagecoaches and similar vehicles can make regular runs on land, while at sea advanced sailing ships can reliably navigate the entire globe. Cities now include cement structures while early experiments with electricity allow the creation of a limited electric telegraph system. Other experimentation leads to advanced mathematics (calculus) and a variety of inventions including hot air balloons. Firearms now dominate warfare, with muskets and flintlock rifles being the main smallarms in use. Mobile cannon make battlefield artillery support highly effective, and crude but effective surgery is available to patch up the many victims.

TECH LEVEL 4 (CIRCA 1860 TO 1900)

Steam powered railways and ships help open up remote areas, and quite large cities can be built in rugged or inhospitable areas. Air transport in the form of dirigibles is also possible, though of limited use. Steam engines are used in industry and in warfare, where ironclad warships and mechanical machineguns, combined with repeating cartridge firearms give the beginnings of a "modern" warfare capability. Other advances include vaccination, antiseptics and a variety of devices including primitive audio recordings, mechanical calculating machines and telephones.

TECH LEVEL 5 (CIRCA 1900 TO 1940)

Petrochemical exploitation allows the creation of useful self-propelled ground vehicles and early aircraft, while rail and sea travel are commonplace. Advanced structures such as skyscrapers become possible, as do sealed, environmentally-controlled buildings. Warfare is conducted with crude armored vehicles, good quality artillery and bulky automatic weapons. Early submersibles and armored battleships are the main sea combatants. Crude rockets are capable of putting a satellite into orbit, while radar and radio communications are available, if unreliable. Other inventions include electric calculating machines and the use of X-rays in medicine.



Laser Pistol, page 203

TECH LEVEL 6 (CIRCA 1940-1970)

Cities can be built almost anywhere, including in deep jungle, mountain or arctic terrain. Advanced submersible craft begin exploration of the oceans, while manned rockets perform the same task in space. Satellites are common. Nuclear fission allows cheap power and the creation of nuclear warheads. Coupled with advanced radar, early computers (a massive mainframe equivalent to the Model/1) and missile technology, space defense is now marginally possible, as is total global destruction. Warfare is conducted with early jet aircraft, advanced tanks and helicopters. Fully-automatic smallarms are commonplace. Medicine now understands viruses. Other advances include television and early prosthetic limbs.

TECH LEVEL 7 (CIRCA 1970-1990)

Large cities can now be built in any terrain, including underground, and are linked by satellite communications and early desktop computers. Travel is possible in a variety of vehicles from advanced high-speed trains and hovercraft to ultralight aircraft and supersonic airliners. Unmanned long-range space probes can be launched and solar power is becoming a viable large-scale energy source. Weaponry is increasingly advanced, with experimental beam lasers and advanced missiles complementing composite armor for ground vehicles. Personal protection in the form of ballistic cloth gives a measure of defense against small arms. Organ transplants become more or less reliable, and Medical Slow drug is available.

TECH LEVEL 8 (CIRCA 1990-2100)

Orbital shuttles and space stations mark a new capability in travel, in that the civilization can now launch manned missions to other worlds in the system and even building small outposts there. On-planet, deep submergence vehicles and hypersonic aircraft further advance existing capabilities, while early artificial gills make lengthy underwater operations a possibility. Weather control is also feasible on a lim-

ited scale. Weaponry includes early particle accelerators and laser smallarms, though neither is very effective. Massive computers are capable of advanced functions while optical communication (fiber-optics) and data storage increase computing power still further. Geothermal power is reliably useful, and medicine is capable of creating artificial organs by a variety of means.

TECH LEVEL 9 (CIRCA 2100)

The Jump Drive becomes available, though only Jump-1 is possible. Early interstellar ships can be constructed. Superconductors and early gravitic technology open up new possibilities, including ultra-high-speed rail links and orbital cities. Primitive and bulky fusion plants provide cheap power for vehicles and installations. Huge self-contained cities (arcologies) are possible in any terrain, while reliable space vessels make in-system travel commonplace. Early grav tanks equipped with mass driver guns and lightweight composite armour make their appearance, while orbital combat vessels and grav-assisted fighter aircraft contribute to planetary defense. Smallarms include reliable laser weapons, which creates a need for ablative personal anti-laser armor. Computers are capable of full voice control. Communication is mainly by flat-screen video link. Medicine is capable of limited limb regeneration and cryogenic suspension.

TECH LEVEL A/10 (EARLY INTERSTELLAR)

Interstellar travel becomes more common as supporting capabilities are developed. Fusion plants become smaller and cheaper, and the gravitic maneuver drive for spacecraft and starships becomes available. Fusion power is now the main source of energy for the civilization. Huge cities can be built anywhere, including deep sea and under the ice caps. Grav transport replaces specialized land, air and sea vehicles. The military smallarm of choice is the Advanced Combat Rifle, while reflec armour offers protection against lasers. Plasma weapons are mounted on vehicles, which are protected by crystaliron armour and repulsors. Advanced computers are capable of full holographic displays, while limited viral vaccination and growth quickening are available in the medical field.

TECH LEVEL B/11 (EARLY INTERSTELLAR)

Jump drives become more advanced (J-2) and fusion plants smaller, making for more efficient starships. Local yards are capable of competing for major commercial shipbuilding contracts, since J-2 is the normal maximum for commercial ships. Computers now use a synaptic model, creating a leap forward in capability. Personal datalinks are the norm. Gravitics technology makes static floating structures a possibility, though these are not yet common. Unpowered combat armour protects personnel in combat, while early meson guns are mounted in space vessels and defense installations. Medicine is capable of replacing severed nerves and creating artificial eyes.

TECH LEVEL C/12 (AVERAGE INTERSTELLAR)

The Jump-3 drive and personal grav units represent advancements in transport technology, though by this point advancement is mainly a matter of moderate increases in efficiency or capability rather than great leaps forward. Synaptic computers make semi-intelligent robots and vehicles possible, though expensive. Other advances include personal translators capable of communicating in many very different languages. Major terraforming and climate control projects can be undertaken, and medicine can develop broad-spectrum antitoxins as well as enhanced prosthetics. Man-portable plasma weapons appear on the battlefield, along with early gauss rifles. Vehicles and spacecraft are armed with fusion guns and protected by nuclear dampers plus superdense armour.

TECH LEVEL D/13 (AVERAGE INTERSTELLAR)

Jump-4 capability is achieved, along with massive free-floating (static) grav-supported cities. Holographic technology allows hand-held holocameras and holocrystal data storage, while injuries can be treated by cloning replacement body parts. Reanimation several hours after death becomes possible in a limited number of cases. Increasingly advanced plasma guns arm troops protected by powered Battle Dress, while X-ray lasers are fitted to many combat vehicles.

TECH LEVEL E/14 (HIGH INTERSTELLAR)

The Jump-5 drive becomes available, along with early meson communicators. Fully mobile grav-supported cities can be built. Medicine can transplant brains with a good chance of success, and can implant electronic devices into the brain or erase memories. Handheld fusion guns arm infantry, while vehicles and spacecraft are protected by bonded superdense armour.

TECH LEVEL F/15 (HIGH INTERSTELLAR)

The Jump-6 barrier is reached, and although research continues, higher jump numbers may well be impossible. Full pseudoreality is available, along with reliable meson communications, allowing interactive communications over

MONEY

The standard monetary unit used in T20 is the Credit. A Credit, abbreviated Cr, is worth roughly $3 (US as of 2001) in real-life monetary terms. Prices in Credits are always written Cr followed by the actual amount, for example Cr1000. For large amounts, there is also the Kilocredit (KCr) worth 1000 credits, the Megacredit (MCr) worth one million Credits, and the Gigacredit (GCr) worth one billion Credits.

Most worlds within the Imperium of the Official Traveller Universe use the Credit as their local currency, with no exchange problems. However, the Referee might decide that a particular world has held on to its own currency. Characters will then have to transfer their funds into local money - at a fee of course. The Credit provides a standard reference, even if characters encounter a myriad of currencies on their travels.

The time lags involved in communication between star systems require that individual travellers use cash, bearer bonds or special credit accounts secured by a major financial backer. Most people who travel transfer some funds to a holding account carried on their personal comm (supposedly uncounterfeitable) and top up this fund when their bank records catch up with them. Others carry bonds as collateral and deposit them at the Starport on each new world, drawing local currency against this fund as needed.

Larger concerns (e.g. businesses) have several ways of overcoming the travel lag. The simplest (but not the most efficient since it ties up a lot of money) is to set up accounts wherever they intend to trade, and transfer funds as needed to maintain a credit balance at these accounts. One solution is to use a third party to handle funds. Financial businesses, rich merchants and some noble houses often act for others in this way, and charge a fee for their services. Some businesses rely on their reputation for good credit and simply trade on the fact that clients know their invoices will be honored. This does create the possibility for scams, but for the most part the system works.

vast distances. Complex terraforming projects can be undertaken. Pseudobiological technology is used to create lifelike prosthetic limbs and robots. The Black Globe Generator becomes available to defend starships against attack, though it is not reliable. Anagathics (longevity drugs) become available.

TECH LEVEL G/16 (VERY HIGH INTERSTELLAR)

Beyond TL 15, artificial intelligence becomes indistinguishable from the organic sort. Brains can be reliably transplanted and memories partially transferred. Hand-held meson communicators and holovideo units are available to the general public. Early tractors (reverse repulsors) are available for starships, while neural weapons become viable as smallarms.

TECH LEVEL H+/17+ (EXTREMELY HIGH TECHNOLOGY)

At TL 17+, incredible things are theorized. Starships may be armed with disintegrators and antimatter missiles, and powered by antimatter plants. Teleportation, total terraforming of worlds and suns, and intelligent antibodies are all possibilities. As technology advances, refined versions of existing technologies become available alongside wholly new capabilities.

WEAPONS

Personal weapons available to characters follows on the next page, detailing their cost, weight and other factors needed for play.

Cost: Price in Credits (Cr) or 1000s of Credits (KCr).

TL: The minimum tech level required to manufacture such an item.

Weight: Weight in grams (g) or kilograms (kg).

RoF: Rate of Fire. The number of rounds that may be fired during a standard attack action in the format: Single Shot / Burst Fire / Automatic Fire

Range: The range increment for this weapon.

DMG (Crit): The damage a weapon inflicts. The number in parenthesis is the Critical Threat Range for the weapon. A multiplier (i.e.: x2, x3, etc.) in parenthesis is the damage multiplier if a critical hit occurs.

Size: The size of a weapon. Used in comparison to the size of the person using it to determine if the weapon must be use one-handed, two-handed, or is too large for a character to use.

Type: The type of attack the weapon uses.

Recoil: Lists if the weapon has recoil when fired.

Rounds: The number of rounds the weapon may fire before it must be reloaded or recharged.

Ammo Weight: The weight of a full magazine or power pack for a weapon.

AVAILABLE WEAPONS

	Cost	TL	Weight	RoF	Range	DMG (Crit)	Size	Type	Recoil	Ammo Rnd	Ammo Wt	Cost
MELEE WEAPONS												
Dagger	Cr10	0	250g	-	1.5/3 meters	1d4 (19)	Tiny	Piercing				
Blade	Crr50	3	350g	-	1.5 meters	1d6 (19)	Small	Piercing				
Foil	Cr100	3	500g	-	1.5 meters	1d4 (18)	Medium	Piercing				
Sword	Cr150	1	1kg	-	1.5 meters	1d8 (x2)	Medium	Piercing/Slashing				
Cutlass	Cr100	3	1250g	-	1.5 meters	1d8 (18)	Medium	Slashing				
Broadsword	Cr300	2	2500g	-	1.5 meters	2d6 (19)	Large	Slashing				
Bayonet	Cr10	3	250g	-	1.5 meters	1d8 (x2)	Large	Piercing				
Spear	Cr10	0	2kg	-	3/6 meters	1d8 (x2)	Large	Piercing				
Halberd	Cr75	2	2500g	-	3 meters	1d10 (19)	Large	Piercing/Slashing				
Pike	Cr40	1	3kg	-	3 meters	1d12 (x2)	Large	Piercing				
Cudgel	Cr10	0	1kg	-	1.5/3 meters	1d6 (x2)	Medium	Bludgeoning				
BOWS												
Sling	Cr1	0	-	1	15 meters	1d4 (x2)	Small	Bludgeoning	-	100g	-	
Short Bow	Cr50	1	500g	1	18 meters	1d6 (x2)	Medium	Piercing	-	-	100g	Cr2
Long Bow	Cr75	2	1kg	1	30 meters	1d8 (x2)	Large	Piercing	-	-	100g	Cr2
Military xBow	Cr250	2	6kg	1	36 meters	1d10 (19)	Medium	Piercing	-	-	100g	Cr2
Sporting xBow	Cr150	3	3kg	1	24 meters	1d8 (19)	Medium	Piercing	-	-	100g	Cr2
Repeat xBow	Cr200	3	4kg	1	24 meters	1d8 (19)	Medium	Piercing	-	10	100g	Cr2
HANDGUNS												
Revolver	Cr150	4	900g	1	30 meters	1d10 (x2)	Small	Piercing	Yes	6	100g	Cr5
Auto Pistol	Cr200	5	750g	1	45 meters	1d10 (x2)	Small	Piercing	Yes	15	250g	Cr10
Body Pistol	Cr500	7	250g	1	24 meters	1d8 (x2)	Small	Piercing	Yes	6	50g	Cr20
Snub Pistol*	Cr150	8	250g	1	18 meters	1d10 (X2)	Small	Piercing	No	6/15	30g	Cr10
SHOTGUNS												
Shotgun**	Cr150	5	3750g	1	3 meters	3d6/2d6/1d6 (x2)	Medium	Piercing	Yes	10	750g	Cr10
RIFLES												
Rifle	Cr200	5	4kg	1	72 meters	1d12 (x2)	Medium	Piercing	Yes	10	500g	Cr20
Carbine	Cr200	5	3kg	1	45 meters	1d10 (x2)	Small	Piercing	Yes	20	125g	Cr10
Auto Rifle	Cr1000	6	5kg	1/4	60 meters	1d12 (x2)	Medium	Piercing	Yes	20	500g	Cr20
Assault Rifle	Cr300	7	3kg	1/4	45 meters	1d12 (x2)	Medium	Piercing	Yes	30	330g	Cr20
Accelerator Rifle	Cr900	9	2500g	1/3	60 meters	1d12 (x2)	Medium	Piercing	No	15	500g	Cr25
ACR****	Cr1000	10	3500g	1/4	72 meters	1d12+2 (x2)	Medium	Piercing	Yes	20	500g	Cr15
Gauss Rifle	Cr1500	12	3500g	1/4/10	96 meters	2d12 (x2)	Medium	Piercing	No	40	400g	Cr30
MACHINE GUNS												
SMG	Cr500	5	2500g	0/4	45 meters	1d10 (x2)	Small	Piercing	Yes	30	500g	Cr20
LMG	Cr1200	6	5500g	0/10/20	60 meters	1d12 (x2)	Large	Piercing	Yes	100	2500g	Cr120
LASER WEAPONS												
Laser Pistol	Cr1000	12	1200g	1	36 meters	2d10 (x2)	Small	Laser	No	25	500g	Cr100
Laser Carbine	Cr2500	8	5kg	1	45 meters	3d8 (x2)	Small	Laser	No	50	3kg	Cr200
Laser Rifle	Cr3500	9	6kg	1	60 meters	3d10 (x2)	Medium	Laser	No	100	4kg	Cr300
Support Weapons												
LAG***	Cr600	8	4kg	1	96 meters	2d10 (x2)	Large	Piercing	Yes	5	500g	Cr20
Grenade Launcher	Cr200	7	3kg	1	100 meters	*	Medium	*	Yes	1	1kg	*
RAM Launcher	Cr400	8	5kg	1	200 meters	*	Large	*	Yes	3	1.4kg	*
Disposable Launcher	Cr200	7	1.5kg	1	100 meters	*	Medium	*	Yes	1	n/a	n/a
HIGH ENERGY WEAPONS												
PGMP-12	KCr10	12	6kg	1	24 meters	6d12 (18)	Large	Energy	Yes	40	3lg	KCr2.5
PGMP-13*****	KCr65	13	900g	1	36 meters	7d12 (18)	Large	Energy	Yes	40	7kg	KCr50
PGMP-14	KCr300	14	9kg/50g	1	36 meters	8d12 (18)	Large	Energy	Yes	40	1.6kg/90g	KCr250
FGMP-14*****	KCr100	14	1kg	1	45 meters	7d20 (18)	Large	Energy	Yes	40	9kg	KCr65
FGMP-15	KCr400	15	1kg/50g	1	45 meters	9d20 (18)	Large	Energy	Yes	40	2kg/110g	KCr300

Critical

x2	Weapon does double damage on a critical hit.
18	Threat range is increased to 18-20 instead of just 20. Does double damage on a critical hit.
19	Threat range is increased to 19-20 instead of just 20. Does double damage on a critical hit.

* Fires Tranquilizer (standard), High Explosive, or Armor Piercing rounds.
** Fires Slug (standard) or Buckshot rounds.
*** Fires Standard, High Explosive, or Flechette rounds.
**** Fires Standard or High Explosive rounds.
***** Requires the shooter to be wearing Battle Dress.

Ammo Cost: The cost of a full magazine of standard ammunition or power pack for a weapon

Weapon Structural Integrity: All weapons have a SI rating of 1.

TL0 WEAPONS

Cudgel: A basic stick used as a weapon. Easily obtained from standing trees or through the use of an unloaded long gun such as a rifle or carbine (laser weapons are too delicate to be used as cudgels). Length: 1000 to 2000mm.

Dagger: A small knife weapon with a flat, two-edged blade approximately 200mm in length. Daggers are usually carried in a belt sheath, or less frequently concealed in a boot sheath or strapped to the forearm. Daggers are usually as much a tool as a last-resort weapon of defense, and worn constantly. Each weighs 250 grams; that weight, however, does not count against the weight load of the character as the weapon is worn constantly and comfortably.

Spear: A long (3000mm) polearm with a pointed tip, usually of metal. Often made by the person who carries the weapon, the spear is quite inexpensive.

TL1 WEAPONS

Pike: A long (3000 to 4000mm) polearm with some form of flat blade tip.

Sword: The standard long-edged weapon, featuring a flat, two-edged blade. It may or may not have a basket hilt or hand protector. A scabbard to carry the sword may be attached to the belt, or to straps (or a sash) over the shoulder. Blade length may vary from 700 to 950mm.

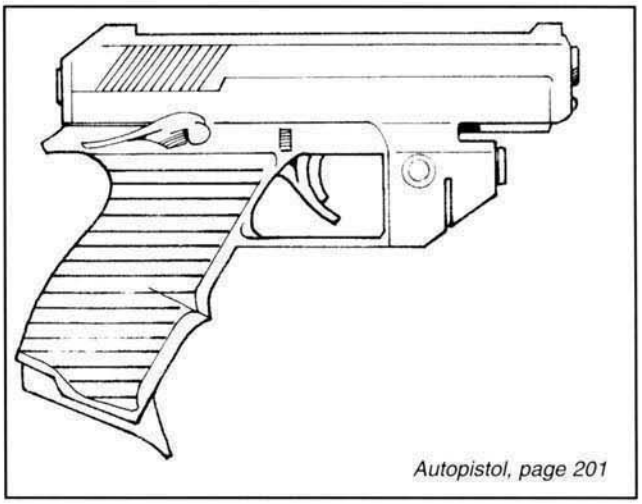
TL2 WEAPONS

Broadsword: The largest of the sword weapons, also called the two-handed sword because it requires both hands to swing. The blade is extremely heavy, two-edged, and about 1000 to 1200mm in length. The hilt is relatively simple, generally a cross-piece only, with little basketwork or protection. When carried, the broadsword is worn in a metal scabbard attached to the belt; less frequently, the scabbard is worn on the back, and the broadsword is drawn over the shoulder.

Halberd: A quite elaborate polearm featuring a pointed, bladed tip. This weapon may be considered to be a combination of a battle ax and a spear.

TL3 WEAPONS

Bayonet: A knife-like weapon similar to a dagger or blade. When not attached to a rifle, a bayonet is treated as a dagger (or blade), carried in a belt scabbard, and requires dagger (or blade) skill for use to advantage. When attached to the muzzle of a rifle (only, not carbine or auto rifle), it transforms the gun into a polearm, and increases the length of the weapon by 200mm.



Autopistol, page 201

Blade: A hybrid knife weapon with a heavy, flat two-edged blade nearly 300mm in length, and (often, but not always) a semi-basket handguard. Because of the bulk of the handguard, it is generally carried in a belt scabbard. Blades are as much survival tools as weapons, and are often found in emergency kits, lifeboats etc.

Cutlass: A heavy, flat-bladed, single-edged weapon featuring a full basket hilt to protect the hand. The cutlass is the standard shipboard blade weapon and sometimes kept in lockers on the bulkhead near important locations; when worn, a belt scabbard is used. Blade length varies from 600 to 900mm.

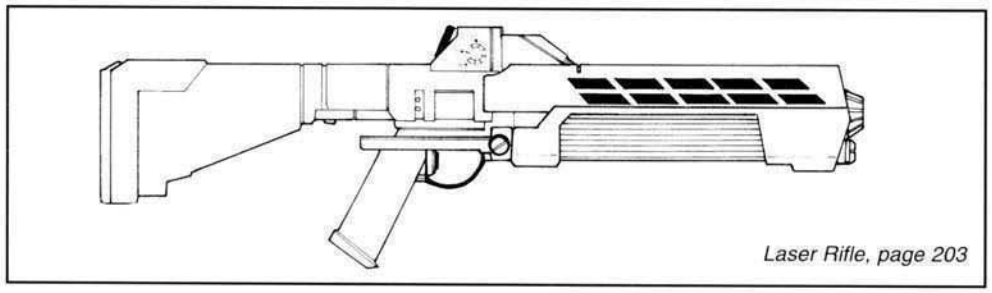
Foil: Also known as the rapier, this weapon is a light, sword-like weapon with a pointed, edged blade 800mm in length, and a basket or cup hilt to protect the hand. Foils are worn in scabbards attached to the belt.

TL4 WEAPONS

Revolver: An early handgun, the revolver fires 9mm bullets with characteristics similar to those used by the automatic pistol, but not interchangeable with them. No magazine is used: six cartridges are inserted into the revolver individually. Reloading takes two combat rounds, or one combat round if the individual foregoes the benefit of evasion.

TL5 WEAPONS

Autopistol: Also referred to as a Semi-Automatic Pistol, Automatic Pistol or just a Pistol, the Autopistol is a basic repeating handgun. One cartridge is fired for each pull of the trigger. Autopistol ammunition is interchangeable with submachinegun ammunition (although magazines are not). Preloaded magazines may be inserted into an empty pistol, requiring one combat round.



Laser Rifle, page 203

Carbine: A short type of rifle firing a small caliber round. A magazine containing ten rounds is inserted into the underside of the carbine ahead of the trigger guard or behind the handgrip (this configuration is referred to as "Bullpup", and in some localities carbines may be referred to as Bullpups), and one round is fired with each pull of the trigger. Replacement of an empty magazine takes one combat round. Carbine ammunition is not interchangeable with any other type of ammunition.

In essence, a carbine is a short rifle, firing a cartridge of smaller, lighter caliber. A sling usually allows the carbine to be carried on the shoulder, out of the way.

Rifle: The standard military arm, firing a 7mm, 10 gram bullet at a velocity of approximately 900 meters per second. Longer and heavier than a carbine, it is also more effective. Standard equipment includes provisions for attaching a bayonet and telescopic sights, and a shoulder sling.

A twenty-round magazine is attached to the front of the trigger guard, and one round is fired with each pull of the trigger. Replacement of the empty magazine takes one combat round. Rifle ammunition may also be used in automatic rifles; rifle and auto rifle magazines are interchangeable, and weigh the same.

Shotgun: The basic weapon for maximum shock effect without regard to accuracy. The shotgun has an 18mm diameter barrel and fires shells containing either six 7mm bullets, or one hundred and thirty 3mm pellets. In each case, the projectiles weigh a total of 30 grams. Velocity for the projectiles is about 350 meters per second. A cylindrical magazine containing 10 shells is inserted under the barrel and parallel to it; cartridges are then fed automatically into the shotgun for firing. Reloading consists of replacing the cylindrical magazine and takes two combat rounds. One shot is fired for each pull of the trigger.

Magazines measure approximately 350mm long by 20mm in diameter and are quite clumsy to carry.

Shotguns are equipped with a sling for carrying.

Submachinegun: A small automatic weapon designed to fire pistol ammunition. Magazines holding 30 cartridges are inserted into the weapon forward of the trigger guard or in the pistol grip, depending on the design. The gun fires a burst of four rounds per pull of the trigger. Replacement of an empty magazine requires one combat round.

Submachinegun ammunition (but not magazines) is interchangeable with autopistol ammunition.

Most submachineguns are equipped with slings for ease of carrying. Some are small enough to be carried in a shoulder or hip holster.

TL6 WEAPONS

Automatic Rifle: A highly refined and tuned version of the rifle, capable of full automatic fire as well as semi-automatic shots. Normally, the automatic rifle fires bursts of four bullets for each pull of the trigger. It may be switched to semi-automatic fire at the end of a combat round, after all firing, in which case it is treated as a rifle until switched back so burst mode. Ammunition and magazines are identical to those used for the rifle.

Light Machine Gun (LMG): A heavier belt-fed version of the automatic rifle. Reloading takes 3 rounds if the weapon is manned by a single individual, one round if a loader is present. The LMG fires up to a 20-round burst each combat round.

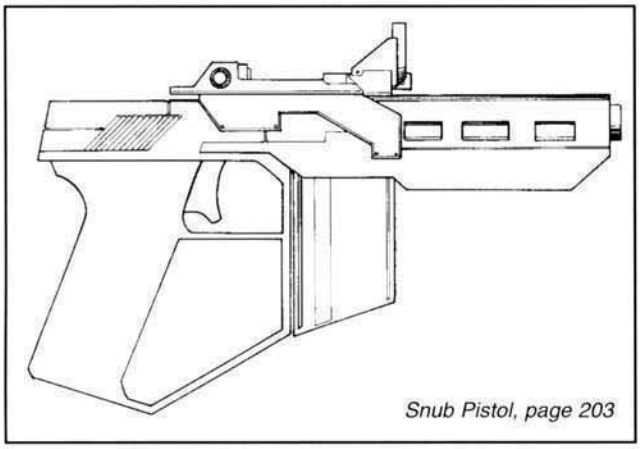
TL7 WEAPONS

Assault Rifle: A lighter and less expensive version of the automatic rifle.

Body Pistol: A small, non-metallic semiautomatic pistol designed to evade detection by most weapon detectors. One cartridge is fired for each pull of the trigger. Preloaded magazines may be inserted into the pistol when it is empty, taking one combat round to do so. Body pistol ammunition is not interchangeable with the ammunition for any other types of guns.

Disposable Launcher: A light-weight, self-contained, disposable, non-reusable version of the Grenade Launcher. Disposable Launchers are designed to fire HEAP grenades only.

Grenade Launcher: Allows users to lob grenades at ranges far exceeding normal throwing distance. Unlike artillery, grenade launchers rely on the destructive power of the warhead alone, as there is little kinetic energy behind their attack. Grenade launchers may be fired once per round as a standard attack action, and require a move action to reload. A grenade launcher may fire any type of grenade, up to a maximum distance of 1000 meters. A grenade launcher may be attached to an assault rifle for the cost of the assault rifle and the grenade launcher plus an additional Cr50.



TL8 WEAPONS

Laser Carbine: A lightweight version of the laser rifle, firing high energy bolts using current from a backpack battery/power pack. The laser carbine fires a 2mm beam of energy, aimed by integrated optic sights. The power pack is capable of producing 50 shots before it requires recharging. Recharging requires at least eight hours connected to a high-energy source. The laser carbine is connected to the power pack by a heavy-duty cable.

Light Assault Gun (LAG): Essentially a heavy (20mm caliber) rifle fed by a 5-round magazine. Requires the firer to have Str 14+ (unless in Battle Dress) or suffer -2 to hit due to the weight and recoil.

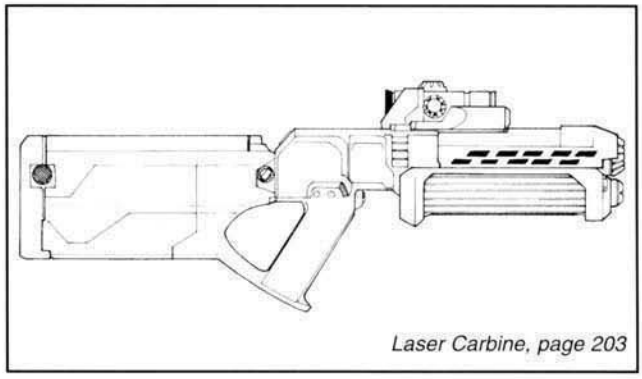
RAM Launcher: Designed to fire RAM grenades, allowing for targets as far away as 1000 meters. See RAM Grenades (pg. 206). The RAM grenade launcher holds a 3 round clip that may be fire at a rate of one round per pull of the trigger. Reloading the RAM grenade launcher is considered a move action.

Snub Pistol: A low velocity revolver designed for use shipboard and in zero-g environments.

TL9 WEAPONS

Accelerator Rifle: Designed specifically for zero-g combat, the accelerator rifle fires a specially designed round which upon leaving the barrel is accelerated by a secondary propelling charge. Normally the rifle fires bursts of three rounds per pull of the trigger, but may be adjusted to fire single rounds.

Laser Rifle: The standard high energy weapon, firing energy bolts in the same manner as the laser carbine. Heavier, the laser rifle is also capable of longer sustained action, and is somewhat sturdier. The power pack can provide 100 shots before recharging. As in the laser carbine, the laser rifle is connected to the power pack by a heavy-duty cable. Power packs are not interchangeable between the two weapons, however.



TL10 WEAPONS

Advanced Combat Rifle (ACR): A progressive development of the assault rifle. The ACR is also designed to fire RAM grenades (pg. 206). A single RAM grenade may be fired per round as a standard attack action, with reloading considered a move action.

TL12 WEAPONS

Gauss Rifle: The ultimate development of the slug thrower, the gauss rifle generates an electromagnetic field along the length of the barrel which accelerates a bullet to high velocities. The round itself consists of a dense armor piercing core surrounded by a softer metal covering, ending in a hollow point, giving the round excellent stopping power and good armor penetration. Gauss rifles are also designed to fire RAM grenades (pg. 206). A single RAM grenade may be fired per round as a standard attack action, with reloading considered a move action.

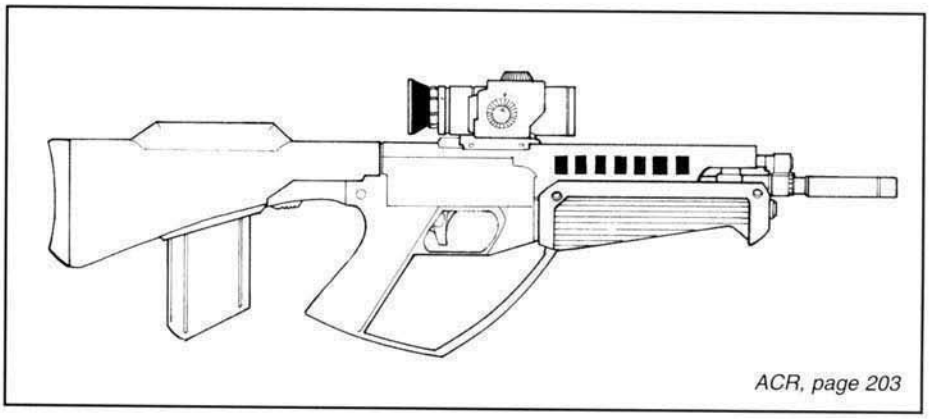
Laser Pistol: A pistol equivalent of the laser carbine, though still dependent on an external power pack.

Plasma Gun, Man Portable (PGMP-12): The weapon consists of a power pack carried on the firer's back, the weapon itself, and a flexible power link. The powerpack powers a laser ignition system in the weapon itself, which heats hydrogen fuel to a plasma state. The plasma is contained in the ignition chamber briefly and then released through a magnetically focused field along the weapon's barrel. The initial plasma jet is 2cm in diameter but begins to dissipate rapidly. Each powerpack has sufficient energy to discharge 40 plasma bolts before recharging is required. Each pull of the trigger discharges one plasma bolt. Because of the recoil of this weapon, it may only be fired once every two rounds. Damage is reduced to one-half at 5-7 range bands, and one-quarter at 8 range bands or more.

TL13 WEAPONS

PGMP-13: Designed to be used exclusively with Battle Dress armor. The strength enhancement units of the armor serve as a recoil carriage, allowing the weapon to be fired

each round. Damage is reduced to one-half at 5-7 range bands, and one-quarter at 8 range bands or more.



ACR, page 203

TL14 WEAPONS

Fusion Gun, Man Portable (FGMP-14): Similar in design and function to the PGMP, differing only in that it contains the plasma slightly longer until a fusion reaction begins to take place. The weapon is therefore somewhat more powerful than a plasma gun, and may only be used by individuals wearing Battle Dress. May still only be fired once every two rounds. Damage is reduced to one-half at 5-7 range bands, and one-quarter at 8 range bands or more.

PGMP-14: The ultimate development of the plasma gun, the PGMP-14 incorporates a gravitic field generator that provides near total recoil compensation. This enables personnel not in powered armor to both carry and fire the weapon every round. The weight listed before the slash is the weight of the weapon with the gravity field generator off, the weight listed after the slash is with the gravity field generator on. Damage is reduced to one-half at 5-7 range bands, and one-quarter at 8 range bands or more.

TL15 WEAPONS

FGMP-15: Incorporates a gravitic field generator similar to that used on the PGMP-14, allowing use by firer's wearing non-powered armor every round. The weight listed before the slash is the weight of the weapon with the gravity field generator off, the weight listed after the slash is with the gravity field generator on. Damage is reduced to one-half at 5-7 range bands, and one-quarter at 8 range bands or more.

NON-STANDARD AMMUNITION

In addition to the standard ammunition available for weapons, some weapons may use the following non-standard ammunition:

Flechette Rounds: These rounds break apart in flight releasing numerous small, sharp shards of metal, increasing the chance of hitting the target, (+2) but inflicting considerably less damage (replace each damage die, of any type, with 1d4). Flechette rounds are useless against armored opponents. Cost is x2 per round.

High-Explosive (HE) Rounds: These rounds are designed to explode once they penetrate a target, inflicting +1 die of damage. Cost is x10 per round.

Armor Piercing (AP) Rounds: As the name implies, these rounds are specifically designed to penetrate ballistic cloth and other types of armor. Reduce the target's AR bonus for any natural or manufactured armor by -1 per penetration bonus of the round. Cost is (x 3 plus x1 per penetration bonus of the round). For example a +2 AP round has a penetration bonus of 2 and cost 5 (x3 +x2) the normal price of a round for the given weapon.

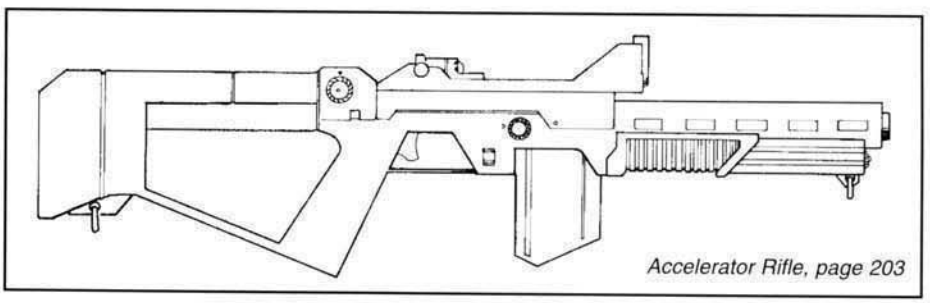
Tranquilizer Rounds: The target must make a Fortitude save vs. DC15 or fall unconscious. Save is made at +1 DC per round hitting the target.

Buckshot: Buckshot has a very short range is highly lethal. At up to 3 meters, buckshot will hit any single target for 3d6 damage. At up to 6 meters, it will hit any single target for 2d6 damage. Beyond 6 meters, buckshot inflicts 1d6 damage on anyone in a 2 meter wide path out to its maximum range. However, buckshot ammunition penetrates very poorly and suffers a penalty against armor of +2 AR (and an additional +1 AR per range band after the first in addition to normal range penalties).

ACCESSORIES

The following special accessories are generally available for the various weapons.

Telescopic Sights (800 grams; Cr200; TL 6): High-quality telescopic sights for attachment to weapons, for



Accelerator Rifle, page 203

increasing their accuracy, especially at longer ranges. A weapon equipped with such sights effectively doubles its normal range increment.

Telescopic sights are delicate, however, and may be jarred out of alignment by any violent action (such as being left untended in a moving truck, a close explosion, or being dropped) on a basic check (DC12). When the sights go out of adjustment, the basic throw to hit should not be revealed to the firer, and he or she will always miss.

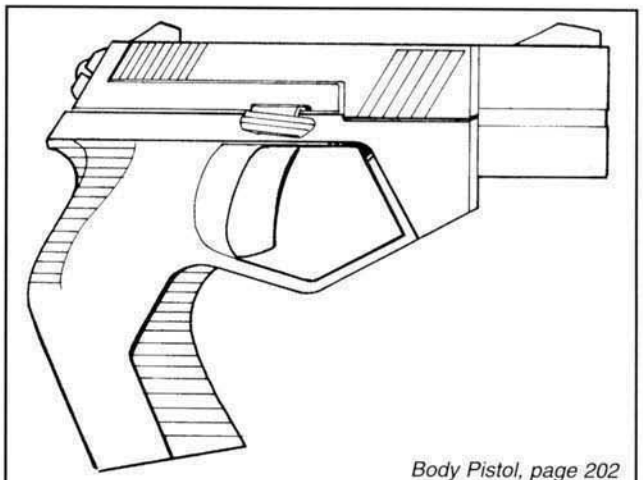
Electronic Sights (1500 grams; Cr2000; TL 9): Electronic sights with image enhancement and light intensifications capabilities are available to provide the capability to see and hit in the dark. Treat any low-light conditions as normal lighting for weapons equipped with such sights. These sights are treated like telescopic sights for damage and reliability, and function similarly, but do not increase the weapon's range increment.

Electronic Telescopic Sights (1800 grams, Cr 3000, TL 9) Electronic sights combining the capabilities of both electronic and telescopic sights. They are still rather fragile.

Silencer (600 grams; Cr200; TL 6): Devices are available which will muffle or eliminate the sound of guns firing, but so far they have proven practical only when applied to body pistols, revolvers, and automatic pistols. A silencer attaches to the muzzle of the pistol, increasing its total length, and making it impossible to holster until the silencer is removed. Silencers are not interchangeable; one must be purchased for each specific model of pistol used.

Shoulder Stocks (1000 grams; Cr75; TL 5): It is possible to produce a shoulder stock which may be attached temporarily to a pistol or revolver, resulting in a crude carbine arrangement and some greater accuracy at longer ranges. Ignore the first range penalty incurred when firing a pistol or revolver equipped with such a stock. The overall length of the pistol is increased by the length of the stock, and the pistol cannot be holstered. Attaching the stock (or detaching it) requires five combat rounds.

Folding Stocks (500 grams; Cr100; TL 6): Carbines, rifles, and shotguns can be equipped with folding stocks which make it possible to reduce the overall length of the weapon by 300mm.



Body Pistol, page 202

GRENADES AND EXPLOSIVES

When a grenade or other explosive is set off, its effects are spread out over a given radius from where it landed. Anything within the blast radius is automatically hit. Those affected may attempt a Reflex saving throw to take only half damage (this does not apply to vehicles or ships).

Plastic Explosive: Because of its nature, plastic explosive may be molded and shaped allowing the user to direct and control to a fair degree the force of the blast. It cannot be used as a grenade. See Demolitions (pg. 155) for more information.

TDX: A gravitationally polarized explosive. Unlike conventional explosives, TDX expends its energy only along the horizontal plane of the blast. For example, a TDX explosive set 1 meter off the ground would inflict its damage on anything within its blast radius that is also at a height of 1 meter. Objects above or below this level would not be effected. Because of this effect, TDX is quite useful at tasks such as felling trees, cutting the supports of a

GRENADES AND EXPLOSIVES

	Damage	Blast Radius	Range Increment	Weight	Cost
Plastic Explosive	1d20	1.5 meters	-	250g	Cr5
TDX	4d6	6 meters	6 meters	1kg	Cr150
Flechette/Fragmentation	6d6	6 meters	3 meters	1kg	Cr12 (Cr200 per case of 20)
HEAP	4d6	3 meters	3 meters	1kg	Cr15 (Cr240 per case of 20)
Smoke	*	6 meters	3 meters	1kg	Cr10 (Cr160 per case of 20)
Tranquilizer	*	6 meters	3 meters	1kg	Cr25 (Cr400 per case of 20)
Aerosol	*	6 meters	3 meters	1kg	Cr12 (Cr200 per case of 20)

ARCHAIC ARMOR

	Armor Rating	Max Dex Bonus	Armor Check Penalty	Cost	Weight	TL	Speed 9m	Speed 6m
Light Armor								
Padded	1 (0)	+8	0	Cr5	4.5kg	1	9	6
Leather	2 (1)	+6	0	Cr10	7.5kg	1	9	6
Studded Leather	3 (1)	+5	-1	Cr25	9kg	1	9	6
Chain Shirt	4 (2)	+4	-2	Cr100	11kg	2	9	6
Medium Armor								
Hide	3 (1)	+4	-3	Cr15	11kg	0	6	3
Scale mail	4 (2)	+3	-4	Cr50	13.5kg	1	6	3
Chainmail	5 (2)	+2	-5	Cr150	18kg	2	6	3
Breastplate	5 (2)	+3	-4	Cr200	13.5kg	1	6	3
Heavy Armor								
Splintmail	6 (3)	0	-7	Cr200	20.5kg	2	6	3
Banded mail	6 (3)	+1	-6	Cr250	16kg	2	6	3
Half-plate	7 (3)	+0	-7	Cr600	22.5kg	2	6	3
Full plate	8 (4)	+1	-6	Cr1500	22.5kg	2	6	3

bridge or trestle, etc. Anyone caught in the blast radius may make a reflex save (DC15) to take no damage.

Flechette/Fragmentation: This is the standard anti-personal grenade, inflicting 6d6 damage against any targets within a 6-meter blast radius. Anyone caught in the blast radius may make a Reflex save (DC 15) to take half damage.

HEAP: High Explosive Armor Piercing grenades. They have a smaller blast radius, but give you more bang for your buck and are designed to penetrate heavy armor. Reduce the target's AR for natural or manufactured armor by 5. Anyone caught in the blast radius may make a Reflex save (DC 15) to take half damage.

Smoke: This grenade releases a thick cloud of smoke that rapidly engulfs a 6-meter radius, reducing visibility down to 1/2 meters. This effectively gives everyone in the cloud a 90% Concealment modifier (+8 to Defense). The cloud will persist for 1d3+6 rounds (1d3+1 in windy conditions).

Tranquilizer: Anyone caught in the 6-meter blast radius of a Tranq grenade must make a Fortitude save (DC 15) or immediately fall unconscious. This save must be made each round the character remains within the blast radius of the grenade and the gas persists. The gas will persist for 1d3+6 rounds (1d3+1 in windy conditions).

Aerosol: These grenades release an anti-laser aerosol that will impose a -4 to hit modifier for anyone using a laser weapon within the grenade's blast radius. The aerosol will persist for 1d6+6 rounds (1d3+3 in windy conditions).

ROCKET ASSISTED MULTI-PURPOSE (RAM) GRENADES

RAM grenades have a built-in booster system, which ignites upon firing, vastly increasing the velocity (and thus the range) of the round. RAM grenades may be fired from special launchers and as rifle grenades from the ACR and the gauss rifle. RAM grenades are available of any type: Flechette/Fragmentation, HEAP, Smoke, Tranquilizer, or Aerosol.

ARMOR

Armor reduces the amount of damage a character takes from a hit, based on the type of armor worn. The rating for a set of armor is equal to the damage dice reduction value of the armor in combat when you are hit.

Critical Hits: Each time a character that is wearing armor is suffers a critical hit, the rating of their armor is degraded by 1 point. When the rating of a set of armor is reduced to zero or less, the armor has lost all of its effectiveness and no longer offers any protection.

Armor Rating: The value is the armor bonus added to a character's AC, and the damage reduction factor when determining lifeblood damage if an attack does strike the character.

Maximum Dex Bonus: This number is the maximum Dexterity bonus to AC that this type of armor allows. Heavier armors limit mobility, reducing a character's ability to dodge blows.

Armor Check Penalty: Anything heavier than leather impacts the ability to use some skills.

MODERN ARMOR

	Armor Rating	Max Dex Bonus	Armor Check Penalty	Cost	Weight	TL	Speed 9m	Speed 6m
Light Armor								
Jack	2	+8	0	Cr50	1kg	5	9	6
Mesh	3	+5	-1	Cr150	2kg	7	9	6
Flak jacket	4	+6	0	Cr100	1kg	7	9	6
Reflec */**	0/6	+8	0	Cr1500	1kg	10	9	6
Medium Armor								
Ablat */***	2/5	+5	-1	Cr75	2kg	9	6	3
Cloth	6	+4	-2	Cr250	2kg	6	6	3
Combat Env Suit	6	+2	-3	Cr1500	3kg	10	6	3
Vac Suit								
Combat Armor	7	+3	-4	Cr20,000	18kg	11	6	3
Combat Armor	7	+5	-1	Cr30,000	10kg	12	6	3
Combat Armor	8	+6	0	Cr60,000	6kg	14	6	3
Hostile Env Suit	5	+2	-3	Cr18,000	40kg	12	6	3
Hostile Env Suit	7	+3	-4	Cr150,000	25kg	14	6	3
Tailored Vac Suit	2	+6	-0	Cr9000	-	14	9	6
Vac Suit	4	+0	-5	Cr9000	8kg	9	6	3
Vac Suit	3	+2	-3	Cr8000	2kg	12	6	3
Vac Suit	2	+4	-2	Cr7000	-	14	6	3
Other								
The following accessories may be added to Vac Suits of any type, Combat Environment Suits, Combat Armor, and Battle Dress.								
Chameleon	+2 to AC			Cr1000	-	12	-	-
Chameleon	+4 to AC			Cr5000	-	14	-	-
Psionic Shielding	Immunity to Psi attacks			Cr4000	-	12	-	-

* First number is the base armor rating, the second number is the armor rating vs. laser weapons.
** Can be worn under most other types (except Combat Armor and Battle Dress), adding its rating to the rating of the other armor. Reflec may not be worn under combat armor and battle dress.
*** Unlike other types of armor, the armor rating (vs. lasers) of Ablat is reduced by 1 point every time a laser weapon hits it. Thus after 5 hits by any type of laser, the Ablat armor will be rendered useless (against any type of attack).

Cost: The cost of the item in Credits (Cr).

Weight: The weight of the item in kilograms.

TL: The earliest tech level at which this item first becomes available.

Speed: The maximum speed of a character when wearing this type of armor.

Armor Structural Integrity: The SI rating of armor is equal to its armor rating.

ARCHAIC ARMOR

These types of armor are fairly effective against melee attacks and attacks by bows or crossbows; their full AC bonus applies against such attacks. Against modern firearms, lasers, and energy weapons they do not fare as well; their AC bonus should be halved against these forms of attacks. This reduced value is listed in parenthesis next to the standard AR.

MODERN ARMOR

Modern armor is effective against most forms of attack, from archaic melee weapons and bows to modern weaponry.

TL0 ARMOR

Hide: This armor is prepared from multiple layers of leather and animal hides. It is stiff and difficult to move in.

TL1 ARMOR

Breastplate: A breastplate covers the front and back. It comes with a helmet and matching greaves (plates to cover the lower legs). A light suit or skirt of studded leather beneath the breastplate protects limbs without restricting movement much.

Leather: The breastplate and shoulder protectors of this armor are made of leather that has been stiffened by boiling in oil. The rest of the armor is softer and more flexible leather.

Padded: Padded armor features quilted layers of cloth and batting.

Studded Leather: This armor is made from tough but flexible leather (not hardened leather as with normal leather armor) reinforced with close-set metal rivets.

Scale Mail: This is a coat and leggings (and perhaps a separate skirt) of leather covered with overlapping pieces of metal, much like the scales of a fish. It includes gauntlets.

TL2 ARMOR

Banded Mail: This armor is made of overlapping strips of metal sewn to a backing of leather and chainmail. The strips cover vulnerable areas, while the chain and leather protect the joints and provide freedom of movement. Straps and buckles distribute the weight evenly. It includes gauntlets.

Chain Shirt: A shirt of chainmail protects the torso while leaving the limbs free and mobile. A layer of quilted fabric underneath it prevents chafing and cushions the impact of blows. It comes with a steel cap.

Chainmail: This armor is made of interlocking metal rings. It includes a layer of quilted fabric underneath it to prevent chafing and to cushion the impact of blows. Several layers of mail are hung over vital areas. Most of the armor's weight hangs from the shoulders, making chainmail uncomfortable to wear for long periods of time. It includes gauntlets.

Full Plate: This armor consists of shaped and fitted metal plates riveted and interlocked to cover the entire body. It includes gauntlets, heavy leather boots, and a visored helmet. Buckles and straps distribute the weight over the body, so full plate hampers movement less than splint mail even though splint is lighter. Full plate is also known as field plate.

Half-Plate: This armor is a combination of chainmail with metal plates (breastplate, epaulettes, elbow guards, gauntlets, tasses, and greaves) covering vital areas. Buckles and straps hold the whole suit together and distribute the weight, but the armor still hangs more loosely than full plate. It includes gauntlets.

Splint Mail: This armor is made of narrow vertical strips of metal riveted to a backing of leather that is worn over cloth padding. Flexible chainmail protects the joints. It includes gauntlets.

TL5 ARMOR

Jack: A natural (cured) or synthetic leather jacket or body suit covering the torso and upper arms and legs. Jack is somewhat better than ordinary clothing or bare skin when defending against blades.

TL6 ARMOR

Cloth: A heavy-duty body suit tailored from ballistic cloth. The fabric absorbs impact energy, distributing the blow over the body of the target and possibly resulting in bruising. Cloth armor is almost the best and the most versatile modern armor available.

TL7 ARMOR

Flak Jacket: A less expensive military version of ballistic cloth armor, generally only covering the torso and groin.

Mesh: A jacket or body suit made of natural or synthetic leather and reinforced with a lining of flexible metal mesh, similar to chain mail but lighter and stronger. Mesh reduces or stops penetration by blades and has some effectiveness against guns; it is ineffective against laser fire.

TL9 ARMOR

Ablat: Ablat is a cheap alternative to reflec, and is fashioned from a material that will ablate (vaporize) when hit by laser fire. The ablation of the material carries away the energy of the laser, and protects the wearer. Continued fire against ablat degrades its effectiveness, but the armor is cheap and easily replaceable. Ablat also has some value against other forms of attack.

Vac Suit: The personal vacuum or space suit is designed to protect the individual from vacuum, tainted or noxious atmospheres, and some radiation situations. It carries its own communicators, oxygen tanks for six hours, and other basic survival appurtenances. Use of a vac suit requires Armor Proficiency (Vac Suit). Being armored against space debris and similar hazards, a vac suit acts much like cloth armor when subject to attacks. Vac suits are relatively bulky, and weigh 10 kilograms; the weight counts against personal weight allowances. This weight is reduced 2 kilograms per tech level as the suit gains increasing sophistication. For example, a TL 10 vac suit weighs 6 kilograms, and a vac suit at tech level 13+ adds no apparent weight.



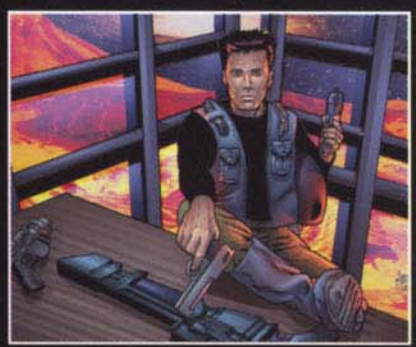
TODAY'S TOP STORIES



Troops over Malusi Gii



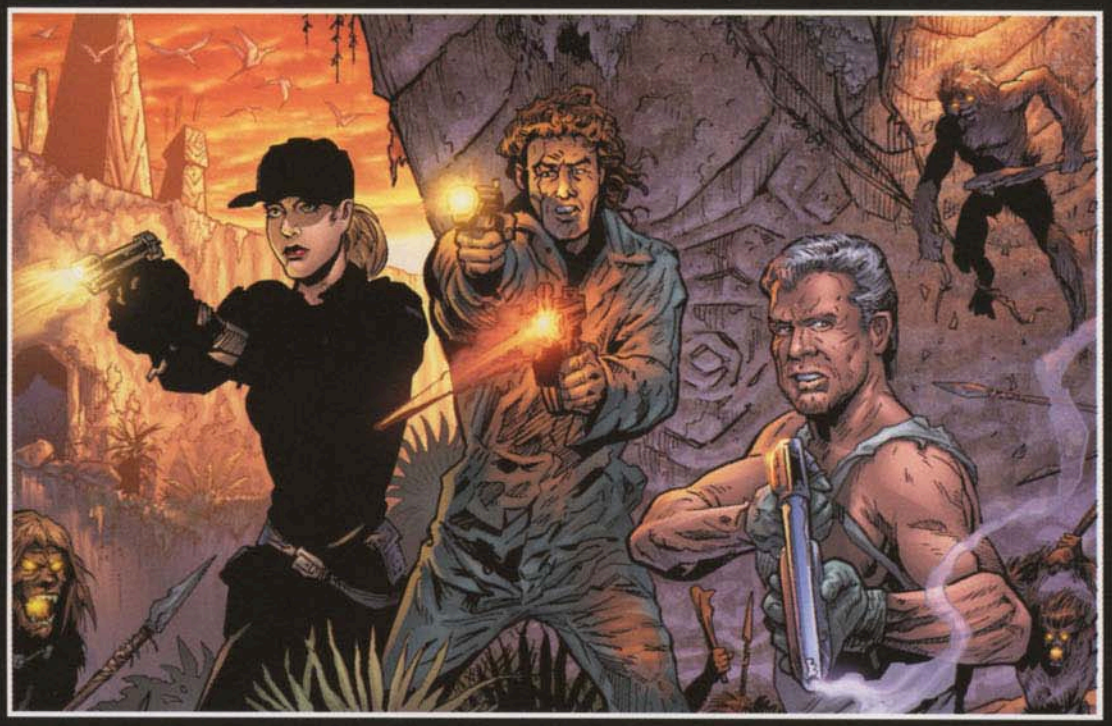
Trouble on Ylten



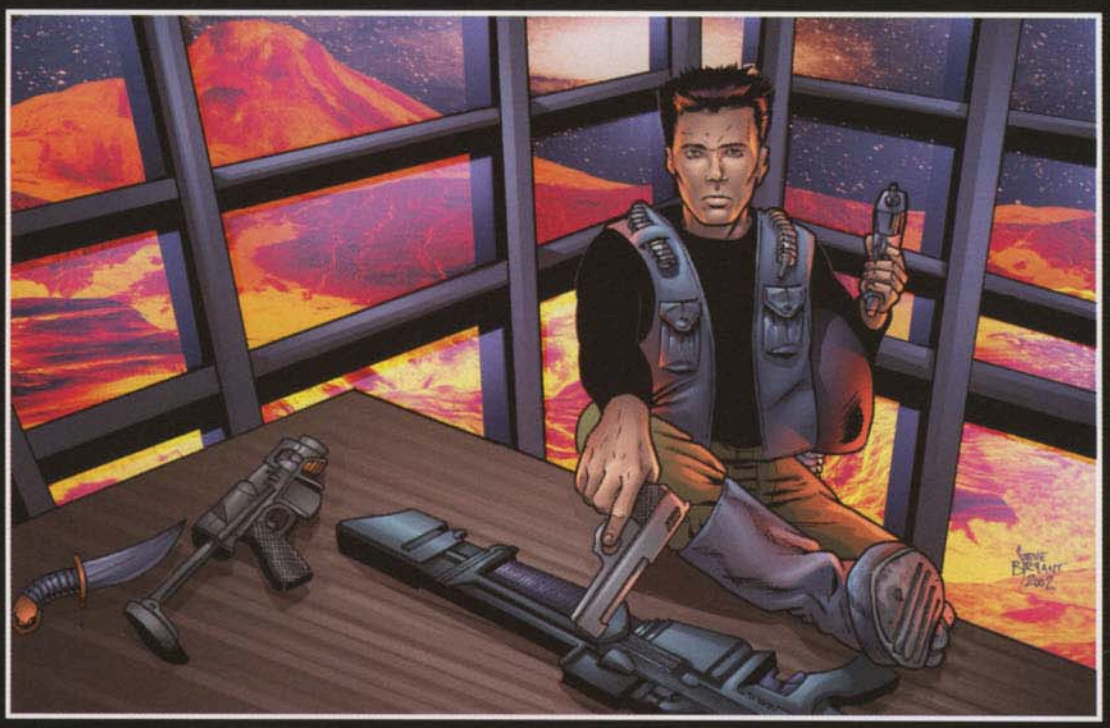
Arms Dealer Captured



TROOPS OVER MALUSI GII: Imperial Marine Corps ground troops prepare for Intervention operations on Malusi Gii. The Corps operates its own fleet of troop transports, escorted by Navy vessels.

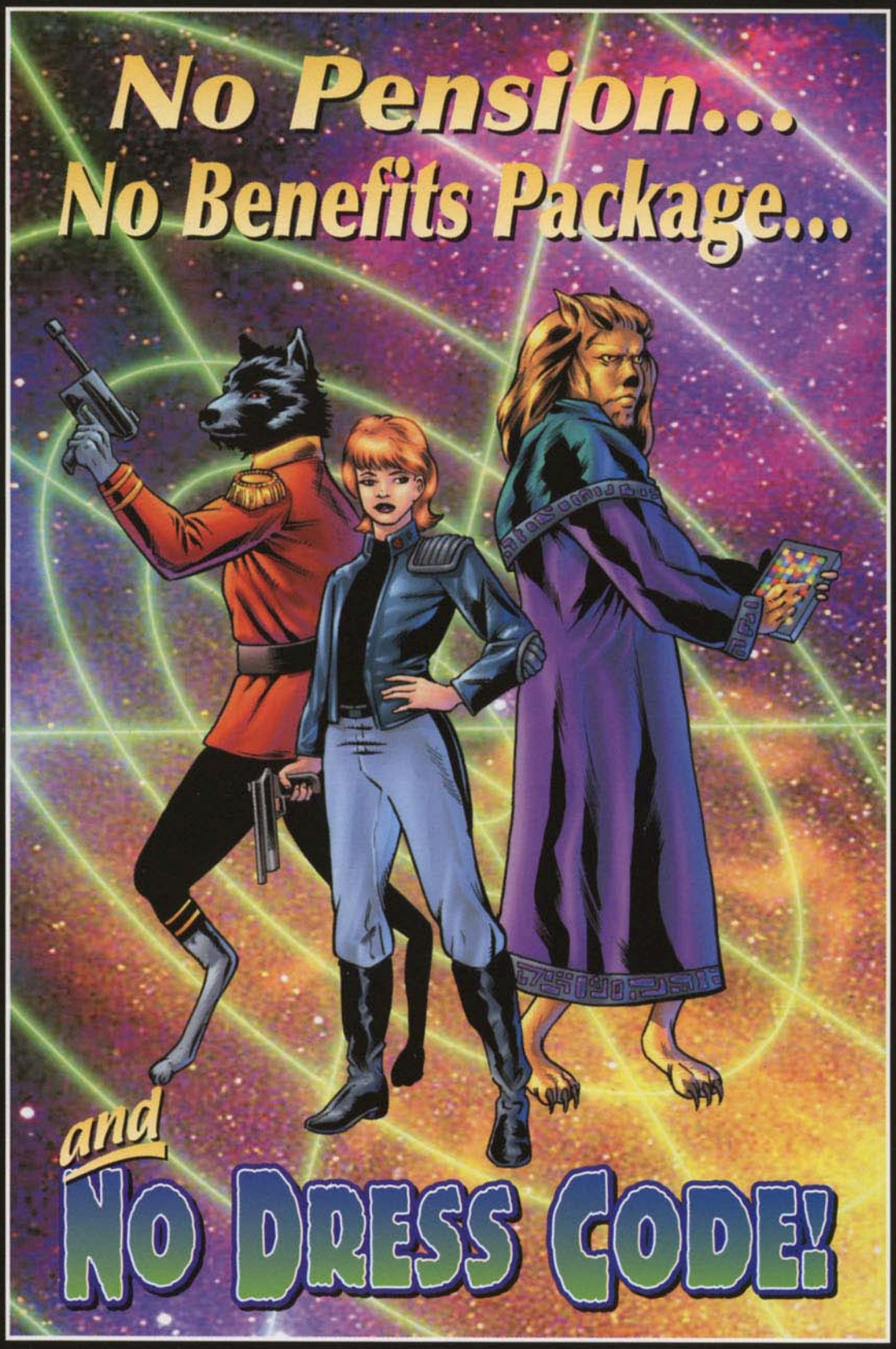


TROUBLE ON YLTEN: Initial reports are sketchy, but apparently a band of adventurers, while investigating a mysterious structure in the forests of Ylten, clashed with the local savages. After a desperate fight, some of the adventurers were able to flee the site aboard an air/raft.

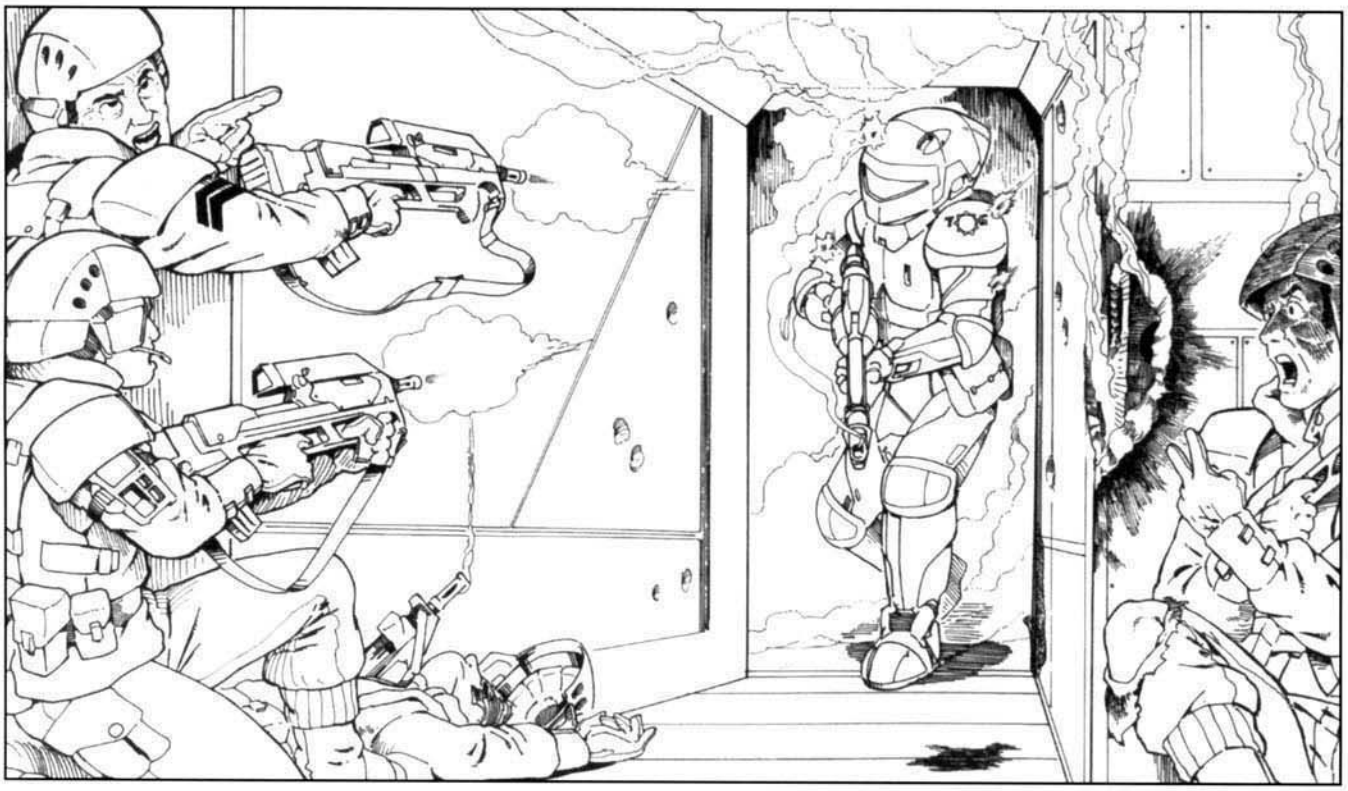


ARMS DEALER CAPTURED: Arms dealer Zane Ratcliff has again been arrested by Ministry of Justice agents. Details of the charges are as yet unknown, but they are thought to include black market traffiking in military hardware.

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TL10 ARMOR

Combat Environment Suit: A neck to toe air-tight, loose fitting suit constructed of ballistic cloth. Generally worn open at the neck and wrists, the combat environment suit can be sealed by donning gauntlets and a clear flexible plastic head bag, thus giving complete protection against most chemical agents, tainted atmospheres, biological agents, and a moderate defense against radiation.

Reflec: Reflective material on a plastic base can be tailored into a body suit which is ineffective against most weapons, but superior in defense against laser fire. Unlike other forms of armor, reflec is worn under other clothing. Reflec is expensive and often difficult to obtain.

TL11 ARMOR

Combat Armor: Combat armor is a complete vac suit-like array of metal and synthetic armor. Combat armor is strictly military and not available on the open market; it is issued to troop units and elite mercenary battalions. Before combat armor can be worn, the user must have the Armor Proficiency (Vac Suit) feat.

TL12 ARMOR

Chameleon: This technology can be applied to any vac suit, combat environment suit, Combat Armor, or Battle Dress. It is designed to mimic the color, temperature, and shading of the wearer's current physical environment, helping to render them difficult to track by both the naked eye and IR systems. First available at TL12, a more advanced version becomes available at TL14.

Hostile Environment Suit: A hardened version of the vac suit, offering heavier protection from the elements and physical damage in hostile environments such as nearby volcanic activity or within a corrosive. HE Suits are heavier and more expensive than Combat Armor, but nearly as effective and available to the general public.

TL13 ARMOR

Battle Dress: The ultimate in individual protection, Battle Dress is an advanced and powered version of combat armor. Battle Dress enhances the strength and senses of individuals wearing it with variable feedback personal controls, servo-powered limbs, and various kinds of electronic assistance. Rather than being listed under the armor tables, Battle Dress is actually considered a vehicle and is detailed as such (pg. 285)

TL14 ARMOR

Tailored Vac Suit: A tailored vac suit is very much what it sounds. Made of a lightweight but strong material, the suit is tailored to the user allowing for a more comfortable fit and allowing the wearing much more freedom of mobility than with a standard vac suit. A tailored vac suit may not be used by anyone other than the person is was tailored to fit.

SHIELDS

Type	AC Bonus	Armor Check Penalty	Cost	Weight	TL
Buckler	+1 to AC	-1	Cr15	2kg	1
Shield, small, wooden	+1 to AC	-1	Cr3	2kg	1
Shield, small, steel	+1 to AC	-1	Cr9	2.5kg	1
Shield, small, ballistic	+1 to AC	0	Cr15	1kg	5
Shield, large, wooden	+2 to AC	-2	Cr7	4.5kg	1
Shield, large, steel	+2 to AC	-2	Cr20	16.5kg	1
Shield, large, ballistic	+2 to AC	-1	Cr25	2kg	6
Shield, tower, wooden	Provides Cover*	-10	Cr30	20.5kg	1
Shield, tower, steel	Provides Cover*	-10	Cr30	20.5kg	1
Shield, tower, ballistic	Provides Cover*	-5	Cr50	5kg	7

* A tower shield can provide cover as per the Cover rules. The user may expose as little or as much of their body as you wish.

Buckler: This small metal shield is strapped to the forearm, allowing it to be worn and still use the hand. A bow or crossbow can be used without penalty. An off-hand weapon can be used, but a -1 penalty on attack rolls is imposed because of the extra weight on your arm. This penalty stacks with those for fighting with the off hand and, if appropriate, for fighting with two weapons. In any case, if a weapon is used in the off-hand, the character doesn't get the buckler's AC bonus for the rest of the round.

Small Shield: A small shield's light weight lets a character carry other items in that hand (although the character cannot use weapons).

Large Shield: A large shield is too heavy to use the shield hand for anything else.

Shield, Tower: This massive wooden shield is nearly as tall as the wielder. Basically, it is a portable wall meant to provide cover. It can provide up to total cover, depending on how far a character comes out from behind it.

EQUIPMENT

The following section lists examples of common equipment. Given the enormous number of variations in design, alternate technologies and the possibility of manufacturing a given item at higher or lower tech levels, it is impossible to list specifics of every possible piece of equipment. The objects listed are presented as indications of common qualities and values.

Each listing notes the object's name, followed by its technological level, a price in Credits, and a basic description. The technological level indicates local technology required to manufacture something with the capabilities listed. Price and weight are for an item manufactured by

EQUIPMENT SI

Size	Weight or Volume	Base SI	Additional SI (round down)	Weight in Pounds (d20 size)
Fine	up to 0.05	0	0.1 per 0.005 over 0.005	0.11 (1/8)
Diminutive	0.05 to 0.5	1	0.1 per 0.05 over 0.05	1.1 (1)
Tiny	0.5 to 5	2	0.3 per 0.5 over 0.5	11 (8)
Small	5 to 30	5	0.5 per 2.5 over 5	66 (60)
Medium	30 to 250	10	1.5 per 22 over 30	550 (500)
Large	250 to 2000	25	2.5 per 175 over 250	4400 (4000)
Huge	2000 to 15,000	50	2.5 per 1300 over 2000	33,000 (32,000)

EQUIPMENT

	TL	Cost	Weight
Personal Equipment			
Artificial Gill	8	Cr4000	4 kg
Cold Weather Clothing	1	Cr200	4 kg
Combination Mask	5	Cr150	1kg
Filter Mask	3	Cr10	0.5kg
Oxygen Tanks	5	Cr500	5 kg
Protective Suit	5	Cr700	5 kg
Respirator	5	Cr100	0.5kg
Swimming Equipment	3	Cr200	1kg
Underwater Air Tanks	5	Cr800	5 kg
Personal Devices			
Artificial Psionic Shield Helmet	8	Cr4000	1 kg
Bull-Horn	5	Cr120	5 kg
Hand Calculator	7	Cr10	1 kg
Hand Computer	11	Cr1000	0.5 kg
Handcuffs	2	Cr25	0.3 kg
Inertial Locator	9	Cr1200	1.5 kg
Long Range Communicator	6	Cr500	15 kg
Magnetic Compass	3	Cr10	negligible
Medium Range Communicator	5	Cr200	10 kg
Metal Detector	6	Cr300	1 kg
Radiation Counter	5	Cr250	1 kg.
Short Range Communicator	5	Cr100	5 kg
Wrist Watch	4	Cr25+	negligible
Vision Aids			
Binoculars	3	Cr75	1 kg
Cold Light Lantern	6	Cr20	0.25 kg
Electric Torches	5	Cr10	0.5 kg
Gas or Oil Lamp	2	Cr10	0.5 kg
IR Goggles	6	Cr500	0.25kg
Light Intensifier Goggles	7	Cr500	0.25kg
Torches	1	Cr1	0.25 kg
Tools			
Carpentry Tool Set	2	Cr300	25 kg
Chain Saw	6	Cr500	8 kg
Disguise Kit	7	Cr1,000	5 kg
Electronic Tool Set	7	Cr2000	5 kg
Janitorial Kit	5	Cr250	10kg
Lock Pick Set	4	Cr10	0.25kg
Mechanical Tool Set	5	Cr1000	20 kg
Medical Kit	7	Cr1000	10 kg
Metalwork Tool Set	4	Cr1500	50 kg
Shelters			
Advanced Base	8	Cr50,000	6000 kg
Pre-Fabricated Cabin	6	Cr10,000	4000 kg
Pressure Tent	7	Cr2000	25 kg
Tarpaulin	1	Cr10	2 kg
Tent	2	Cr200	3 kg
Food and Overhead Per Day			
Average Restaurant Meals	-	Cr10	-
Excellent Restaurant Meals	-	Cr(1d4+1) x10	-
Prepare Own Meals	-	Cr5	1kg
Canned or Packaged Rations	-	Cr20	0.5kg
Dehydrated Rations	-	Cr25	0.2kg
Dismal Lodging	-	Cr2	-
Average Lodging	-	Cr6	-
Good Lodging	-	Cr8	-
Excellent Lodging	-	Cr10	-

an interstellar society of tech level 10-15; items produced at lower tech levels will probably be bulkier and more expensive. An item with no weight or size given can be carried or worn without difficulty. Additional lines of explanation are given where considered necessary.

Equipment Structural Integrity: The SI rating of a piece of equipment (excluding armor, weapons, or vehicles) is based on its weight as listed on the Equipment SI table.

The following listing may be considered a shopping list for PCs. When they originally outfit themselves for an adventure, each may purchase or acquire items from this list in preparation for action or mishap. For the most part, this list does not include weaponry, and all items are generally available for purchase without difficulty on worlds with a sufficient technology level (on other worlds, they may be available as imports at higher prices). Often, the base price for these items will be higher or lower. The Referee may wish to use the trade and speculation rules for percentage price changes.

TL0 EQUIPMENT

First Aid Kit: At TL0, a first aid kit consists of little more than material for a splint, and a few herbs and plants that are reputed to have medicinal qualities, but it is better than nothing. At higher tech levels, the quality of materials and drugs included in the kit improves significantly, greatly increasing the odds of successful treatment. Higher tech kits cost considerably more.

FIRST AID KITS

Tech Level	Cost	Medical DC Modifier
TL0-3	Cr100	+2
TL5-7	Cr125	+/-0
TL8-12	Cr250	-2
TL13-15	Cr500	-4
TL16+	Cr1999	-6

TL1 EQUIPMENT

Cold Weather Clothing: Protects against frigid weather (-20º Celsius or below). Adds a +5 circumstance bonus to all Fortitude saves against cold weather exposure. Reduce the weight by 1kg for every 5 TL.

Tarpaulin: A canvas or waterproof cloth sheet used to create a temporary shelter 2 by 4 meters. Protects against precipitation and can withstand light winds.

Torches: Last about one hour and illuminate 6-meter radius, producing a thick, heavy smoke.

TL2 EQUIPMENT

Carpentry Tool Set: Includes basic tools necessary to cut, shape and build with wood. Required for the use of the Craft skill when working with wood, without suffering a -2 circumstance penalty.

Gas or Oil Lamp: Last about 6 hours on a half-liter of oil or gas, and will illuminate a 5-meter radius to the equivalent of normal daylight.

Handcuffs: Higher tech levels produce stronger and lighter designs. To slip out of a pair of handcuffs requires a Dexterity check (DC25). To break a pair of handcuffs requires a successful Strength check (DC25 +1 per 2 TL). To pick a mechanical lock requires a successful T/Mechanical skill check (DC20 +1 per TL), while electronic locks require a successful T/Electronics skill check (DC25 +1 per TL over TL9). Apply a -4 circumstance penalty if the person wearing the cuffs attempts to pick the lock.

Tent: Basic shelter for two persons offering protection from precipitation, storms, and temperatures down to 0º Celsius, and withstanding light to moderate winds. Larger, more elaborate tents capable of sheltering more people, higher winds or colder temperatures weigh and cost more.

TL3 EQUIPMENT

Binoculars: Binoculars magnify the appearance of objects being viewed through them, effectively increasing the visual range of the user. The effective field of view is reduced however as the magnification increases. Price stays the same across tech levels, though the weight may be reduced through the use of lighter weight components.

BINOCULAR MAGNIFICATION

Tech Level	*Magnification*
TL3-4	x5
TL5-6	x10
TL7-9	x50
TL10-12	x100
TL13+	x1000

Filter Mask: A filter set that allows an individual to breathe tainted atmospheres (types 4, 7, and 9). Also protects against the inhalation of heavy smoke or dust.

Swimming Equipment: Includes swim fins, wet suit, face mask. Protects against the effects of cold (5º Celsius or below), along with improving speed and maneuverability underwater; add +2 to all Swim skill checks in these situations when wearing proper swimming equipment.

Magnetic Compass: Indicates direction of magnetic north, if any exists.

TL4 EQUIPMENT

Lock Pick Set: Allows picking of ordinary mechanical locks. Picking a lock takes 3 rounds and requires a successful T/Mechanical skill check (DC based on the type of lock). Lockpicks are illegal on worlds of law level 8+; on such worlds the cost rises to Cr100 or more.

Metalwork Tool Set: Includes basic tools necessary for metalworking, welding, shaping. Required for the use of the Craft skill when working with metal, without suffering a -2 circumstance penalty.

Wrist Watch: Price determines quality and functionality.

TL5 EQUIPMENT

Bull-Horn: Amplifies voice allowing it to carry up to half a kilometer away, but is very bulky and awkward to carry.

Combination Mask: A combination of both filter mask and respirator, which allows breathing of very thin, tainted atmospheres (type 2), plus all atmospheres listed under filter and respirator masks.

Electric Torch: The common flashlight. It is battery powered and will last for about 6 hours of continuous use. A torch produces a wide cone of light up to 18 meters long with a radius of 6 meters at the end of the beam. Later TL models have adjustable beams allowing them to also produce a tight beam of light up to 36 meters long, with a 1 meter radius, or be used to illuminate a circle of 10 meter radius.

Field Medical Kit: Contains drugs, surgical supplies, and diagnostic materials for use by doctors and field medics. Reduces the DC required for most T/Medical skill checks. Higher tech level kits cost more but offer a better range of treatment options and quality of care, increasing the odds of successful treatment.

FIELD MEDICAL KITS

Tech Level	*Cost*	*Medical DC Modifier*
TL5-7	Cr1000	-2
TL8-12	Cr1250	-4
TL13-15	Cr2500	-6
TL16+	Cr5000	-8

Janitorial Kit: TL5, Cr250. Includes a vacuum cleaner, chemical storage and dispensing systems, along with other basic cleaning tools and supplies.

Mechanical Tool Set: TL5, Cr1000. Includes basic tools necessary to repair and alter mechanical devices. Required for the use of the T/Mechanical skill without suffering a -2 circumstance penalty.

Oxygen Tanks: A complete set of compressed oxygen tanks, which allow independent breathing in smoke, dust,

gas, or exotic (type A) atmosphere. Two tanks last 6 hours. Refill of proper atmospheric mixture for race cost Cr20.

Radiation Counter: Indicates presence and intensity of radioactivity within a 30-meter radius. The indicating signal will grow stronger as it gets closer to the source.

Respirator: A small compressor that allows an individual to breathe in very thin atmospheres (type 3).

Underwater Air Tanks: Equivalent to oxygen tanks but designed for use underwater. Two tanks last 6 hours. Refill of proper atmospheric mixture for race and expected depth cost Cr20.

TL6 EQUIPMENT

Chain Saw: Motorized saw for cutting and shaping trees. The chain saw could possibly be used as a weapon, but at a -4 penalty (-2 if the character has the Weapon Proficiency (Swordsman) or Brawling feat) to hit and inflicting 2d6 damage (x2).

Cold Light Lantern: A fuel cell powered version of the electric torch, but will last 3 days with continuous use. Produces a wide cone of light up to 18 meters away with a radius of 6 meters at the end of the beam. Also capable of producing a tight beam of light up to 36 meters away with a 1 meter radius or be used to illuminate a 10 meter radius.

IR Goggles: Allows wearer to see heat sources (infrared radiation) in even darkness up to 18 meters away. Quality of vision is necessarily distorted. The presence of light does not affect this capability.

Metal Detector: Indicates presence of metal within a 3 meter radius (including underground), with the indicating signal growing stronger as it gets closer to the source.

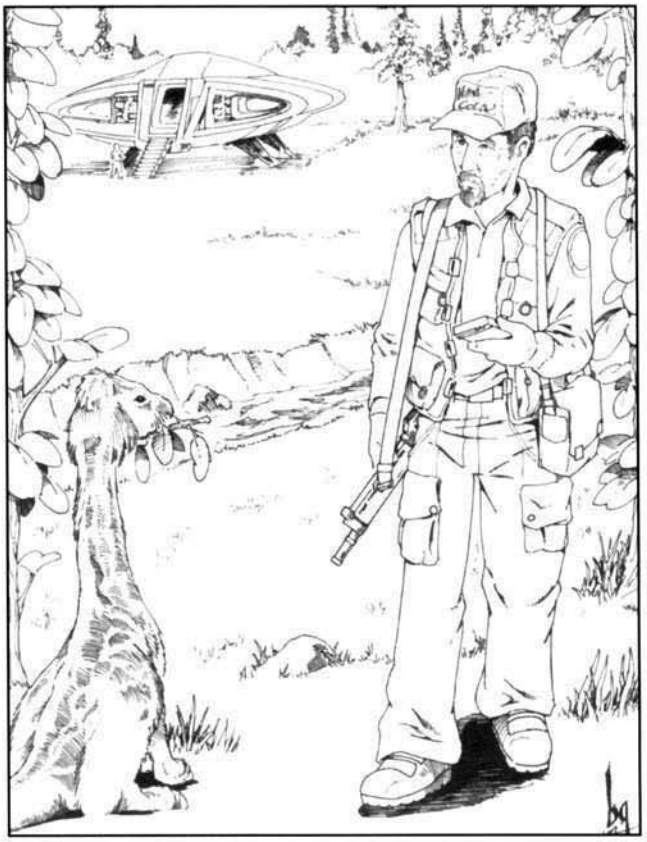
Pre-Fabricated Cabin: Modular unpressurized quarters for 6 persons and capable of withstanding light to severe winds. Offers excellent shelter from precipitation, storms, and temperatures down to -10º Celsius. Requires 8 man-hours to erect or dismantle. There are 16 modules, each, 1.5m wide by 1.5m long by 2m high that can be organized into any layout required. Dismantled and ready for shipment, the cabin weighs 4 tons.

TL7 EQUIPMENT

Disguise Kit: Allows change of personal appearance on a temporary basis. Required for the use of the Disguise skill without suffering a -2 circumstance penalty.

Electronic Tool Set: TL7, Cr2000. Necessary tools for basic electronic assembly and repair. Required for the use of the T/Electronics skill without suffering a -2 circumstance penalty.

Hand Calculator: Provides basic mathematical calculations. The hand calculator is the basic tool of any competent astrogator and a weapon of last resort when the ship's computer is down. If the astrogator has a calculator handy, the penalty for no astrogation computer when plotting a course is reduced to only +4 on the DC.



Light Intensifier Goggles: Allows clear, monochrome vision up to 18 meters in anything less than total dark. While some light is required to produce this effect, anything approaching normal daylight conditions severely degrades the clarity of the view and the range.

Pressure Tent: Basic pressurized shelter for two persons, providing standard atmosphere and conditions, along with protection from precipitation, storms, and up to strong winds. There is no airlock: the tent must be depressurized to enter or leave it.

TL8 EQUIPMENT

Advanced Base: Modular unpressurized quarters for 6 persons and capable of withstanding anything less than hurricane force winds. Offers excellent shelter from precipitation and all but the most extreme of temperature ranges. Requires 12 man-hours to erect or dismantle. There are 16 modules, each, 1.5m wide by 1.5m long by 2m high that can be organized into any layout required. Dismantled and ready for shipment, the advanced base weighs 6 tons.

Artificial Gill: Extracts oxygen from water allowing the wearer to breathe for an unlimited time while submerged under water. Functions only on worlds with thin, standard, or dense (type 4 through 9) atmospheres.



Artificial Psionic Shield Helmet: Acts as a shield against psionic forces (see Psionic Shiled, pg. 189).

Vac Suit: Must be worn in vacuum, trace, exotic, or corrosive atmospheres. May also be worn in very thin or tainted atmospheres if desired. Includes oxygen tanks, short-range communicators, and other required equipment.

TL9 EQUIPMENT

Inertial Locator: Indicates direction and distance traveled from the starting location.

TL11 EQUIPMENT

Hand Computer: The 'handcomp' provides the services of a small computer, plus serves as a computer terminal when linked (by its integral radio, network interface jack, or by other circuit) to a standard computer. If an astrogator has a handcomp handy, the penalty for no astrogation computer when plotting a course is reduced to only +2 on the DC.

FOOD AND OVERHEAD

The following are indications of the prices for food and basic survival:

BASIC CUISINE ON A DAILY BASIS

Food is available in a variety of forms and qualities. Prices indicated are per person.

Restaurant meals of ordinary quality cost Cr10 per day. Excellent quality meals range in price from Cr20 to Cr50 per person. Travellers' Aid Society facilities provide excellent quality meals to members and guests for Cr20.

Food purchased from vendors for preparation at home costs about Cr5 per day, and weighs about 1 kg.

Preserved foods for rations on expeditions may be canned or packaged (Cr20 per day, weighs .5 kg) or dehydrated (Cr25 per day, weighs .2 kg, dependent on locally supplied water).

SUBSISTENCE ON A LONG TERM BASIS

In situations where time passes quickly, personal survival or subsistence costs can be assumed to be the values given below:

Starvation Level: A person must consume at least 1kg of food per day or they will begin starving. A day's ration of canned, packaged, or dehydrated food is equal to the 1kg of standard fare, regardless of actual weight. A character can survive for a number of days equal to their Constitution before starting to suffer the effects of starvation, but they will not heal from any injuries during this period. For each extra day spent beyond this period with insufficient food supplies, a character will lose 1 point of Lifeblood.

Subsistence Level: A character spending less than less than required by their Social Standing on food and lodging are considered to be existing at subsistence level. While at this level, their Social Standing will be temporarily lowered to a value equal to the level of support the character can afford plus their original Social Standing bonus. For example a character with a normal Social Standing of 12 can currently only afford to spend Cr600 per month on food and lodging. This amount is enough to support a normal Social Status of 6. Adding his original Social Status bonus of +1, the character has a temporary Social Status of 7 until they can afford to once again spend enough to support their true status.

Ordinary Level: A character must spend Cr100 per point of Social Standing each month on food and lodging to support the lifestyle that comes with their status.

High Living: A character that spends Cr250 per point of Social Standing a month or more is considered to be living the high life, the best of foods, high quality lodging, etc. Of course, what is high living to someone with a Social Standing of 3 is quite different than someone with a Social Standing of 15...

Starships: Passengers and crewmembers have their food and lodging provided.

FOOD AND OVERHEAD

	Cost per Day	Weight
Average Restaurant Meals	Cr10	-
Excellent Restaurant Meals	Cr(1d4+1) x10	-
Prepare Own Meals	Cr5	1kg
Canned or Packaged Rations	Cr20	0.5kg
Dehydrated Rations	Cr25	0.2kg
Dismal Lodging	Cr2	-
Average Lodging	Cr6	-
Good Lodging	Cr8	-
Excellent Lodging	Cr10	-

COMMUNICATIONS

Communication is the lifeblood of any civilization, yet it is taken for granted by most citizens... until it breaks down.

Long Range Communicator: Back-pack mounted radio capable of ranges up to 500 km and contact with ships in orbit. Ten separate channels. At tech level 7 reduce the weight to 1.5 kg and it becomes belt or sling mounted.

Medium Range Communicator: Belt-mounted or sling carried radio set capable of up to 30 km range, and contact with official radio channels. Five separate channels. At tech level 7, reduce the weight to 500 grams.

Short Range Communicator: Belt-mounted radio capable of 10 km range (much shorter underground or underwater). Three separate channels. At tech level 7 reduce the weight to 300 grams and it becomes hand-held.

Personal Communicator: A hand-held, single channel communication device. On world with a tech level of 8 or higher a personal communicator is able to tap into the world's satellite communication network and with the proper address, contact any other communicator in the world (for a fee). The channel is private, but not secure and may be monitored on some worlds. Usually network access can be arranged at the local starport for a small fee. On worlds with a tech level of 7 or less, personal communicators will not work.

PERSONAL COMMUNICATIONS EQUIPMENT

	TL	Cost	Weight	Range
Long Range Communicator	6	Cr500	15 kg	500 km
Medium Range Communicator	5	Cr200	10 kg	30 km
Short Range Communicator	5	Cr100	5 kg	10 km
Personal Communicator	8	Cr250	0.3 kg	Special

MEDICINE AND BIOTECHNOLOGY

TREATMENT 'IN THE FIELD'

Damage to lifeforms must be healed, either naturally, through the intervention of a medical practitioner, or via a technological device.

Natural Lifeblood Healing: Lifeblood heals naturally at a rate of 1 point per week of rest. For longer-term healing, the total recovery period from a given set of wounds is equal to

one week per point of Lifeblood lost, minus the character's constitution modifier, with a minimum of 1 week total recovery. Thus a character resting up after taking 7 points of Lifeblood damage would be completely healed after 5 weeks if his constitution modifier was +2 (7 minus +2 = 5), and 8 weeks if it were -1 (7 minus -1 = 8).

Natural Stamina Healing: Stamina is automatically recovered at a rate of (1 point + Constitution modifier per character level) per hour of rest. If the character has a negative Constitution modifier, the character will require a number of hours equal to (numeric value of Con modifier +1) to heal 1 point of Stamina, that it takes the character to recover a single Stamina point. For example a character with a 16 Con (+3 modifier) would recover stamina at a rate of 4 points per hour of rest, while a character with a 6 Con (-2 Modifier) would heal at a rate of 1 point per 3 hours of rest.

First Aid: A character that has the T/Medical skill may attempt to treat unconscious (0 or fewer Stamina points) and dying (0 or fewer Lifeblood points) victims. A successful T/Medical skill check (DC15) will revive unconscious victims (raising their Stamina to 1), and stabilize dying characters (raising their Lifeblood to 1). Applying first aid is a full round action. If the character treating the victim has a medical kit to hand, they may add +2 to these medical skill checks.

Medical Drug: Heals 3d6 Stamina, 1d4 Lifeblood. If the Medical Drug is taken more than once in a 24-hour period there is a high risk of overdose. The user must make a Fortitude saving throw (DC20) or immediately fall unconscious (reduce Stamina to 0) and suffer 3d6 Lifeblood damage.

Medical Drug TL8 *Cr100 per dose*

Personal Medikit: A personal medikit is basically a small personal electronic pharmacy tailored to a specific user's body chemistry. When worn (usually on upper arm, thigh, or lower back) it is always active and monitoring the wearer's bio-signs for any changes. As needed the medikit will dispense anti-toxins, antibiotics, stimulants, sedatives, and other pharmaceuticals needed to keep the user at peak efficiency. This has the added benefit of boosting the user's natural base healing rate from 1 Stamina point per hour to 2. Under normal (adventuring) conditions a personal medikit will need to be recharged every 4 weeks. Of course heavier demands on the medikit may considerably reduce the available drug supply much sooner.

In the event of poisoning or infection, a personal medikit will impart a +5 bonus to all Fortitude saving throws against the effects of such dangers.

Most medikits are also equipped to store and dispense a single dose of Medical Slow drug should it ever be needed. If the wearer is ever dying (0 Lifeblood or lower), the medikit will automatically use the Medical Slow drug if it is available and there is not a risk of overdose. The user can activate the Medical Slow at any time if needed. If desired, this can be replaced with a dose of Slow, Combat, or Medical drugs instead.

ENVIROTECH

The technological abilities of a civilization will dictate what sort of structures can be built. It is always possible that a world that has a particular capability will not use it, or that unusual or "natural" solutions to construction and environmental technology will be implemented. The universe is full of surprises. However, this section should give an indication of what is possible or most common at any given tech level.

Cities

TL 5	'Modern' Cities
TL 7	Underground Cities
TL 8	Orbital Settlements (up to pop digit 2; hundreds of inhabitants)
TL 9	Orbital Settlements (any size)
TL 9	Arcologies
TL 10	Undersea/ice Cities

Seismic Detection and Control

TL 8	Seismic prediction
TL 10	Early Seismic control
TL 15	Reliable seismic control

Gravitic Structures

TL 11	Small and experimental structures
TL 12	Free floating gravitic structures
TL 13	Stationary gravitic cities up to 1 kilometer in altitude
TL 14	Free-floating gravitic cities up to 10 km in altitude
TL 15	Free-floating gravitic cities up to orbital altitude

Terraforming

TL 12	Up to 10,000 square kilometers
TL 15	Entire Hemispheres
TL 16	Global

MEDICAL CARE

Medical Procedure	*DC*
Aid a choking victim	5
Staunch bleeding/apply tourniquet	5
Administer injection/IV	5
Cardio/Pulmonary Resuscitation	5
Set broken limb/rib	5
Venomous bite/sting treatment	10*
Apply/remove stitches	10
Tracheotomy	15
Treat non-terminal virus	10
Treat terminal virus	15
Treat non-terminal disease	20
Treat terminal disease	25
Treat non-terminal cancer	30
Treat terminal cancer	35
Routine surgery (remove bullet, appendicitis)	25**
Serious surgery (amputation, heart surgery)	30**
Major surgery (brain surgery)	35**

Modifiers	*DC*
Under fire	+15
Rushed	+10
Anti-toxin Available	-10
Hi-Tech Hospital	-15
Mid-Tech Hospital	-10
Lo-Tech Hospital	-5
Hi-Tech Field Hospital	-10
Mid-Tech Field Hospital	-5
Hi-Tech Surgical Field Kit	-5
Lo-Tech Surgical Field Kit	+5
No Surgical tools	+10
Chronic Condition	+5

*Slows the spread of a poison
**Requires the Surgery feat

It is very dangerous to attempt to use a Medikit that has been tailored to another person's body chemistry. If such an attempt is made two Fortitude saving throws must be made. If the first saving throw (DC15) fails, the user immediately suffers a Traumatic Shock injury (1d6 Lifeblood damage, ignore the second saving throw). If the second saving throw (DC10) fails, the medikit simply does not work for the user. If both saving throws are successful, the medikit will function normally for the user.

Personal Medikit	*TL12*	*Cr15,000*
Basic Supplies		*Cr500 (specialized drugs must be pur chased separately)*

AutoDoc: An autodoc is a small self-contained diagnostic, pharmaceutical, and surgical system about the size of a Low Berth chamber or large coffin. Often found on starships, it is capable of diagnosing and treating disease, infection, injuries and other medical conditions as if a qualified doctor of Skill rank 12 was attending the patient.

Autodoc	*TL13*	*Cr1,000,000* *0.5 tons*
Supplies		*Cr100,000*

Capabilities
Heals all Stamina in one hour
Speeds the base natural healing of Lifeblood to 5 per week

Broken Bones	DC10	
Minor Surgery	DC15	
Routine Surgery	DC20	
Reanimation	TL14	Within 15 Minutes of death

MEDICAL CARE

Medical science is capable of great feats in preserving and maintaining the health and well-being of individuals. The services of medically trained individuals are in great demand. Skill ranks in T/Medical skill represent steps in increasingly better ability and knowledge.

T/Medical skill rank 4 is sufficient to qualify a character for the position of medic on a starship crew. A character with a Medical (Doctorate) degree and a T/Medical skill rank of 4 or higher is sufficient for a character to be called doctor, and assumes a license to practice medicine which includes writing prescriptions, handling most ailments, and dealing with other doctors on a professional level.

If the patient is being treated for a life-threatening condition and the T/Medical check fails, the patient must make a Fortitude save (DC15) or they will die immediately.

OTHER PROCEDURES

Advanced Genetic Engineering: The capability of designing and creating bioengineered lifeforms adapted for various purposes (including sentience) becomes available at TL 14. While such bioengineering is with animal lifeforms on most worlds, there are those that have and do bioengineer all types of lifeforms including humans and other advanced races for adaptation to hostile environments for colonization. Most of these adaptations have been for Water Worlds.

Growth Quickening: The development of Growth Quicken at TL 10 offers a significant advance for medical science, enabling much more rapid healing of damaged and the growth of new tissues. Such accelerated healing requires proper medical facilities and care (i.e.: a qualified hospital or an autodoc).

Lifeblood Healing	*TL*
1.5 per week	10
2 per week	11
3 per week	12
5 per week	13
7 per week	14
10 per week	15

Limb Regeneration: This type of treatment is not always successful. The patient must make a Fortitude save (DC 10) for the treatment to work. If failed, further attempts at regeneration of that limb may not be tried. The patient must also make an addition Fort Save (DC 5) if the first save fails. If this second save fails the patient will have been determined to be one of the rare few for whom regeneration therapy will not work.

Limb	*Cost*
Toe	Cr10,000
Finger	Cr25,000
Foot	Cr50,000
Hand	Cr100,000
Forearm	Cr100,000
Shin	Cr100,000
Entire arm	Cr250,000
Entire leg	Cr500,000

Time to Full Growth	*TL*
One year	9
8 months	10
6 months	11
4 months	12
2 months	13
1 month	14
1 week	15

Nerve Refusion: Paralysis due to spinal injuries is finally eliminated, as nerve refusion becomes feasible at TL 11. Major neural damage through strokes, lack of oxygen and other causes can now be surgically repaired.

Reanimation: At TL 13 medical science has made significant strides in the ability to reanimate dead tissue, with the length of viable recovery time increasing at each TL thereafter, depending on the method used to preserve the body. The body must be preserved as quickly as possible to avoid brain damage. For every 5 minutes that passes before a preservation method is applied, the victim must make a Fortitude save (DC15) or lose one level of experience permanently. Once preserved, the victim may be transported to the nearest auto-doc or medical facility for possible reanimation.

Once in the hands of qualified medical care, the victim may be reanimated. To survive reanimation, the victim must make a Fortitude saving throw, the DC of which is based on the type of preservation used, and the length of time since death has occurred.

Method of Preservation	*Victim Fortitude Save*
None	15 + 1 per 5 minutes beyond the first 5 minutes after death
Low berth	15 + 1 per week beyond the first week after death
Brainblock	15 + 1 per hour beyond the first hour after death.

Decrease the DC by 2 points for every TL of the medical facility used above 13.

RNA Implants: At tech level 12, on most worlds, RNA memory implants become available. These implants chemically induce 'memories' of unacquired skills or skill levels into the recipient individual. The result is a new skill or rank. The advantage of this is easily seen. A person need no longer study to obtain a skill. Just one set of injections, and in a few weeks, the new skill is acquired. There are, however both limits and limitations.

Only one "implant" should be performed per year in the case of standard skills.

All non-criminally related skills can be obtained on most worlds of TL12 or greater. The price generally ranges from Cr3,000 to Cr10,000. (Criminal skills are ones such as Bribery, Forgery, etc. These can still be obtained on worlds with a law level of 1 or lower.) No skill rank may be increased past a level of 5 by implants. Ranks higher than this require hands on experience to fine-tune an existing skill.

If a player should get an implant, a Fortitude saving throw (DC10) should be made to achieve a successful implant. A modifier of +1 if someone with T/Medical skill rank of 8 or higher administering the injection, and modifier of +1

if world where it is administered is TL15+. Failure means no skill is gained, though it still counts as one implant for that year, AND the doctor must still be paid for the implant.

Should a player choose to go for a second skill rank or more, subtract a modifier of -4 from the Fortitude saving throw for each successive implant within the 12-month period following the last implant. The modifiers are cumulative. If a failure is rolled, the character must immediately make a Will saving throw (DC15) to avoid insanity. If this is the case, the character must now go through rehabilitative therapy.

Other uses have been found for RNA implants as well. A player can get a High School education or lesser college degree in just one injection or, less legally, a new personality. Many intelligence agencies employ spies, saboteurs, or assassins with "faked" implanted personalities designed to make them blend in with the local populace, even when being occasionally scanned for surface thoughts by psionically talented individuals. (As a side note the 'personality' implants count separately from skill implants when determining how many one can have in a year. They tend to be used to obliterate pre-existing implants of personality; there is no modifier for additional ones after the first when determining failure or the possibility of resultant insanity.)

DRUGS

Anagathics: Anagathics are a specialized drug treatment that can halt the effects of aging in its tracks. The drug must be taken regularly each month for as long as the age retarding effects are desired. It takes approximately one year of regular dosage for the full effect to develop. This means that during the first year on Anagathics a character will continue to age normally. After that first year, as long as the regular monthly dose is taken, the character will no longer age and remain at their present physical age.

Once past the first year, a character can miss one month without suffering ill effects, but if a character misses two or more successive dosages, they must abstain completely for one year before, once against restarting the treatments, including the one-year build-up period.

Anagathics TL15 Cr200,000 per dose

Broad Spectrum Anti-Toxin: The common cold and may other diseases and infections start to become a thing of the past at TL 12 and beyond. Universal, broad spectrum Anti-Toxins become widely available and prove effective against all but the rarest of diseases.

Antitoxin TL12+ Cr250

Potency of Anti-Toxins	*TL*
+5 to Fort saves	12
+5 to Fort saves, or may take 10	13
+10 to Fort saves	14
+10 to Fort saves, or may take 20	15

Combat Drug: +4 Strength, +5 Lifeblood. Lasts for 30 combat rounds, after which the user must make a Fortitude saving throw (DC15) or their Stamina is reduced to 1. If Stamina is already at 1 or below, the character suffers a Traumatic Shock and suffers 1d6 Lifeblood damage. If the Combat Drug is taken more than once in a 24-hour period there is a high risk of overdose. The user must make a Fortitude saving throw (DC25) or immediately fall unconscious (reduce stamina to 0) and suffer 3d6 lifeblood damage.

Combat Drug TL9 Cr750 per dose

Fast Drug: Fast drug speeds up the apparent passage of time for the user, to the point that 60 days will pass for the user as 1 day. The drug slows the metabolism of the user by a factor of 60, reducing the effect of aging and reducing the need for consumable supplies such as food, water, and air during the period the user is under the effects of the drug. An antidote does exist which can be taken to cancel the remaining effects of Fast Drug.

Fast Drug TL9 Cr2000 per dose
Antidote T L12 Cr900 per dose

Medical Slow Drug: Patient is rendered immediately unconscious in a coma-like state for the next 20+1d6 hours. If the patient is already dying, the slow drug will only stabilize their condition for the period of the coma, ensuring no further deterioration of life signs. If the patient is not dying and merely injured the slow drug will heal all Stamina points, and (4 + the patient's Constitution modifier) in Lifeblood points. If more than one dose of slow drug is taken within a week period there is a high probability of a severe overdose. The user must make a Fortitude saving throw (DC25) or immediately fall unconscious (reduce stamina to 0) and suffer 3d6 lifeblood damage.

Medical Slow TL7 Cr100 per dose

Slow Drug: Twice normal speed and double the normal actions allowed each combat round. The effects last for 40 combat rounds, after which the user must make a Fortitude saving throw (DC15) or their Stamina is reduced to 1. If Stamina is already at 1 or below, the overdose causes 1d6 lifeblood damage.

Slow Drug TL8 Cr5000 per dose

CLONING

	TL Min	Cr (1,000s)
Skin	12	10
Hand	13	100
Foot	13	100
Arm	13	250
Leg	13	500
Internal Organ	13	100-1,000
Entire Body	13	25,000

Chance of Defects

There is always a chance of a problem with a cloned part, perhaps an error in the growth regulation, an undetected flaw or defect in the sample core, etc. This risk lessens with TL. The first % represents a chance of just an outright and obviously defective clone. The cloning attempt may be tried again. The second % represents the chance of a successful transplantation but to still have an undetected flaw in the new clone part that may flare up at any time.

Tech Level	Bad Clone	Hidden Defect
TL 12	75%	25%
TL 13	50%	10%
TL 14	25%	5%
TL 15	10%	1%

Social Repercussions of Cloning

Full body clones are illegal just about everywhere.

CYBERTECHNOLOGY

PSEUDO-BIOLOGICAL ENHANCEMENTS

At TL 15 pseudo-biological enhancements that are indistinguishable from the biological original become available, but for a price. Any such enhancements are at 10 times the listed cost in pseudo-biological form.

Rejection

Each week during the first four weeks after having the cybernetic enhancement installed, the patient must make a Fortitude saving throw (DC20) or their body begins to reject the implant. Anti-rejection medication is usually prescribed (+10 save modifier) at a cost of Cr2500 per weekly dose required during the first four weeks. After the first month with the implant, the patient need only check for rejection each month for the next 11 months for possible rejection. Monthly doses of anti-rejection medication may be taken to reduce this possibility. After the first year, a check only need be made on the character's birthday for possible rejection, but a regularly monthly dose of medication is still required for any reduction in the possibility of rejection.

Social Repercussions of Cybernetic Enhancements

For the most part, cybernetic enhancements are accepted within society within what would be considered human limitations. War veterans with cybernetic replacement limbs and faculties are not considered unusual, out of the ordinary, or otherwise given much consideration. Enhancements installed for performance and non-medical related issues are not looked at in quite so pleasant terms on most worlds however. While that exact social and legal reaction to such non-medical enhancements varies from world to world, Brain Implants (or Cyberjacks) are almost universally outlawed.

COMPUTERS AND ELECTRONICS

Once computing devices are created and introduced, they become almost indispensable. Higher-tech versions of computers generally perform the same tasks, only better and faster. New capabilities do appear at high tech levels.

Voice Transcription

Beginning at TL 8 most computer systems are capable of accepting verbal input from their users with reasonable reliability. At the same time, computer synthesized speech also becomes widespread. In almost all cases however there is some form of manual input, typically a keyboard, available.

Datalinks

Starting around TL 8, the personal datalink begins to come into widespread use among most citizens. A datalink allows a user to communicate with anyone, anywhere on a world, anytime, via text, video, voice or combination thereof. Messages may be recorded, sent, received or stored directly with the datalink. Most worlds of TL 8 or higher have some form or Worldnet functioning that may also be accessed via a personal datalink, allowing instant access to local news, library data, and other information that may be of use to travellers.

TL 8	
Cost	Cr1000
TL 10	
Cost	Cr500
TL 12	
Cost	Cr1500 with built-in Translator

Translators

Small, lightweight translation devices capable real-time translation of spoken language becomes widely available by TL 12. These devices can be programmed to translate a multitude of languages, with local language chips available on most worlds of TL 12 or higher. These universal chips

CYBERNETIC ENHANCEMENTS

	TL Min	Str Mod	Dex Mod	Cr (1,000s)
Limbs				
Arm, very light (normal human)	8	+0	+0	500
Arm, light	10	+2	-1	600
Arm, medium	12	+4	-2	750
Arm, heavy	12	+8	-3	1,000
Tentacle, very light	10	-1	+2	750
Tentacle, light	12	+0	+0	1,000
Tentacle, medium	14	+2	+0	1,200
Tentacle, heavy	14	+4	+1	1,500
Organs				
		Con Mod		
Minor Organs	9	+1		100-1,000
Major Organs	8	+2		1,000-10,000
Eyes				
Normal Human	11			1,000
Telescopic Sight	12			2,000
Twilight Sight	12			2,000
Infrared Sight	13			3,000
Holorecording	14			1,000
Auditory				
Normal Human	8			500
Extra Sensitivity	9			700
Olfactory				
Normal Human	12			1,500
Extra Sensitivity	13			2,000
Communications				
Subcutaneous Transponder	8			10
Subcutaneous Communicator, Distant Range	9			25
Subcutaneous Communicator, Very Distant Range	10			50
Subcutaneous Communicator, Regional Range	11			100
Subcutaneous Communicator, Continental Range	12			250
Brain Implants				
Cyberjacking, direct human/computer data interfacing*	14			

*Allows the user to act as a living computer and able to interface with computer systems and run software within their heads. Such a direct interface has a profound impact on computer reaction and processing times, and an equally profound effect on computer enhanced skill use such as piloting, navigation, targeting, and more. There is also the risk of frying one's brain while jacked...

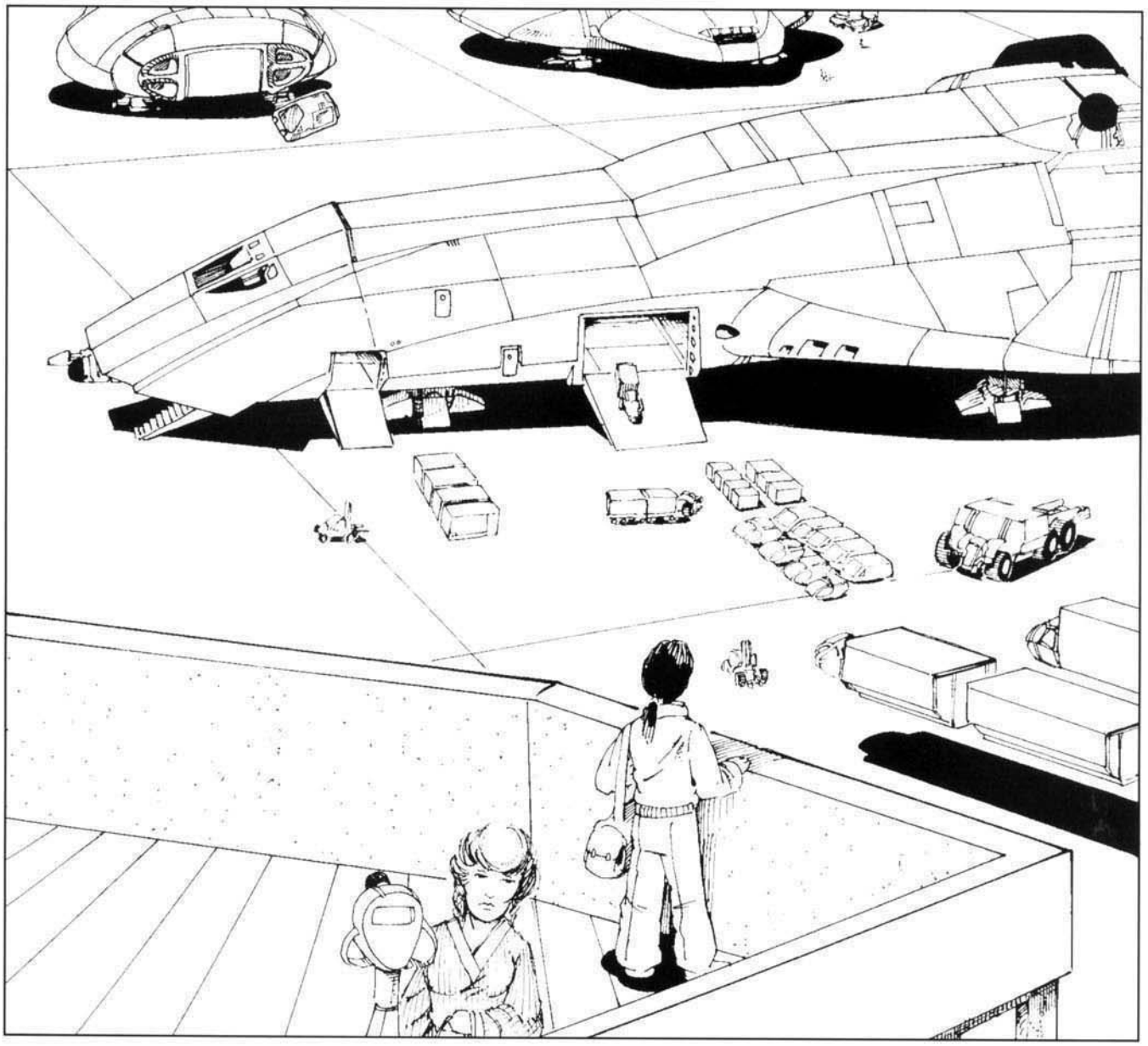
can be loaded into a translator allowing the user to listen and speak at about the ability of a native who has been offworld for a number of years.

TL 12

Cost Cr1000

Holovids

Holographic projection by a personal computer becomes fairly standard around TL 13. Holographic interfaces and "smart" holosystems soon follow. These tailor the output of the computer to what a viewer is doing or saying, allowing a message to be sent by Xboat and delivered interactively even though the sender is months away. "Holo-



Presentations" become a standard mode of communication at TL 14.

TL 13 Basic Holovid interface
Cost Cr 3000
TL 14 Advanced Holovid interface
Cost Cr 5000

VEHICLES AND STARSHIPS

Vehicles and starships are constructed at many different tech levels. As a rule, more advanced components allow smaller, faster, more powerful or more reliable systems, but a given vehicle type can be constructed in a variety of ways, and using very different materials. The design systems incorporate these tech-dependent factors.

Computer, Starship and Vehicle design are covered seperately in the Design Sequences chapter starting on pg. 223.

DESIGN SEQUENCES

This chapter contains design rules for computers, vehicles and starships. The design process is very similar for all three.

USING THE DESIGN SYSTEMS

The vehicle and starship design systems were created to be as simple and easy to use as possible, while still allowing for a vast range of creativity. By picking and selecting from a varying set of systems, components, drives, and other features, it is quite simple and easy to design anything from a personal grav vehicle to a million-ton Jump-capable dreadnaught.

Many systems and components have a simple base cost and size, no matter what size ship or vehicle you are installing them into. You pay the same cost and size loss for each one of these types of items installed. Other systems, particularly drives and armor, have a cost and size based on a percentage of the overall hull or chassis size being used. The technological level of the vehicle or ship itself may also affect the size requirements of some systems and components.

Most of the data needed to construct vehicles and starships has been compiled into easy-to-consult tables based on various common options. If you are designing a vehicle or ship that uses a hull or chassis size not listed, select components from the various smaller sizes that add up to the hull or chassis size you wish to construct.

For example, you are designing a 550-ton starship and need to determine the cost and size requirements to install armor on the ship up to an armor factor of 4. Consulting the ship armor table, you will see that there is no entry for a 550-ton hull. But there is a listing for a 500-ton hull and a 50-ton hull. If you add the costs, size, etc for both the 500 and 50-ton hull listings, you have the cost, size and other data for your 550-ton ship.

Unless designing very large ships, you should need nothing more than scratch paper to do a bit of addition, subtraction, and record keeping when designing a vehicle or ship.

UNITS IN THE DESIGN SEQUENCES

All T20 design sequences use common units:

Cost is given in Credits (Cr) or Kilocredits (KCr) or Megacredits (MCr)

Volume is given in vl, which represents about 10 liters of volume or 0.01 cubic meters of space.

Weight is in grams (g) or Kilograms (Kg)

Displacement is given in Displacement Tons. Displacement is used for large vehicles like starships and spacecraft, which are rated by their displacement; e.g. 400-ton Subsidized Merchant, 5,000-ton Destroyer. One Displacement ton is equal to the volume taken up by one ton of liquid hydrogen. This is approximately 14 cubic metres or 1400 volume. Displacement tons do not indicate weight or mass.

Energy Requirements and Power System Outputs are given in Energy points (EP)

DESIGNING COMPUTERS

OPEN GAMING CONTENT NOTE

The rules presented in this chapter on the design and operation of computers, vehicles, small craft, and starships are not Open Gaming Content, however any item created using the rules are considered Open Gaming Content. Basically you cannot explain how to create an item as described under these rules, but you may freely publish and distribute the final item data and information under the terms of the Open Gaming License.

SPECIAL FEATURES OF COMPUTER DESIGN

Computer Hardware: Computer systems are, in and of themselves, little use. It is the software that they run (and any systems it operates) that makes them valuable. However, the capabilities of any given computer system are defined by its hardware. An advanced system can be used to run various software packages to fulfil various roles. A less advanced system is far more limited and may be restricted to a single, fixed, software package.

Computing Power Units (CPU): The capability of a computer is rated in Computing Power Units (CPU). The size and complexity of a computer core will determine its CPU rating. Multiple units of a given core type will give greater CPU rating. Cores of increasing tech level need less power and result in a higher CPU rating for the same mass and volume, allowing computer systems to be smaller and/or more powerful.

COMPUTER CORES

Type	TL	Cost (Cr)	Volume*	EP	CPU Output
Electromechanical	5	1000	13.5	0.9	1
Linear	7	250	1.35	0.09	2
Parallel	9	200	0.54	0.012	10
Synaptic	11	150	0.27	0.012	10
Advanced Synaptic	13	100	0.135	0.009	10
Positronic	16	100	0.0135	0.0009	2.5

COMPUTER CORES

Various types of computers may be built depending on the local technology available. Note that a lower technology type computer can always be built on a higher technology world if desired (and in some cases this is cost effective), but a higher technology type computer may not be built on a world with a lower technology rating.

Five types of computer core are normally possible. Units of different types may not normally be mixed in a given computer core.

Electromechanical: Bulky and primitive, early model computers ranging from strange mechanical contraptions to sophisticated vacuum tube systems and other early electronics. Min. TL is 5, cost is Cr10000, volume is 1.35vl,

COMPUTER TYPE AND MODEL

Model	Base INT	CPU Req.	Total PP	Max PP	Min TL
Basic Computer (Type B)					
0	0	1	1	1	5
1	0	2	2	1	5
2	0	5	3	2	5
3	0	10	4	2	5
4	0	20	5	3	5
5	1	30	6	3	5
6	1	40	7	4	5
7	1	50	8	4	5
8	1	75	9	5	5
9	1	100	10	5	5
Advanced Computer (Type A)					
0	2	150	11	6	5
1	2	200	12	6	5
2	2	250	13	7	5
3	2	300	14	7	5
4	2	350	15	8	5
5	3	400	16	8	5
6	3	450	17	9	5
7	3	500	18	9	5
8	3	600	19	10	5
9	3	700	20	10	5

Model	Base INT	CPU Req.	Total PP	Max PP	Min TL
Master Computer (Type M)					
0	4	800	21	11	5
1	4	1000	28	11	5
2	4	3000	35	12	5
3	5	6000	42	12	5
4	5	10,000	49	13	5
5	6	15,000	57	13	5
6	6	21,000	65	14	5
7	6	28,000	73	14	5
8	7	36,000	81	15	5
9	7	45,000	99	15	5
Expert Computer (Type E)					
0	8	55,000	108	16	5
1	8	66,000	117	16	5
2	9	78,000	126	17	7
3	9	91,000	135	17	9
4	10	105,000	145	18	10
5	10	120,000	155	19	11
6	11	136,000	165	20	12
7	11	153,000	175	21	13
8	12	171,000	186	22	14
9	12	190,000	197	23	15

LOGIC PROGRAMS

Logic Program	Int	Dex	TL	Cost	PP	Requirements
Bootstrap	-2	-2	5	x2	0	None
Simple Operating System	-1	-1	5	250	1	None
Low Basic Logic	+0	+0	7	1000	2	Limited Verbal Command
High Basic Logic	+1	+1	9	3000	5	Limited Verbal Command
Low Autonomous Logic	+2	+2	11	7000	10	Basic Verbal Command
High Autonomous Logic	+4	+4	13	25,000	15	Basic Verbal Command
Low Artificial Intelligence	+6	+6	15	80,000	20	Full Verbal Command
High Artificial Intelligence	+8	+8	17	250,000	30	Full Verbal Command

INT: The amount to modify the computer's base intelligence score by.
DEX: The amount to modify the computer's base dexterity score by.
TL: The minimum technology level needed to use this type of logic program.
Cost: The cost in credits to buy/have designed this type of logic program.
PP: The number of processing power points that must be supplied to run this program.
Requirements: The minimum type of command software that must be installed and running to use this program.

and EP required is 0.12 per unit installed. Each unit produces 0.5 CPU of output.

Linear: The first true fully electronic digital computers. Advances in technology have moved computers that once filled entire rooms onto a user's desktop, onto their laps, and even into their hands. Min. TL is 7, cost is Cr1000, volume is 1.35vl, and EP required is 0.09 per unit installed. Each unit produces 1 CPU of output.

Parallel: The advanced digital computer, still found in great use. Min. TL is 9, cost is Cr100, volume is 0.135vl, and EP required is 0.012 per unit installed. Each unit produces 1 CPU of output.

Synaptic: An early attempt at developing a unit that mimics the inductive reasoning of a human brain. Min. TL is 11, cost is Cr200, volume is 0.135vl, and EP required is 0.009 per unit installed. Each unit produces 2 CPU of output.

Positronic: A breakthrough in computing, the positronic brain is finally capable of not only reproducing the inductive and intuitive reasoning of the human brain. It also manages to lead to much smaller component sizes. Min. TL is 16, cost is Cr1000, volume is 0.0135vl, and EP required is 0.0012 per unit installed. Each unit produces 4 CPU of output.

TYPE AND MODEL

The type and model rating of a computer are initially based on their total raw CPU power. The higher the total CPU capacity, the more capable the computer is and the higher its type and model rating will be. Using the Computer Type and Model table, find the computer's CPU rating (rounding down if necessary). The computer will fall under one of four types, Simple (S), Basic (B), Master (M), and Expert (E), and will have a model rating that ranges from 0 to 9.

This table will also let you know the computer's base intelligence score, the total processing power (PP) points available for use, and the maximum amount of processing power that may be applied to any single given task at one time. Processing Power or PP points can be thought of as a skill point pool for a computer, which it draws on to run the various software and programs available to it each round.

Model: The model number rating. Note that this model number rating resets to 0 when a computer's type rating is improved (Simple to Basic, Basic to Master).

Base INT: This is the base INT score of a computer of this type and model rating. The Logic and Command programs installed may adjust this score up or down. When a computer's model and/or type rating improve, if its INT score is less than the listed Base INT, it should be raised to equal the listed score.

CPU Req: The total amount of raw CPU power that must be available to the computer to earn this type and model rating. For logicomps, this is the total amount of raw CPU power plus any earned experience points required.

Total PP: This is the total amount of Processing Power (PP) points available for use by the computer each round. These PP points may be distributed as needed to run any number of programs.

Max PP: The maximum number of PP points that may be applied to any single task involving the use of a skill based program each round. This may not exceed the rated

COMMAND PROGRAMS

Command Program	Int	TL	Cost	PP	Requirements
Keyboard/Manual Interface	-2	5	10	0	Basic Operating System
Graphical User Interface	-1	7	100	1	Basic Operating System
Limited Verbal Command	+0	7	500	2	Low Basic Logic
Basic Verbal Command	+1	9	1000	5	High Basic Logic
Full Verbal Command	+2	11	5000	10	Low Autonomous Logic

INT: The amount to modify the computer's base intelligence score by.
TL: The minimum technology level needed to use this type of command program.
Cost: The cost in credits to buy/have designed this type of command program.
PP: The number of processing power points that must be supplied to run this program.
Requirements: The minimum type of logic software that must be installed and running to use this program.

PP capacity of the program being run. This limitation does not apply to the use of Command, Logic, or other types of programs used by the computer.

LOGIC PROGRAMS

Logic programs determine how a computer handles the tasks required of it. They range from simple operating systems capable of little more than acting as a personal computer to sophisticated Artificial Intelligence programs that can learn and develop like any normal character.

Bootstrap: A bootstrap can be added to any other non-logic program, allowing that program to be run on a computer without a normal logic program installed and running. Bootstrapping doubles the cost of the software program it is added to.

Simple Operating System: The most basic of all logic programs, the simple operating system allows only the most basic and rudimentary data manipulation and presentation. Programs are limited to more basic types of programs such as word processing, file and data transfer, simple communications, etc. All critical or sensitive decision making is left to the user for the most part. Unless an improved command software interface is installed, data input and control is typically via keyboard using an explicit, but limited command structure, while data output is via some form of visual interface or physical printing device.

Basic Logic: The computer is capable of storing all data accumulated by its sensors and other input devices, but is incapable of analyzing or learning anything from that information. The limited decision making capabilities of this logic program only allow it to process data as it pertains to its immediate situation, such as negotiating obstacles and recognizing objects. If it could not go around the obstacle, or once it recognized an object, it will require further active or preprogrammed commands as to what actions to take next.

For low basic logic programs, unless there is an operator or supervising computer, the DC for any task is increased by +5.

All basic logic programs require at least the limited verbal command program to be installed and running.

Autonomous Logic: Commonly referred to as a logicomp, computers equipped with this type of logic programming are capable of operating independently and actually learning from their activities and earning experience. However unlike a normal character, when awarded experience by the referee, a logicomp with a high autonomous logic program must divide the given experience in half before applying the remainder to its accumulated experience total. If the logicomp is running the low autonomous logic program, you must divide the given experience by 10 before being added it to the computer's accumulated experience total.

Rather than having a class and earning levels, logicomps improve in model number and occasionally improve their type classifications. The base CPU output of the computer and the accumulated experience point totals are added together, and the result is compared to the Computer Type and Model table above to see if the computer has improved its model number or type rating. As the logicomp improves in rating it becomes capable of greater total processing capacity per round and an improved maximum single task processing. This type of logic program will also require additional data storage capacity for the experience it will accumulate (see Experience Data Storage).

The autonomous logic programs require at least the Basic Verbal Command program to be installed and running.

Artificial Intelligence: The robot is capable of reasoning, drawing conclusions, or even originating ideas and concepts that are outside the current realm of programming. While their sentience is often (hotly) debated, they may easily be mistaken for such by all but the most knowledgeable of roboticists.

Once designed, built, and its initial programming installed and running, an AI is treated like any normal character and capable of taking a class and earning levels. They do not advance on the standard Computer Type and Model table. Low Artificial Intelligence computers must divide their earned experience in half before adding to its previously accumulated experience.

The artificial intelligence logic programs require the Full Verbal Command program to be installed and running. This type of logic program will also require additional data storage capacity for the experience it will accumulate (see Experience Data Storage).

EXPERIENCE DATA STORAGE

Type	*TL*	*Storage*	*Volume*	*Cost*
Electromechanical	5	10 XP	1.35	1000
Magnetic	7	10 XP	1.35	100
Advanced Magnetic	8	100 XP	0.135	500
Optical	9	100 XP	0.135	250
Synaptic	11	1000 XP	0.0135	250
Holographic	13	10,000 XP	0.00135	500

TL: The minimum technology level at which this type of storage device may be used.
Storage: The amount of accumulated experience points this type of storage device can hold.
Volume: How much additional volume of space this type of storage device will add to the size of the computer.
Cost: The cost per storage unit of this type installed into a computer.

COMMAND PROGRAMS

Command programs provide a computer with its ability decode and analyze the meaning of the commands given to it.

Keyboard/Manual Interface: The user must manually type in or otherwise manually input the command into the computer system. This most basic of interface devices does not require any PP points to run as this functionality is automatically built into all computers. If this is the only method available of interfacing with the computer, its INT score is reduced by -2 points. At lease the basic operating system must be installed and running to use this command program.
Graphical User Interface: A very user-friendly manual interface using graphics and simple iconic command systems to ease the use of and increase the speed of use of a computer system. Because of its limited manual capabilities however, the base intelligence of a GUI command program is reduced by -1 point. At lease the basic operating system must be installed and running to use this command program.
Limited Verbal Command: The computer is capable of understanding a limited set of verbal commands (100 words/commands). These commands must be spoken and enunciated very clearly or they may be misinterpreted or ignored by the computer. Colds, foreign accents, and other issues that may affect the voice of the command speaker can cause even more difficulty. At least the low basic logic program must be installed and running to use this command program.
Basic Verbal Command: The computer can interpret and understand a limited verb-object sentence type commands, such as "get the book" or "show the starport data". These commands must still be spoken and enunciated very clearly or they may be misinterpreted or ignored by the computer. Colds, foreign accents, and other issues that may affect the voice of the command speaker can still cause even more difficulty. Because of its improved verbal understanding, the base intelligence of a computer is increased by +1 point. At least the high basic logic program must be installed and running to use this command program.
Full Command: The computer is capable of understanding and correctly interpreting most natural language commands of varying complexity. Accents, colds or other issues that might affect the speakers voice are rarely a problem. Because of its near complete verbal comprehension capabilities, the base intelligence of a computer is increased by +2 points. At least the low autonomous logic program must be installed and running to use this command program.

DATA STORAGE

Computers capable of earning experience (logicomps and AIs), must allocate additional data storage capacity for the experience points they will earn and accumulate over the lifetime of their existence (or until memory wiped). Earned experience is really raw data that the computer has recorded and stored within its available storage memory for later reference and analysis. The type of data storage system available depends on the technology available.

HARDWIRING AND DEDICATED PROGRAMMING

A computer may be hardwired with programming dedicated to the performance of a specific set of tasks. Such a computer cannot be reprogrammed and is incapable of earning experience at any type or model rating. Hardwiring

reduces the number of units required for the computer core and data storage by 25%. The CPU output and storage capacity of the computer does not change. All programming must be selected and specified before the computer is built. These reductions apply to hardware only. Software and ability score costs and requirements are not affected.

For example a TL7 Linear Computer with 10CPU, built on a TL7 world, would require:

10 Linear units
13.5vl
Cr10,000
0.9EP
10 CPU Output

If that same computer were hardwired, excluding the cost of software/programming, it would only require:

7.5 Linear units (25% fewer because the computer is hardwired)
10.13vl
Cr7500
0.68 EP
10 CPU Output

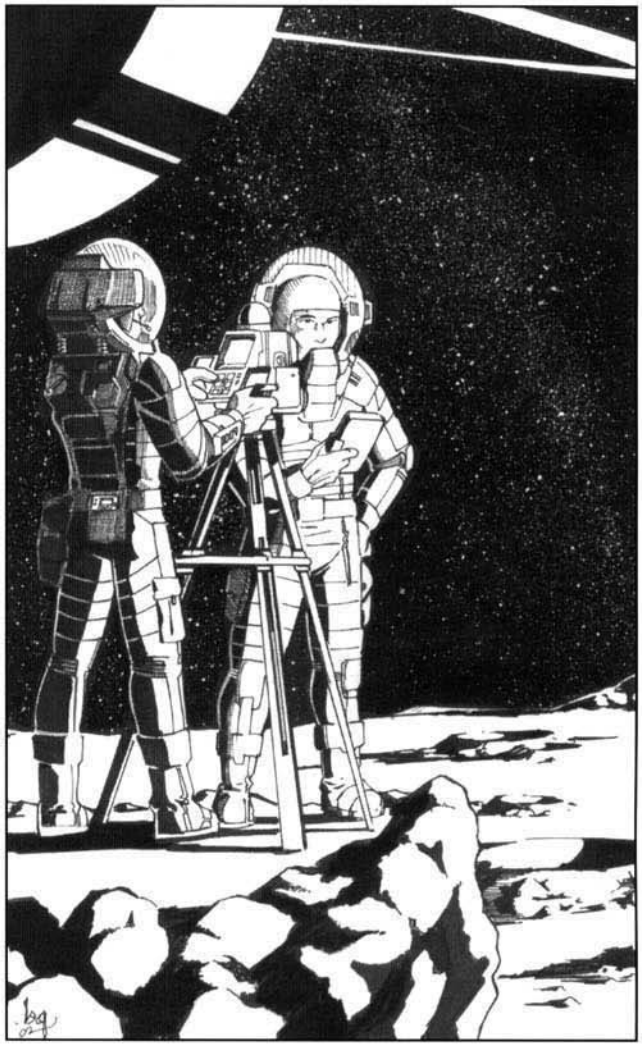
ADVANCED TECHNOLOGY

There are some advantages in using a fairly low-tech computer design but building it under higher technological standards, due to the effects of miniaturization and standardization. If you design a computer using a technology that is 1 or more TL below that which is actually available, you may elect to take advantage of one of these effects, but not both. For example you could elect to reduce the size and power requirements of the computer by going with miniaturization, or you could go for the lower cost through taking the standardization option, but you could not do both.

Miniaturization: High technology allows systems to be miniaturized. Each TL above the minimum (up to a maximum of +4 TLs) required to build a given type of core or data storage reduces the required volume and EP of the computer by 10%. The CPU output, storage capacity, and cost are not affected.

For example a TL7 Linear Computer with 10CPU, built on a TL7 world would require:

10 Linear units
13.5vl
Cr10,000
0.9EP
10 CPU Output



That same computer built on a TL8 world would only require:

10 Linear units
12.15vl (10% less because the TL is 1 higher than the required TL of 7)
Cr10,000
0.81 EP (10% less because the TL is 1 higher than the required TL of 7)
10 CPU Output

Standardization: As technology progresses, what were once cutting-edge technologies become more standardized and commonly available to the general population. This has the effect of reducing the costs of a computer even further as industries supporting the production of a specific type begin to proliferate. These reductions apply to hardware only. Software and ability score costs and requirements are not affected. There is a 3 TL limit to the amount of standardization that can be applied.

COST REDUCTION BY TL DIFFERENCE

+TL	*Cost Reduction*
1	-25%
2	-50%
3+	-90%

For example:

Original TL7 Computer
10 Linear units
13.5vl
Cr10,000
0.9EP
10 CPU Output

TL8 Version
10 Linear units
13.5vl
Cr7500 (25% cheaper because the TL is 1 higher than the required TL of 7)
0.9EP
11 CPU Output

TL9 Version
10 Linear units
13.5vl
Cr5,000 (50% cheaper because the TL is 2 higher than the required TL of 7)
0.9EP
12 CPU Output

TL10 Version
10 Linear units
13.5vl
Cr1000 (90% cheaper because the TL is 3 higher than the required TL of 7)
0.9EP
13 CPU Output

TL11 Version
10 Linear units
13.5vl
Cr1000 (remains at 90% cheaper because the TL 3 or more higher than the required TL of 7)
0.9EP
14 CPU Output

INTELLIGENCE

The type and model rating of a computer, along with the type of logic and command software that has been installed determine the overall intelligence of the system. Note that a computer's INT score may not exceed its TL.

INT = B + L + C

Where:

B = the base INT score of the computer based upon its type and model rating.

L = the INT modifier for the type of Logic Program installed and running.

C = the INT modifier for the type of Command Program installed and running.

EDUCATION

A computer's EDU score is based on its intelligence, the number of skill programs it has installed, the capacity of those skill programs, and whether or not it has the Library Data software installed.

Factor	*Modifier*
INT 4+	+1
INT 10+	+2
INT 16+	+4
Library Data program installed	+4
Per 4 skill programs installed	+1
If any single skill program has a capacity of 5 or more	+1
If three or more skill programs have a capacity of 5 or more	+2

COMPUTER SOFTWARE

The purpose of most computer systems is to run software applications. The following are standard software programs, in common use throughout the Traveller universe.

DEFENSIVE PROGRAMS

Defensive software is most commonly encountered aboard starships and vehicles that have defensive systems for it to control. Robots and fixed installations may also run similar programs.

Anti-Missile
Type: Defensive
Cost: 1000
PP Capacity: 2
Effect: Any laser based weapon system that has not already fired, may attempt to fire at and destroy incoming missiles, with a +2 bonus due to the extended final targeting by the computer during the missiles approach. A variant of this program is used to control projectile weapons used in anti-aircraft or anti-missile applications. The two are not interchangeable.

Auto/Evade
Type: Defensive
Cost: 5000
PP Capacity: 1

Effect: Allows the computer to produce small random movements in the vehicle course, making it more difficult to target and hit and providing a +2 bonus to the vessel's AC (not AR).

ECM
Type: Defensive
Cost: 4000
PP Capacity: 3
Effect: Provides an additional +2 bonus to AC against weapon systems that are using an electronic targeting system, and a +2 synergy to all T/Sensor or T/Communications skill check involving defensive jamming.

Return Fire
Type: Defensive
Cost: 5000 + 50 per weapon system supported.
PP Capacity: 1
Effect: When a vessel is hit by energy weapon fire while the return fire program is running, it may fire any of its own energy based weapon systems that have not already fired this round, in return with a +2 bonus. This bonus is derived from the fact that the incoming attack itself provided pinpoint targeting accuracy for the return fire system. These attacks are always under direct computer control because of the timing required to execute them.
Special: Energy based weapon systems only.

OFFENSIVE PROGRAMS

Offensive programs control weapon systems or assist the operators of such systems. To gain benefits from it, a program must be running for each weapon system in use. A weapon system is defined here as: an individual weapon or a set of linked weapons within a turret or barbette, a bay weapon or a spinal mount. E.g. a ship with two turrets and a bay weapon, running only one Predict program, must choose whether to apply the Predict bonus to one or the other turret, or the bay.

Double Fire
Type: Offensive
Cost: 4000
PP Capacity: 4
Effect: Allows any weapon system (except missile launchers and sandcasters) to fire twice per round, if enough power is available.

Gunner Interact
Type: Offensive
Cost: 1000
PP Capacity: 1
Effect: Allows a single 'live' gunner to apply their Gunnery skill rank when handling an appropriate weapon system, rather than depending upon the computer to control the shots.

Predict
Type: Offensive
Cost: 7500
PP Capacity: 2
Effect: Provides a +2 synergy bonus to all gunnery skill checks for supported weapon systems.
Requirements: Weapons Systems program must be running.

Select
Type: Offensive
Cost: 3000
PP Capacity: 1
Effect: This program aids in the targeting of specific areas on an enemy vessel, allowing a gunner to use the Called Shot action with the weapon system.
Requirements: The gunner interact program must be running in support of the gunner.

Weapons Systems
Type: Offensive
Cost: 4000
PP Capacity: 1
Effect: Only one instance of this program needs to be running regardless of the number of weapon systems that are actually supported. Provides very basic targeting information to all supported weapon systems, enabling them to be used during an engagement. Without a running targeting program, nothing outside of visual range may be targeted.

MISCELLANEOUS PROGRAMS

Miscellaneous programs are run on computers of all kinds.

Library Data
Type: Miscellaneous
Cost: 3000
PP Capacity: 1
Effect: For basic computers, this program acts as a reference library to any user who wishes to consult it. When a PC uses a Library Data program while searching for fairly general reference information, the PC will gain a +2 situation bonus to their Gather Information skill checks. In addition, this program also adds a +4 bonus to the EDU score of a computer.

Master
Type: Miscellaneous
Cost: 5000
PP Capacity: 5

Effect: Unlike the server program, the master program allows one computer to take over control of another computer (the slave) either directly or more typically via remote connection, and have access to all PP points, programs, or other data available to the enslaved computer. For security purposes, this type of control typically requires the master computer to have access to a specific control code for the computer to be enslaved. Without the code, the master computer is powerless to control the remote computer. Each slave unit controlled (after the first) requires an additional PP point to be expended per round by the master computer.
Requirements: The master computer must have some manner of transferring data and commands between itself and its slaved units.

Normal Skills
Type: Miscellaneous
Cost: 1000 per effective point of skill rank
PP Capacity: 1 per effective point of skill rank
Effects: A computer may be initially programmed with most any skill that is available to a normal character, but they do not suffer the typical maximum skill rank limitations. Instead, a computer may be programmed with a skill rank in a given skill up to a limit based on its type and model number ranking. All normal modifiers such as ability scores and other effects apply to a computer's skill programming.
Requirements: None

Server
Type: Miscellaneous
Cost: 2500
PP Capacity: 3
Effect: A server is capable of acting as a repository of both software and processing power that connected client computers may draw upon as needed. Each round a client may request the use of a program or a portion of the available PP points on the server. Each request for PP points will further reduce the total amount of PP available from the server. In some situations where demand on the server is very heavy, some requests may have to be postponed until a subsequent round. Requests will pool up in a queue and are handled on a first come, first serve basis. Requests for the use of a program on a server will not place any additional PP demand on the server.

Valet
Type: Miscellaneous
Cost: Cr3000
PP Capacity: 2
Effects: A computer (typically a robot) with this programming is capable of functioning as the personal servant or valet of its owner/master. It is capable of handling tasks such as keeping notes and messages, minor errands, light cleaning, and other basic domestic duties.
Requirements: The Personality Interface program must be installed and running.
Special: This program counts as a skill program for purposes of determining the computer's EDU score.

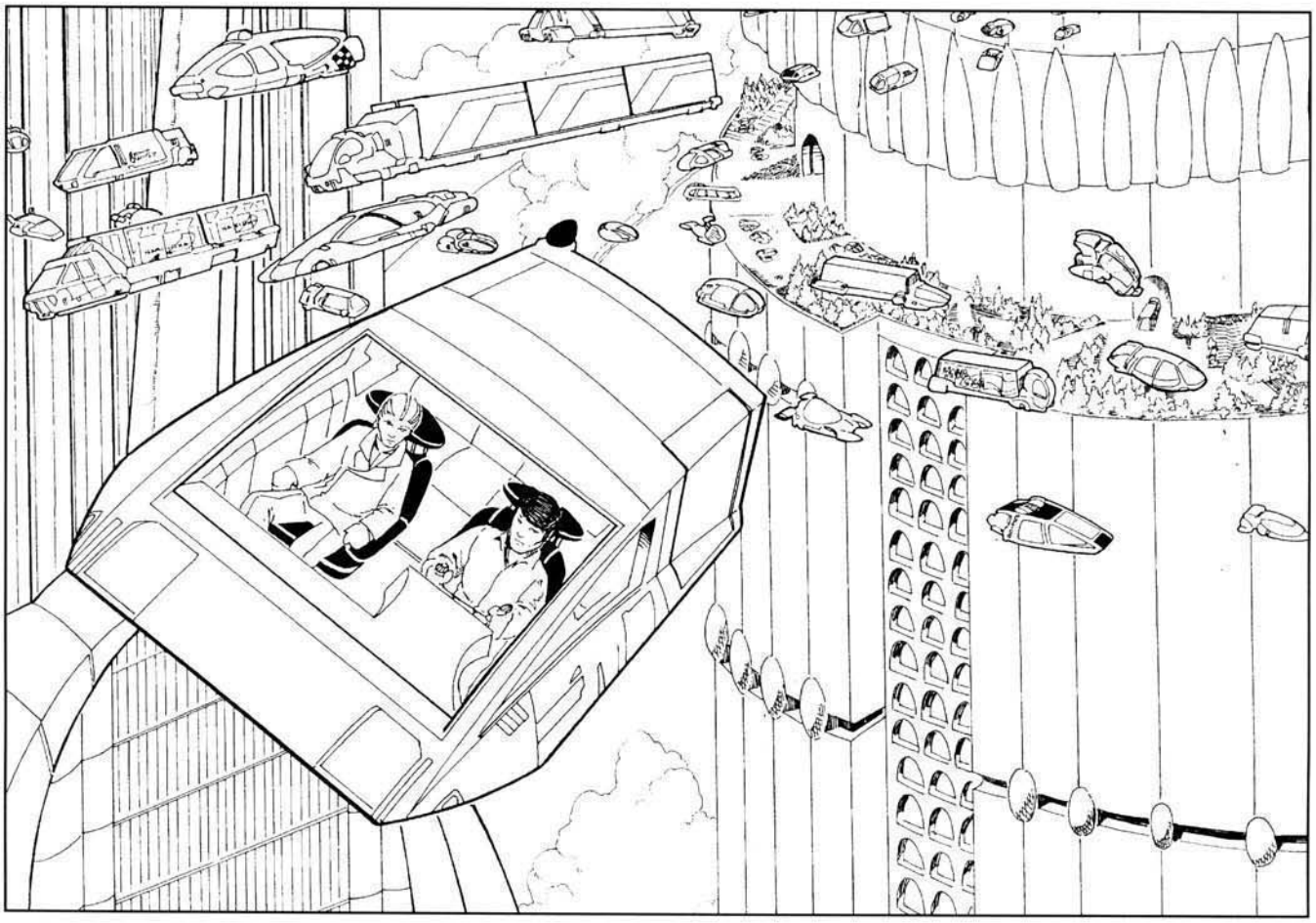
USER INTERFACE PROGRAMS
Any computer system that is intended to be programmed or to interact with people will require some form of user interface. More sophisticated interfaces allow easier use for untrained users, and generally more pleasing interactions.

Language Module
Type: User Interface
Cost: 1000
PP Capacity: 5
Effect: The computer can comprehend a specific spoken language. These modules are installed to provide the computer access to languages other then the default language provided by the appropriate voice recognition software. If a voder is available to the computer it may also provide verbal data and information output.

Personality Interface
Type: User Interface
Cost: 10,000
PP Capacity: 1
Effects: Gives an intelligent computer an effective Charisma score. Cost and PP requirements are per 2 points of Charisma.
Requirements: A voder and the standard voice recognition software must be installed and running before this program may be utilized. Must have an INT score of 3 or higher.

Etiquette and Protocol
Type: User Interface
Cost: 50,000
PP Capacity: 4
Effects: Allows an intelligent computer with a Charisma score of 10 or higher to also have an effective Social Standing. Cost is per point of total Social Standing, and CPU requirements list the base CPU requirements for a SOC score of 10 along with the CPU requirements for each point of SOC over 10.
Requirements: Personality Interface program. Must have an INT score of 10 or higher.

VESSEL OPERATIONS PROGRAMS
Starships and space vessels (and other large vehicles) use computer software to fulfill specific operational requirements.



Anti-Hijack
Type: Operations
Cost: 1000
PP Capacity: 1
Effect: Aids in the prevention of stowaways and hijackings. Anyone attempting to hide aboard or enter the restricted area of a vessel equipped with this program must make a Hide skill check (DC15) to avoid being detected by the software. Similarly, anyone attempting to enter or bypass a security system aboard the vessel or the security of the computer itself must make an additional appropriate skill check (DC15) to avoid the program detecting the bypass attempt, regardless of whether the attempt was successful or not.

Generate
Type: Operations
Cost: 8000
PP Capacity: 1
Effect: Produces a flight plan for the Jump program based on the input of the astrogator. Without this program, it would take an astrogator approximately 24 hours minus the astrogator's T/Astrogation skill rank, per 1 point of jump distance, to create the flight plan manually. For example, it would take someone with a T/Astrogation skill rank of 16, some 32 hours to plot a Jump-4 flight plan (24 - 16 = 8 * 4 = 32).

Jump
Type: Operations
Cost: see below
PP Capacity: see below
Effects: This program is required to operate the jump drives of a starship so that the ship may travel through interstellar space. The jump drive itself determines which version of the program is required. A ship equipped with a Jump-1 drive will require the Jump-1 program, etc.

Version	*PP*	*Cost*
Jump-1	23	100,000
Jump-2	30	300,000
Jump-3	37	400,000
Jump-4	41	500,000
Jump-5	44	600,000
Jump-6	52	700,000

COMPUTER ACCESSORIES

CONTROL PANELS AND TERMINALS

Control panels and terminals have no computer processing power of their own; rather they allow a user to remotely issue commands to a larger and more powerful central computer (or server) and echo the results upon the panel or terminal screen. Unless a computer is Intelligent (pINT 3+) and capable of acting on its own, one or more control panels or terminals must be installed to allow users to interface with and command it.

Basic Mechanical: Min TL is 5, cost is Cr10000, volume is 1.35vl, and has a throughput of up to 5CPU per unit installed.

Advanced Mechanical: Min TL is 6, cost is Cr10000, volume is 1.35vl, and has a throughput of up to 8CPU per unit installed.

Electronic: Min TL is 7, cost is Cr1000, volume is 1.35vl, and has a throughput of up to 10CPU per unit installed.

Advanced Electronic: Min TL is 9, cost is Cr1000, volume is 1.35vl, and has a throughput of up to 100CPU per unit installed.

Dynamic: Min TL is 11, cost is Cr2000, volume is 1.35vl, and has a throughput of up to 200CPU per unit installed.

Holographic: Min TL is 13, cost is Cr1000, volume is 1.35vl, and has a throughput of up to 240CPU per unit installed.

VEHICLE DESIGN

A vehicle is basically defined as any means of conveyance that does not leave the lower orbit of a planet. Air/rafts, ground cars, tanks, jet fighters, and submarines would all be considered vehicles, but an interstellar or even an interplanetary vessel would not be considered a vehicle under these rules (separate rules cover the design of such vessels, see Spacecraft and Starship Design, pg. 253).

SPECIAL FEATURES OF VEHICLE DESIGN

Components and Sub-Assemblies: Vehicles (and Starships, Small Craft etc), are generally made up of a chassis (or frame) plus several very different sub-assemblies. These include primary systems such as power and drive systems, electronic systems such as an autopilot computer, and peripheral systems such as air conditioning for crew comfort.

Thrust: Thrust is a measure of the amount of power delivered by the vehicle's drive train. The actual means of delivery are quite varied, including ducted fans, wheels, legs and contragravity systems. The characteristics of various drive systems determine the ratio of energy to thrust they can deliver. Greater thrust correlates to more speed, at a rate depending upon the mass of the vehicle.

INSTALLATION AND MAINTENANCE

If a vehicle is purchased from a dealer, it can be assumed to come complete and in working order. However, if characters are constructing a vehicle to a custom design, a T/Mechanical check must be made when installing some types of systems to ensure they have been installed properly. Use the table below to determine the appropriate DC. A successful check indicates the system has been installed and tested with no problems found. Failure indicates that the system does not work properly and must be reinstalled. At the Referee's option, the roll can be made secretly. If it is failed by up to 3 points, the system seems to work well enough but will begin to display insidious faults after a period of use. More serious failures will be obvious immediately. Installations will typically take 1d6 hours. The same system can be used when vehicle components are pulled for routine or emergency maintenance.

Installations	*DC*
Other	10
Drive Train	15

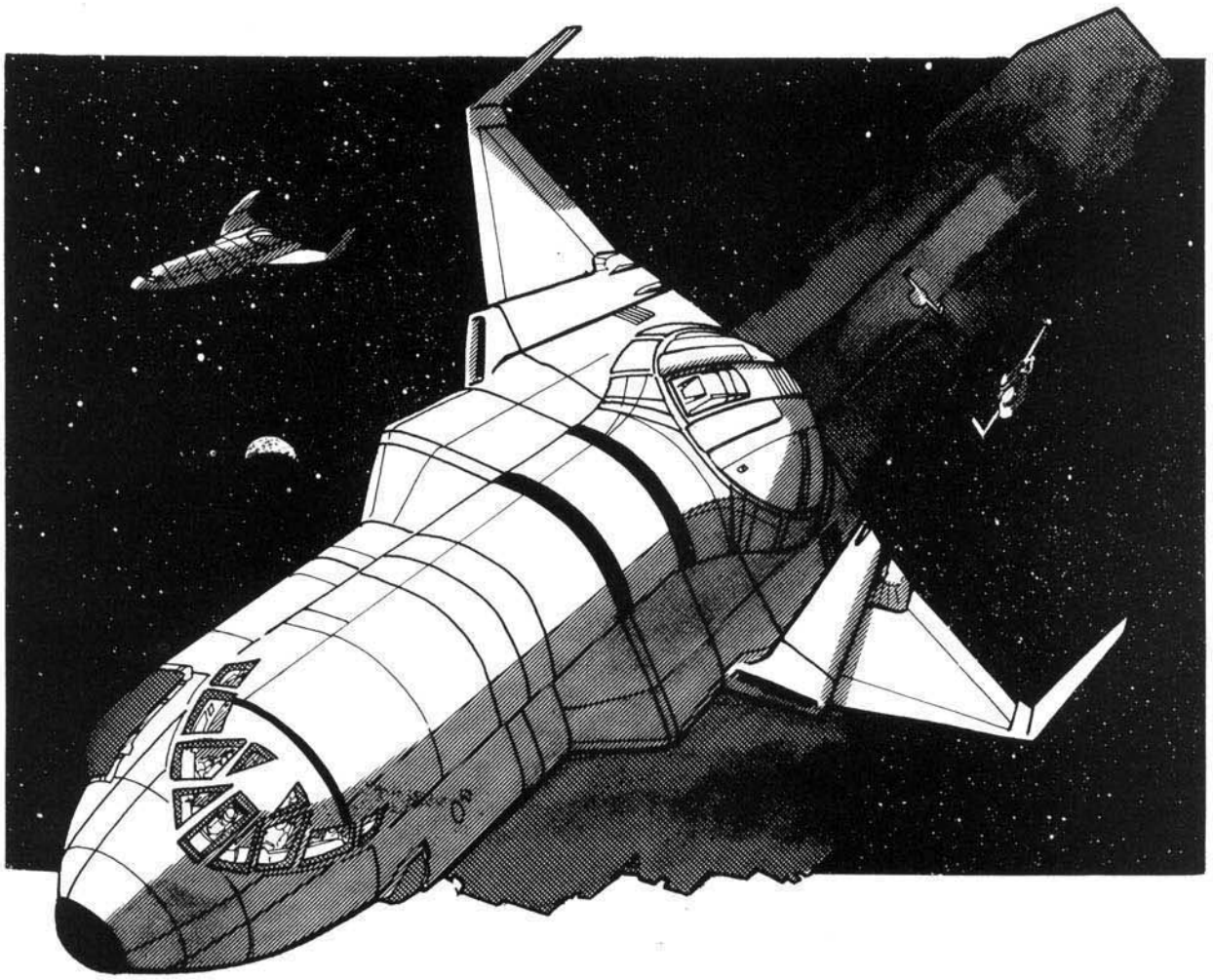
Other Modifiers	*Adjustment*
Sufficient Vehicle Shops	+1 to skill check roll
Per 5% understaffed on needed crew	-1 to skill check roll

DESIGN PHILOSOPHY

Vehicles are normally designed with a particular purpose and environment in mind. Most are intended to transport something around (passengers, cargo, a weapon system) and to give some form of protection from the environment (this can mean anything from a wind shield to heavy armor plate).

Civilian vehicles are rarely designed with combat use in mind, though many "frontier" types have offroad mobility as good as that of any military vehicle. The more sturdy frontier vehicles such as the ATV are as well protected as some low-tech military vehicles, and more mobile. Many are used as APCs by mercenary units unable to afford specialist military vehicles. For the most part, however, civilian vehicles are designed for a friendly environment. They provide transport and possibly one or more of the following: reliability, rugged terrain capability, hostile environment support, high speed, rapid acceleration, economy, comfort, prestige.

Military vehicles are similarly built to a particular requirement. Rugged terrain performance is a given. The vehicle's mission determines its other characteristics. A



lightly armed and armored recon vehicle has to be much faster than a heavy assault tank; a cargo carrier needs little protection but a heavy chassis to carry weight. Many militaries like to buy a vehicle for use in many roles, with variants acting as APC, field ambulance, artillery tractor, cargo hauler and command post. This makes maintenance cheaper and easier, and improves spares availability. However, front-line military vehicles are often designed with no regard to cost.

VEHICLE COMPONENTS

All vehicles are made up of several sub-systems. Any vehicle design will include some or all of the following:

1) Chassis: All vehicles require a chassis, which forms the body or shell of the vehicle into which everything else is either attached or installed.

2) Armor: Vehicles may be armored to protect them from damage due to enemy fire or other hazards such as hostile environments. While not required, armor is important if the vehicle will be used in situations where the occupants might come under fire.

3) Drive Train: The drive train is the type of locomotion the vehicle uses to move itself. This can be anything from wheels, tracks, or legs, to anti-gravity plates, jet thrusters, or propellers. Select the appropriate drive train for the vehicle you are designing. Note that some drive trains require that you install at least 2 of the specified type (specifically wheeled, tracked, and legged vehicles). You may always install more than the required number of drive train systems as redundant backup systems, or even to improve the handling of a vehicle in some cases.

4) Power Plant: All vehicles require a power plant, without which it would not be a vehicle but a sculpture. Most components installed into a vehicle will require some amount of power to function. The larger the power plant installed, the more power the vehicle generates each turn with which it may power its installed systems and components. A vehicle's power plant also plays a significant part in the maximum speed a vehicle is capable of achieving.

CHASSIS SIZE TABLE

Chassis Size (vl)	Size	Cost (Cr)	Build Time	Thrust Required	Base Armor Volume (vl)
1	Tiny	1	1 hour	0.001 per 1kph	0.01
5	Tiny	5	1 hour	0.005 per 1kph	0.05
10	Small	10	1 day	0.01 per 1kph	0.1
50	Medium	50	1 day	0.05 per 1kph	0.5
100	Medium	100	1 week	0.1 per 1kph	1
500	Large	500	1 week	0.5 per 1kph	5
1000	Large	1000	1 month	1 per 1kph	10
5000	Huge	5,000	1 month	5 per 1kph	50
10,000	Huge	10,000	6 months	10 per 1kph	100
50,000	Gargantuan	50,000	6 months	50 per 1kph	500
100,000	Gargantuan	100,000	12 months	100 per 1kph	1000
500,000	Colossal	500,000	12 months	500 per 1kph	5000
1,000,000	Colossal	1,000,000	24 months	1000 per 1kph	10,000

5) Appendages: Manipulatory appendages designed for either power, strength and carrying capacity, or light, delicate work may be installed on any vehicle. These appendages may be used to move cargo and equipment or even handle delicate surgery with the proper programming or controller.

6) Weapons: Many vehicles are equipped with defensive and offensive weaponry. Anything from a simple light machinegun to the incredibly devastating meson gun may be mounted on a vehicle, providing it is capable of carrying and powering it.

7) Sensors: Even the best of pilots and drivers can't be aware of everything going on around them, so various types of sensor and detection systems have been developed for use with vehicles.

8) Other Equipment and Features: Almost any other feature or system not presented in the earlier sections can be added, ranging from small staterooms, passenger couches and crew bunks to sophisticated systems such as autodocs.

9) Robot Brains: Robots may also be designed using the vehicle system. A robot has the same requirements as a vehicle and may install the same components, but a robot must also have a 'brain' installed to control its independent function. A vehicle with a robotic brain to direct its functions may be considered a "robotic vehicle" or a "transport robot"; its function is the same in both cases.

CHASSIS

The first step in designing any vehicle is to determine the size of the chassis that will be used. The chassis determines how large a vehicle is, and is the maximum limit to the size of equipment, personnel and cargo it may carry or have installed within. Vehicles, and thus their chassis, are rated in terms of their volume (vl). A 100vl chassis is roughly the equivalent size of a human being. Vehicles can truly be of any maximum size, but few are much larger than 100,000,000vl.

Sample Chassis Types: Here are a few sample types of chassis for commonly recognized vehicles (empty chassis only).

Basic Chassis Samples	Average Size	Cost
Ground Car	2000-5000vl	Cr4000-10,000
Air/raft	4,000vl	Cr8,000
Jet Fighter	8500vl	Cr17,000
All Terrain Vehicle	10,000vl	Cr20,000
Grav Tank	40,000vl	Cr80,000
Battleship	30,000,000-40,000,000vl	MCr60-80

To find the cost of a particular size chassis, find the listing for the chassis size desired on the table above. For odd sized chassis not listed, simply add the appropriate listed smaller sized chassis as need to find the actual price. For example, when designing a vehicle with a 522vl chassis you would add the price for one 500vl chassis, two 10vl chassis, and two 1vl chassis.

Cost: Cost is listed in Credits. When building an odd size chassis not listed, add all portions together to determine the total cost of the chassis. Our 522vl chassis from the example above would cost Cr522 (Cr500 + Cr10 + Cr10 + Cr 1 + Cr1). This does not include the cost of any other components or subsystems that will be installed later.

Build Time: The approximate time required to build a vehicle of the given size. When building an odd size chassis not listed, use the greatest build time for the largest listed portion as the total build time. For example, our 522vl chassis would take 1 week to be constructed, as 1 week is the greatest build time of all portions (500vl, 10vl, and 1vl). The build time includes the installation of all subsystems and components.

Manned Control System: A vehicle that will be operated directly by a person or creature who is enclosed within the vehicle requires a minimum control space of 110vl or 20% of the total chassis size, whichever is greater. These control systems assume space for the operator (up to 100vl in size) and cost Cr2.5 per vl. Control systems for larger operators would require correspondingly greater amounts of control systems and space to accommodate their increased size and bulk.

If the operator is to ride on the outside of the vehicle, (e.g. on a motorcycle or grav bike) the control space size and cost is the same as for a remote-control system.

Our 522vl vehicle will require us to set aside 110vl for the operator and control systems. Note that we are using the minimum required value because 20% of 522vl is only 104.4vl. These control systems would cost us Cr275.

Remote Control Systems: A vehicle that will be operated remotely requires only 10% of the total chassis size, and there is no minimum size required. The downside is that remote control systems cost Cr5 per vl installed, twice as much as manned control systems. Some method of communication with the control systems must also be installed. If our 522vl vehicle were to be remotely controlled rather than manned, we would only have to set aside 52.2vl for control systems but our cost would be almost as much, at Cr261.

Thrust Required: The amount of thrust required depends upon how fast the vehicle is to go. The Chassis Size Table indicates the amount of thrust that must be generated by the vehicle's drive train (selected later) in order to move the vehicle at a maximum speed of 1 kph. If greater speed is desired, extra thrust must be provided. Thus for a 1000vl chassis vehicle to have a maximum speed of 100 kph, the vehicle must produce 100 units of thrust. For an odd size chassis not listed, add the Thrust requirements for all portions. Our 522vl chassis would require 52.2 units of thrust to move at a maximum speed of 100 kph (0.5 + 0.01 + 0.01 + 0.001 + 0.001 = 0.522 * 100 = 52.2)

Armor Factoring: Any vehicle, including non-military vehicles may install armor, but it is not required for most non-military types unless protection from hostile environments, predators etc is desired. The defensive value of the armor installed depends on the Armor Rating (AR) selected. The higher the AR bonus value installed the greater the level of protection afforded. A vehicle may install as high an AR in armor as the builder can afford and has room for, up to a limit equal to the available technological level. For example a TL15 vehicle could install up to an AR of 15, while a TL6 vehicle would be limited to a maximum AR of 6. This reflects improvements in armor design such as composite materials. In addition, advanced armor takes up less space for the same protection value.

TL4-9 Armor: Multiply the chassis Base Armor Volume by 4.

TL10-11 Armor: Multiply the chassis Base Armor Volume by 3.

TL12-13 Armor: Multiply the chassis Base Armor Volume by 2.

TL14+ Armor: Multiply the chassis Base Armor Volume by 1.

Armor Rating (AR): Without armor, a vehicle's AR rating is 0. To achieve the first layer of armor (AR of 1), a vehicle must install twice the Base Armor Volume specified for the chassis and TL of the armor. For example a TL12, 200-ton vehicle has a Base Armor Volume of 4, so to get an AR of 1 it must install 8 vl of armor.

Once the first layer of armor is installed, the vehicle need only allocate an amount of space equal to the Base Armor Volume specified for the chassis and TL of the armor per +1 improvement in the vehicle's AR. Following our previous example, the same TL12, 200-ton vehicle could improve its AR to a maximum of 12 (limited by its TL) after installing an additional 44 vl of armor (for a total of 52 vl).

Cost: At all TLs, applying armor to a vehicle costs a basic Cr 3,000 plus Cr 9 per vl installed. Advances in technology give better protection per vl, so the same level of protection is cheaper as well as less bulky at high TLs.

Chameleon Armor: Chameleon armor first becomes available at TL13 and allows a vehicle to blend it with both its physical and atmospheric surroundings making it much harder to spot visually or detect with scanners. At TL13 this type of armor adds +2 to the DC of any Spot or T/Sensor skill check made against the vehicle, and adds an additional +1 to the effective Armor Class (AC not AR) of the vehicle making it harder to hit. Chameleon armor does not increase the AR of a vehicle against incoming damage. At TL14 these bonuses increase to +4 DC for any Spot or T/Sensor check against the vehicle and adds +2 to the AC.

Cost for chameleon armor is Cr10 per vl size of the total chassis at TL13, and Cr20 per vl size of the chassis at TL14. For example, a 1000vl vehicle with TL13 chameleon armor would cost an extra Cr10,000. If it were to install TL14 chameleon armor instead, it would cost an extra Cr20,000.

HOW FAST DO YOU WANT TO GO?

This is a good point to determine what you want the maximum speed of your vehicle to be. The basic chassis table determines the amount of thrust required to move the vehicle chassis at a speed of 1kph. If more thrust is available the vehicle can move faster. For example, a vehicle built using a 64,510vl chassis would require 64.51 units of thrust to move it at a maximum speed of 1kph:

Chassis	*TH*
50,000vl	50
10,000vl	10
4,000vl	4
500vl	0.5
10vl	0.01
64,510vl	64.51

Each additional 64.51 units of thrust that can be applied will improve the maximum speed of the vehicle by 1kph. So for our 64,510vl vehicle to move at a maximum speed of 90kph, a total of 5805.9 units of thrust must be available.

If you find that you cannot provide sufficient thrust or power to move the vehicle at the desired speed, you will either need to reduce your speed expectations, or increase the size of the chassis.

CHASSIS CONFIGURATION

The configuration of the chassis of a vehicle is important in determining its overall speed and range. Streamlining makes a vehicle much more aerodynamic, allowing it to move through an atmosphere easier with less resistance, but sacrifices some interior volume. An airframe, usually reserved for aircraft and watercraft, takes streamlining a step further, maximizing the vehicle's aerodynamic potential at a further cost in terms of internal space.

If a vehicle operates faster than the maximum rated safe speed it steadily becomes much harder to control, requiring the operator to make a Driving or Pilot skill check (DC15) or lose control of the craft.

Standard Chassis: A standard chassis has a maximum safe speed of 320 kph; the operator suffers a -1 control check penalty for every 30kph (or fraction thereof) of speed above 320kph. Unless specified otherwise, all vehicles are considered to be of a standard configuration.

Partially Streamlined Chassis: A partially streamlined chassis has a maximum safe speed of 600 kph; the operator suffers a -1 control check penalty for every 20kph (or fraction thereof) of speed above 600kph. Partial streamlining doubles the Basic Chassis cost.

Streamlined Chassis: A streamlined chassis triples the Basic Chassis cost and provides +1 maximum Agility for aircraft or watercraft, +10% maximum speed and cruising range for all vehicles. This Agility bonus does not add to the Agility score itself; rather it increases the maximum possible Agility of a vehicle based on the type of drive train installed. For aircraft, this bonus applies only when flying within a standard or dense atmosphere. A streamlined chassis has a maximum safe speed of 800kph; the operator suffers a -1 control check penalty for every 30kph (or fraction thereof) of speed above 800kph.

Airframe Chassis: An airframe quadruples the Basic Chassis cost and provides +2 maximum Agility for aircraft or watercraft, +20% maximum speed and cruising range for all vehicles. This Agility bonus does not add the Agility score itself; rather it increases the maximum possible Agility of a vehicle based on the type of drive train installed. This bonus applies only for aircraft flying within a thin, standard, or dense atmosphere. An airframe chassis has a maximum safe speed of 1100kph; the operator suffers a -1 control check penalty for every 10kph (or fraction thereof) of speed above 1100kph.

Humanesque: When designing a robot under 200kg, it may be desirable to give it a more human (or other racial) form if the robot will require interaction with the given form of life. This form is typically very vague with no specific features, much like a blank store mannequin. Adds +2 to the base CHA of the robot if it has the Personality software module installed and running. This configuration will double the final cost of the robot, not just the chassis.

Humaniform: A much more refined version of the humanesque robot chassis, nearly indistinguishable from a

real version of the given lifeform itself. Skin tone, texture, color, temperature, etc., simulate the real lifeform quite realistically. Adds +4 to the base CHA of the robot if it has the Personality software module installed and running. Add +2 to the base SOC of the robot if it has the Etiquette and Protocol software module installed and running. This configuration will increase the final price of the robot to 8x its original total price (not just the chassis).

DRIVE TRAINS

While the power plant of a vehicle is what generates the energy necessary to power all of its systems, the drive train is what actually makes it go by producing Thrust (TH) converted from the energy provided by a powerplant (selected later).

Drive trains are bought and installed in increments called Drive Train Units (DTU). Multiple DTU may be installed as a single drive train, or as multiple drive trains, each able to function independently but providing the same amount of total thrust when all are operating at 100%. There is usually a penalty in size and cost however when splitting a drive train into multiple sections. All drive trains require Energy Points (EP) from a powerplant.

By selecting one of the drive trains below, you should be able to recreate most any type of vehicle from ground cars, to tanks, to aircraft and more.

Wheeled: Wheeled vehicles are the most commonly encountered types throughout charted space because of their reasonable handling characteristics and relatively low cost and power requirements. Most wheeled vehicles use four wheels, but some use as few as two or as many as 18 or more. The more pairs of wheels installed the better the handling capability of the vehicle.

First available at TL4, each Wheel DTU produces 10 units of thrust (TH) per EP of power applied per round, takes up 11vl per unit installed and costs Cr25.

Regardless of the number of DTU installed, the number of wheels used must be specified at design time. Any number of wheels may be specified for a wheeled drive train, usually (but not always) in pairs. The first two wheels do not require any additional volume or cost, but each additional wheel will add 0.5vl of volume per DTU and add Cr12.5 to the cost of each drive train unit. The total thrust of the drive train is divided by the number of wheels installed to determine the thrust produced by each wheel.

Tracked: Using large tracks wrapped around a flexible suspension system, vehicles utilizing this type of drive train handle much better than their wheeled counterparts in rough terrain, but have a more limited top speed. At least two tracks must be installed and additional pairs of tracks may also be installed as needed.

First available at TL5, each Track DTU produces 5 units of thrust (TH) per EP of power applied per round, takes up 9vl per unit installed and costs Cr12.5.

Regardless of the number of DTU installed, the number of tracks must be specified at design time. At least two tracks must be designated for any tracked drive train and more, usually (but not always) in pairs, may be added as desired. The first two tracks do not require any additional volume or cost, but each subsequent track installed will add 0.75vl to volume and Cr62.5 to the cost of each DTU. The total thrust of the drive train is divided by the number of tracks installed to determine the thrust produced by each track.

Legs: Vehicles that are designed to use flexible-limb legs are the most capable of handling rough types of terrain. Most vehicles are designed to use 2 to 8 legs, with 4 legs being the most common. A minimum of two legs must be installed, but there are no pair requirements beyond the first two for legged vehicles, thus it is possible to design a vehicle that utilizes 5 legs rather than 4 or 6.

First available at TL8, each Leg DTU produces 15 units of thrust (TH) per EP of power applied per round, takes up 42vl and costs Cr4500.

Regardless of the number of DTU installed, the number of legs must be specified at design time. At least two legs must be designated for any legged drive train and more, usually (but not always) in pairs, may be added as desired. The first two legs do not require any additional volume or cost, but each subsequent leg installed will add 10.5vl of volume per DTU and add Cr1125 to the cost of each DTU. The total thrust of the drive train is divided by the number of legs installed to determine the thrust produced by each leg.

Rotary Wing: A rotary wing aircraft (e.g. a helicopter) uses a rapidly rotating set of blades to generate lift and acceleration. Because of their design, rotary wing craft are capable of hovering in place.

First available at TL5, each Rotary Wing DTU produces 6 units of thrust (TH) per EP of power applied per round, takes up 2.5vl per unit installed and costs. Cr400 per unit.

Regardless of the number of DTU installed, the number of rotors used must be specified at design time. Any number of rotors may be specified for a Rotary drive train, usually (but not always) in pairs. The first rotor does not require any additional volume or cost, but each additional rotor will add 0.25vl of volume and Cr100 to the cost of each DTU. The total thrust of the drive train is divided by the number of rotors installed to determine the thrust produced by each rotor.

Air Cushion: Air cushion vehicles (or hovercraft) use a ducted fan system to produce a cushion of compressed air on top of which the vehicle rides. A hovercraft is quite mobile, capable of traversing fairly rugged terrain and even relatively calm bodies of water.

VEHICLE DRIVE TRAINS

Drive Train	Allow Multiple	Min TL Level	Thrust (TH) Generated	Power (EP) Required	Size/Volume	Cost	Max Agility
Wheeled	Yes	TL4	10 TH	1 EP	11vl	Cr25	4
Tracked	Yes	TL5	5 TH	1 EP	9vl	Cr12.5	3
Legs	Yes	TL8	15 TH	1 EP	42vl	Cr4500	5
Rotary Wing	Yes	TL5	6 TH	1 EP	2.5vl	Cr400	5
Air Cushion	No	TL6	4 TH	1 EP	1.5vl	Cr420	5
Propeller	Yes	TL4	20 TH	1 EP	5vl	Cr1250	5
Jet	Yes	TL5	80 TH	1 EP	10vl	Cr8000	6
Grav	No	TL8	100 TH	1 EP	4vl	Cr46,000	4
Water, Surface	No	TL4	20 TH	1 EP	25vl	Cr125	2
Water, Subsurface	No	TL5	5 TH	1 EP	10vl	Cr125	1

First available at TL6, each Air-Cushion DTU produces 4 units of thrust (TH) per EP of power applied per round, takes up 1.5vl per unit installed and costs Cr420 per unit.

Propeller: Propeller-driven vehicles use one or more drive trains mounted in a pusher (rear mounted) or puller (forward mounted) configuration. Propeller drive trains do not need to be installed in pairs.

First available at TL4, each Propeller DTU produces 20 units of thrust (TH) per EP of power applied per round, takes up 5vl per unit installed and costs Cr1250 per unit.

Regardless of the number of DTU installed, the number of propellers used must be specified at design time. Any number of propellers may be specified for a Propeller drive train. The first propeller does not require any additional volume or cost, but each additional propeller will add 0.5vl of volume and Cr125 to the cost of each DTU. The total thrust of the drive train is divided by the number of propellers installed to determine the thrust produced by each propeller.

Jet: A much more powerful and maneuverable type of aircraft, jets are capable of speeds similar to those attainable by grav vehicles.

First available at TL5, each Jet DTU produces 80 units of thrust (TH) per EP of power applied per round, takes up 10vl per unit installed and costs Cr8000 per unit.

Regardless of the number of DTU installed, the number of jets used must be specified at design time. Any number of jets may be specified for a Jet drive train. The first jet does not require any additional volume or cost, but each additional jet will add 0.1vl of volume and Cr1500 to the cost of each DTU. The total thrust of the drive train is divided by the number of jets installed to determine the thrust produced by each jet.

Grav: Almost as common as ground cars on higher technology worlds are antigravity or contragravity vehicles, more often referred to as 'grav' vehicles. Of all the drive trains available, grav modules offer the best speed and maneuverability for a vehicle.

First available at TL8, each Grav DTU produces 100 units of thrust (TH) per EP of power applied per round, takes up 4vl per unit installed and costs Cr46,000 per unit.

Water: Watercraft come in two types; surface and subsurface vehicles. Both use similar styles of propulsion, but subsurface vessels (when below the surface) are much slower than their surface counterparts.

Surface: First available at TL4, each Surface DTU produces 20 units of thrust (TH) per EP of power applied per round, takes up 25vl per unit installed and costs Cr125 per unit.

Subsurface: First available at TL5, each Subsurface DTU produces 5 units of thrust (TH) per EP of power applied per round, takes up 10vl per unit installed and costs Cr125 per unit.

Multiple: The drive train can be subdivided into multiple, independent sections usually at an increase to the cost and size of the drive train.

Tech Level: The minimum technological level at which this type of drive train is commonly available.

Thrust Generated: The amount of thrust (TH) generated per Drive Train Unit (DTU) installed for every 1 Energy Point (EP) applied to the drive train.

Size/Volume: The amount of size/volume each installed DTU requires within the chassis.

Cost: The cost in Credits per DTU installed.

Max Agility: The maximum agility rating for a vehicle equipped with this type of drive train.

POWER PLANTS

Every vehicle must have a power plant to supply the energy needed by all the various installed components, particularly the drive train. If you want a fast vehicle, not only do you need a drive train capable of producing the necessary thrust, but you must also have a power plant capable of producing the energy needed to feed the drive train to capacity. If a vehicle has an undersized power plant, it is going to be limited by the maximum amount of power it actually delivers to the drive train, rather than the maximum rated speed for the drive train itself.

Various types of power plants are available depending upon the available technology. Each of the power technologies available below represents the smallest size unit possible for that type. Any size power plant may be installed equal to or greater than this smallest size to produce the required power for a vehicle.

Steam: Available at TL4, early versions of these power plants typically use wood, coal, or other readily available combustible fuel source to heat water and produce power using steam pressure. Bulky, noisy, temperamental, and quite dangerous if the boiler builds up too much pressure, steam engines are nonetheless a vital part of any developing technological society in its early stages of industrialization.

A steam power plant unit requires 25vl, produces 1 EP per round, costs Cr25, and requires 0.25vl of fuel per hour of operation.

Internal Combustion: When the smaller and more efficient internal combustion engine becomes available at TL5, most steam applications are relegated to antiquity. These hearty power plants remain a common fixture even in many higher technology societies.

An internal combustion engine unit requires 5vl, produces 1 EP per round, costs Cr50, and requires 0.5vl of fuel per hour of operation.

Turbine: Available at TL7, the turbine is a refinement and improvement of the internal combustion engine, providing more power, more efficiently, in a smaller package, but at a higher cost.

A turbine power plant unit requires 2vl, produces 1 EP per round, costs Cr100, and requires 0.25vl of fuel per hour of operation.

Fuel Cells: Chemical fuel cells first become available at TL9, and offer similar performance to the turbine, and much improved performance over the internal combustion engine, but these early alternatives are quite a bit more expensive.

A fuel cell unit requires 2vl, produces 1 EP per round, costs Cr300, and requires 0.15vl of fuel per hour of operation.

Advanced Fuel Cells: By TL12 new, more advanced fuel cell power systems become available and offer a much better alternative to earlier power plants.

An advanced fuel cell unit requires 1.5vl, produces 1 EP per round, costs Cr100, and requires 0.05vl of fuel per hour of operation.

Fission: These early nuclear power plants become available at TL7 and produce incredible amounts of power very efficiently, but still require very large amounts of space at this stage, and can produce catastrophic disasters if damaged or allowed to melt down. In addition, a fission plant produces an amount of highly radioactive waste equal to its fuel consumption that must be stored and ultimately disposed of safely.

A fission power plant unit requires 6000vl, produces 1000 EP per round, costs MCr1.32, and requires 140vl of fuel per month of operation.

Early Fusion: A much safer and cleaner alternative to fission plants, fusion first becomes available at TL8. Fusion plants are not subject to the risk of meltdown, nor do they produce any toxic (or other) waste material that must be dealt with.

An early fusion power plant unit requires 450vl, produces 100 EP per round, costs KCr100, and requires 150vl of fuel per month of operation.

Modern Fusion: By TL13 research and manufacturing advances have begun to produce fusion power systems in smaller sizes, with the same efficiency of larger models.

A modern fusion power plant unit requires 30vl, produces 10 EP per round, costs Cr6600, and requires 15vl of fuel per month of operation.

Advanced Fusion: At TL15, research and modernization once again allow for the construction of even smaller fusion plants of amazing power and efficiency.

An advanced fusion power plant unit requires 1.5vl, produces 1 EP per round, costs Cr330, and requires 1.5vl of fuel per month of operation.

High Tech Fusion: The ultimate in fusion power becomes available at TL16 offering the smallest power plant possible before the advent of antimatter plants.

A high tech fusion power plant unit requires 0.5vl, produces 1 EP per round, costs Cr330, and requires 1.5vl of fuel per month of operation.

Antimatter: Even fusion is nearly rendered obsolete with the availability of antimatter power systems at TL17. Cheap, requiring little fuel, and capable of producing tremendous amounts of power from even the smallest of systems, antimatter is at once the ultimate power system and an incredible danger. Should even the smallest amounts of antimatter escape the containment systems the results would be catastrophic to all people and items within a fairly sizable radius of the power plant.

An antimatter power plant unit requires 0.2vl, produces 1 EP per round, costs Cr110, and requires 0.001vl of fuel per year of operation.

VEHICLE POWER PLANTS

Power Plant Type	Minimum Tech Level	Unit Size	Power Output	Unit Cost	Fuel Required Per Unit
Steam	TL4	25vl	1 EP	Cr25	0.25vl per hour
Internal Combustion	TL5	5vl	1 EP	Cr50	0.5vl per hour
Turbine	TL7	2vl	1 EP	Cr100	0.25vl per hour
Fuel Cells	TL9	2vl	1 EP	Cr300	0.15vl per hour
Advanced Fuel Cells	TL12	1.5vl	1 EP	Cr100	0.05vl per hour
Fission	TL7	6000vl	1000 EP	MCr1.32	140vl per month
Early Fusion	TL8	450vl	100 EP	KCr100	150vl per month
Modern Fusion	TL13	30vl	10 EP	Cr6600	15vl per month
Advanced Fusion	TL15	1.5vl	1 EP	Cr330	1.5vl per month
High Tech Fusion	TL16	0.5vl	1 EP	Cr330	1.5vl per month
Antimatter	TL17	0.2vl	1 EP	Cr110	0.001vl per year

FUEL TANKS AND OPERATIONAL DURATION

The amount of 'fuel' onboard a vehicle determines how long it can operate without needing to be refueled. It is up to the designer of the vehicle to determine how long this will be, based on need and available space. Every power plant has a specific rate of fuel consumption per hour. To determine how much fuel tankage will be required, multiply the number of hours of operation a vehicle is to be capable of by the fuel requirements of the installed power plant.

For example, a vehicle is designed with a power plant that consumes a total of 14vl of fuel per hour of operation. If the designer wants the vehicle to be capable of operating for up to 10 hours before requiring it to be refueled, a total of 140vl of fuel tanks must be instaledl to accommodate the needed fuel.

Operational Duration (in Hours) X Total Power Plant Fuel Requirements = Fuel Tankage Required (in volume).

Fuel tanks do not add to the cost of a vehicle, but their volume must be accounted for in the final designs.

BATTERIES

Rechargeable battery packs are available to supply power to vehicles for a limited duration. They hold a specific number of EPs that may be used by the vehicle before the battery is drained and must be recharged. 1 battery unit can discharge up to 1 EP for 1 hour. Thus a battery that will provide 1 EP every hour for 24 hours would require a storage capacity of 24 EP. A 24-hour, 7-day a week, 1 EP battery would have a storage capacity of 168 EP.

Recharging may be accomplished by hooking the battery into any available power plant/supply, at a rate of 1 EP recharged per round the battery is hooked to the power supply.

Crude Battery: These bulky, cumbersome contraptions are quite inefficient, but do work. First available at TL5, they cost Cr200, take up 0.4vl, and store 1 EP per unit.

Basic Battery: By TL9, batteries are quite common for small tasks, and have some use in larger applications, being far more efficient than their earlier counterparts. Basic batteries cost Cr35, take up 0.1vl, and store 1 EP per unit.

Modern Battery: The modern battery becomes available at TL11, and continues in wide use at later technological levels. These batteries cost Cr30, take up 0.04vl, and store 1 EP per unit.

VEHICLE BATTERIES

Battery Type	Minimum Tech Level	Unit Cost	Unit Volume	Unit Storage Capacity
Crude	TL5	Cr2	0.4vl	1 EP
Basic	TL9	Cr0.25	0.1vl	1 EP
Modern	TL11	Cr0.30	0.04vl	1 EP
Advanced	TL14	Cr0.50	0.01vl	1 EP

ENVIRONMENTAL CONTROLS

Facilities	*TL*	*Cost*	*Energy*	*Size Requirements*
Pressurized Interior	5	Cr25	0.025EP	1vl per 20vl of chassis size (5%)
Climate Control	7	Cr50	0.01EP	1vl per 100vl of chassis size (1%)

Advanced Battery: A more advanced battery system becomes available at TL14, but while smaller, the cost is higher per unit at a volume of 0.01vl and a cost of Cr50. Storage capacity remains at 1 EP per unit however.

PASSENGER AND CREW FACILITIES

Unless you are designing a robot or remotely controlled vehicle, you will need to provide facilities for the crew (other than the pilot/driver) and passengers that may be carried aboard.

ENVIRONMENTAL CONTROLS

Pressurized Interior: The interior of a vehicle may be equipped to be pressurized against an outside atmosphere. Without such a feature, if a vehicle is operated in a Vacuum, Trace, Very Thin, Tainted, Exotic, Corrosive, or Insidious atmosphere, the crew and passengers will be required to wear appropriate survival equipment.

It is assumed that the environmental facilities will be able to support a number of passengers equal to the normal passenger load of the vehicle for a period of time equal to four times the operational duration of the vehicle on a full tank of fuel. So a pressurized vehicle with an operational range of 10 hours at cruising speed, could provide a sealed environment for its passengers for up to 40 hours.

Pressurized Interiors can be installed on any vehicle of TL5. Pressurizing each 20vl of chassis size costs Cr25, requires 0.025EP per round and takes up 1vl.

Climate Control: A climate control system will allow the vehicle to be operated under conditions ranging from dry desert heat to high humidity swamps to frozen tundra without difficulty. Provides a +5 circumstance bonus to most checks relating to bad weather. This feature does not pressurize the interior of the vehicle; rather it circulates and controls the temperature and humidity of the interior air. One unit must be installed per 100vl of chassis size (unless the vehicle is to be without any form of climate control). First available at TL7, each unit costs Cr50, requires 1vl and 0.01EP per round.

FACILITIES

A number of facilities are available for accommodating crew and passengers, depending on the requirements of the vehicle and the needs of the users.

Passenger Saddle: A saddle is a mount on the exterior of a vehicle suitable for a driver/pilot or passenger to safely ride upon. Cost is Cr25 and volume required is 10vl per saddle installed.

Passenger Stand: A passenger stand is usually just a pole running from the ceiling to the floor of the vehicle. Up to 6 passengers may cluster around the pole, using it as a brace against the force of the acceleration and deceleration of the vehicle. Handhold straps may also be available around the pole. Passenger stands are typically found in mass-transit vehicles where accommodating the maximum number of passengers is highly desirable and violent maneuvers are not expected. This often creates rather crowded conditions, which limits the time a passenger can be expected to tolerate such conditions to about 10 minutes. Cost is Cr10 and volume is 5vl for the pole and 100vl per position around the stand. Handstraps add Cr1 to the cost but do not increase the required volume.

Passenger Seating: A standard passenger seat with basic restraining harness, found in most short range private and commercial vehicles. Cost is Cr100 and volume is 110vl per seat installed. These costs assume a human sized passenger; they should be adjusted proportionately for larger or smaller creatures.

Passenger Couch: A harnessed acceleration couch to protect passengers from the dangers of high-G maneuvers, typically found in fast, highly maneuverable atmospheric craft such as rockets and fighter aircraft. Cost is Cr2000 and volume is 200vl per (human-sized) couch installed.

Passenger Bunk: Little more than a padded cushion, cot, or hammock big enough for a human to lie down and rest (if they don't move about too much...). A drape or screen may be available for some privacy, and there is room to store about 25vl in personal cargo and possessions. Cost is Cr250 and volume is 150vl per bunk installed.

Privacy Cubicle: Not much bigger than a small fresher, the privacy cubicle does offer a passenger bunk (see above) and a small storage unit able to hold up to 100vl of personal goods. The ability to lock a cubicle offers a bit more privacy than an open bunk, and a modicum of security for items stored within (although a determined thief could force the door rather easily). Cost is Cr4000 and volume is 500vl per cubicle installed.

VEHICLE PASSENGER AND CREW FACILITIES

Facilities	*Size*	*Cost*
Passenger Saddle	10vl	Cr25
Passenger Stand	See description	Cr10
Passenger Seating*	110vl	Cr100
Passenger Couch*	200vl	Cr2000
Passenger Bunk*	150vl	Cr250
Privacy Cubicle	500vl	Cr4000
Small Cabin	2000vl	Cr8000
Galley Facilities	200vl	Cr1000
Fresher Facilities	200vl	Cr750
Low Berth	500vl	KCr50
Engineering Shop	1000vl	KCr20
Vehicle Shop	1000vl	KCr10
Laboratory	800vl	KCr50
Sickbay	1000vl	KCr100
Autodoc	2000vl	MCr1

*These represent the minimum free space (vl) required to accommodate the passenger in rather cramped conditions. Roomier accommodations may be added by increasing the size and cost by x2 or x3. If a passenger is expected to spend more than 8 hours in the facilities at a time, multiply the size and cost by x4. This extra volume reflects roomier and more comfortable facilities and larger and more accommodating access to the facility, lounges and common areas etc. in other parts of the vehicle.

Size: The number of free kilograms that must be available in the chassis to accommodate the equipment.

Cost: Cost in Credits.

Small Cabin: Smaller than a hotel room, the small cabin nevertheless provides quite adequate accommodations for one (even two if they are very familiar with one another) passenger or crewmember for short periods of no more than a week at a time. The cabin is typically equipped with a bunk (possibly double-bunked), a chair, a storage unit capable of holding up to 250vl of goods, and retractable/recessed/concealed toilet facilities. Cost is Cr8000 and volume is 2000vl per cabin installed.

Low Berth: Cryosleep capsules used to transport passengers in suspended animation. One capsule can accommodate one passenger. Cost is Cr50,000 and volume is 500vl per capsule installed.

Galley: Food storage (up to 100vl) and preparation facilities for up to four passengers or crew for each galley. Cost is Cr1000 and volume is 250vl per galley installed.

Fresher: A basic fresher provides toilet and washbasin facilities for one passenger per fresher unit installed. Cost is Cr750 and volume is 200vl per fresher. Shower/bathing facilities may be added for an additional cost of Cr100 and added volume of 150vl

Engineering Shop: Can accommodate one mechanic, and will add +1 to any T/Engineering skill checks made when attempting repairs. Cost is KCr20 and volume is 1000vl per shop installed.

Vehicle Shop: Can accommodate one mechanic, and will add +1 to any T/Mechanical, T/Electronic, or T/Gravitics skill checks made when attempting repairs. Cost is KCr10 and volume is 1000vl per shop installed.

Laboratory: Can accommodate one scientist working within, adds +1 to any Research skill checks made while conducting experiments or investigations using its resources. Cost is KCr50 and volume is 800vl per lab installed.

Sickbay: Can accommodate one patient and one physician working within, adds +1 to any T/Medical skill checks made while using its resources. Cost is KCr100 and volume is 1000vl per lab installed.

Autodoc: Can accommodate one patient within. Cost is MCr1 and size is 2000vl per unit installed.

APPENDAGES

Specialized arms and tentacles (referred to as appendages) for tasks such as moving cargo, manipulating objects, or lifting equipment may be installed onto any vehicle. Grappling appendages are usually designed for cargo handling and such duties requiring lifting power but not fine control, while manipulatory appendages are designed for fine control and handling of small and delicate devices.

The maximum Strength of an appendage is effectively unlimited, but the maximum Dexterity for any appendage is equal to the Tech Level (TL) at which the appendage is built, regardless of the number of appendage units that are installed and make up the individual arm. When manipulating an appendage on a vehicle, the operator may add his or her own Dexterity bonus to any skill or other checks required for its use. This is particularly useful when attempting to control the powerful, but unwieldy heavy grappling appendages. The Strength of an appendage is only limited by the type of appendage installed and its size.

Appendage Unit: Strength is 1, cost is Cr100, volume is 0.5vl, requires 0.1 EP in power per round. Appendage strength is cumulative with the number of units installed. For example, 10 units installed would give an appendage with a Strength of 10, cost of Cr1000, volume of 5vl, and requiring 1EP per round to operate.

All appendages, regardless of the number of units installed, have a minimum Dexterity score of 1, and may have maximum Dexterity score equal to the TL at which is was built. The designer may specify what Dexterity rating he wishes the appendage to have within this range, but the higher the Dexterity rating, the greater the overall cost of the appendage. Multiply the Dexterity score times the base cost to determine the total cost for the appendage.

Appendage Cost Formula: (STR Score x Cr100) x DEX Score = Total Cost in Credits.

Using our example from previously (STR 10 appendage, Cr1000), it automatically has a DEX of 1. If this were to be increased to a DEX of 10, the cost of the arm would rise to Cr10,000 (Base cost of Cr1000 x DEX 10).

High Pressure Pump: Used for generating high-pressure streams of water for fire fighting or crowd control. Uses 200 liters of water per minute. Being hit by the stream of water will knock creatures over unless they make a Reflex save (DC20 - range in meters). Cost is Cr250, volume is 4vl, and requires 0.5EP per round.

Low Pressure Pump: Used for moving volumes of liquid like fuel or water, up to 50 liters per minute. Cost is Cr50, volume is 2.5 vl, and requires 0.1EP per round.

Toolkits: The various toolkits listed under personal equipment (see pg. 210) may be adapted as maneuverable appendages under the control of an operator within the vehicle or by a computer. Double the cost of the toolkit, and the volume required will be equal to the weight of the toolkit. Power required to operate the toolkit will equal the size in volume x 0.01EP. For example to adapt a Mechanical Took Set, the cost would be Cr2000, volume would be 2vl, and it would require 0.02EP per round to operate.

Winch: A winch consists of a cable with a hook and a motor to wind the cable in. Strength is 1, Cost is Cr10, volume is 0.2 vl, requires 0.01EP in power. Winch Strength is cumulative with the number of units installed. For example, 10 units installed would give a winch with a Strength of 10, cost of Cr100, volume of 2vl, and requires 0.1EP per round.

WEAPON MOUNTS

A vehicle may mount all sorts of weapon systems, but they must be installed into some form of mounting. This may be anything from bolting a machinegun to the fender of a ground vehicle, to a small manned turret, to a massive fusion gun turret mounted on a grav tank. Weapons (and other components in the case of turrets) installed into a mount do not count against the available space in a vehicle. The space for the weapon has already been accounted for in the design of the mount selected to house the weapon.

Appendages: Installed appendages can be used as a form of weapon mount. An appendage may have installed weaponry up to a volume equal to the appendage's Light Load carrying capacity (determined by its Strength). Multiple weapons are typically of the same type and are generally linked, allowing them to all fire at the same target using a single attack roll. For each linked weapon (over 1), add 1 die of damage.

Each weapon may also be fired individually. If each weapon has its own fire computer installed, all weapons may be fired once per round. If there is only a single fire control computer and/or a gunner, only one weapon may be fired per round.

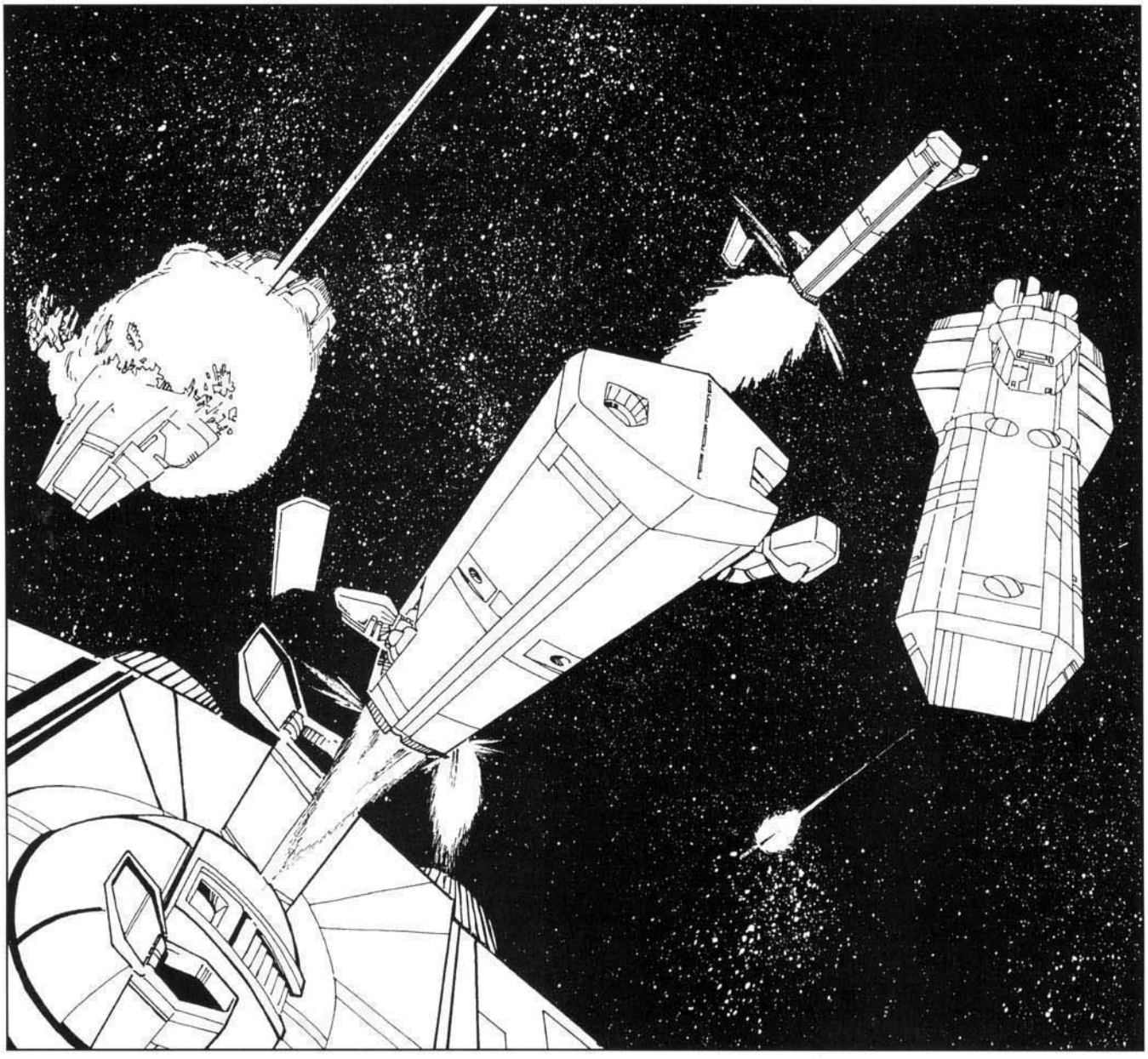
Pintle Mounts: Pintle mounts can hold any type of combat rifle or heavier personal weapon. They may not be equipped with vehicle weapon systems. They consist of little more than a mounting rod affixed to the floor of the vehicle and must be manned by a live gunner. A pintle mounted weapon can usually be rotated 360 degrees, and elevated up to a 90 degree angle.

1vl of space for the pintle mount must be allocated for every 100vl of size of the weapon to be mounted. Cost is Cr1 per 1vl of space required. Only one weapon at a time may be attached to a pintle mount. Space to accommodate the gunner, fire control computer, or ammunition must be allocated separately.

A pintle mount offers no protection to a gunner firing the attached weapon. Some versions may be installed with cover (50%), but this adds +50vl to the required volume for the mount, and cost an additional Cr500.

Fixed Mounts: Fixed mounts are weapons that have been permanently fixed to the outer frame or bed of a vehicle. They cannot traverse, and must be aimed by aligning the vehicle with the intended target. A fixed weapon pointed to the front of a vehicle (the most common type of fixed weapon) will always fire at targets directly in front of the vehicle. A fixed mount must allocate 0.1vl of space every 1vl of weapon size to be mounted, and cost is Cr1. No more than 1 fixed mount may be installed per 200vl of total vehicle chassis.

Up to two weapons of the same type may be installed within a fixed mount if there is enough space. These weapons are generally (but not always) linked, allowing them to all fire at the same target using a single attack roll. Each weapon may also be fired individually. Space to accommodate a gunner, fire control computer, or ammunition must be allocated separately.



A fixed mount offers no protection to a gunner firing the attached weapon. Some versions may be installed with cover (50%), but this adds +50vl to the required volume for the mount, and cost an additional Cr500.

Cupola: A cupola is an enclosed version of the fixed mount similar in design to a turret but unable to move, and must be aimed by aligning the vehicle with the intended target. The advantage of a cupola over a regular fixed mount is that it is enclosed within the chassis of the vehicle itself offering any gunner within the same armor protection as anything else within the vehicle. A cupola must allocate 1.1vl of space every 1vl of weapon size to be mounted, and cost is Cr5 per 1vl of total size. Space to accommodate a gunner, fire control computer, or ammunition must be allocated separately.

Up to two weapons of the same type may be installed within a cupola if there is enough space. These weapons are generally (but not always) linked, allowing them to all fire at the same target using a single attack roll. Each weapon may also be fired individually. Space to accommodate a gunner, fire control computer, or ammunition must be allocated separately.

Turrets: Turrets are mechanized weapons mounts, typically manned by a gunner although computer controlled auto turrets are available. A fire control computer with sufficient CPU power must be installed to control one or more

VEHICLE WEAPON MOUNTS

Type	*Size*	*Cost*	*EP*	*Rotation/Elevation*
Manned Pintle Mount	1vl per 100vl	1/vl	-	R360, E90
Fixed Mount	0.1vl per 1vl	5/vl	-	None
Cupola	1.1vl per 1vl	5/vl	-	None
Standard Turret	1.2vl per 1vl	10/vl	0.001 per 1vl	R180, E45
Heavy Turret	1.4vl per 1vl	10/vl	0.002 per 1vl	R360, E90

Size: Volume requirements per 1vl of accommodation for gunners, fire control computers, weapon systems, and ammunition.

Cost: Cost is Credits per 1vl of space allocated.

EP: Energy point requirements per round to operate a turret. Energy required to power any computers and/or weapon systems are in addition to this amount.

Rotation/Elevation: The range of maximum rotation and weapon elevation/declination possible with this type of mount.

auto turrets. Heavy turrets are capable of a greater traverse and elevation range than their lighter counterparts, but are otherwise pretty much the same. No more than 40% of the available volume of a chassis may be allocated for one or more turrets.

While built out of the overall chassis itself, a turret is considered a separate but integrated part of a vehicle. Space must be allocated from the main chassis body in an amount equal to 1.2vl for every 1vl of internal space available within the turret itself. The extra 0.2vl is used to house the gearing and other mechanisms needed to give the turret its ability to rotate and elevate. Weapons, gunners, fire control computers, ammunition, or other items may be designated as contained within the turret rather than the body of the vehicle itself, as long as there is enough room to hold it all. In addition, a turret must be supplied with 0.001EP of power and a cost of Cr10 for every 1vl of total turret size.

A heavy turret version is also available with a greater range of rotation and elevation, but the size and energy requirements increase to 1.4vl and 0.002EP respectively. Cost remains the same.

Up to four weapons of the same type may be installed within the tonnage already allocated for the turret (they do not count further against the remaining available space in the vehicle). These weapons are generally (but not always) linked, allowing them to all fire at the same target using a single attack roll. For each linked weapon (over 1), add 1 die of damage. Each weapon may also be fired individually. If each weapon has its own fire computer installed, all weapons may be fired once per round. If there is only a single fire control computer and/or a gunner, only one weapon may be fired per round.

Turret Example: A vehicle with a 10,000vl chassis may have a maximum size turret of 4000vl (40% limit). We decide to go a little smaller and settle on a turret that will have an internal volume of 3000vl. This will take up 3600vl of space from the chassis itself (3000vl X 1.2vl) to account for the gearing systems that drive the rotation of the turret, leaving a remaining available chassis space total of 6400vl for other components. Components can also be installed within the space allocated to the turret itself. Our turret we just installed has 3000vl worth of space that can be filled with weapons and other components. Unlike other mountings, a turret can house equipment other than weapons and fire control computers, such as sensors or communications equipment.

WEAPONS

The following weapons may be installed into an available weapon mount. Cost is listed in Credits figured at TL 14 or higher. Area of effect is radius in meters.

Mountable Personal Weapons: Any personal weapon can be mounted on a vehicle. Normally, only heavier types such as machine-guns, grenade launchers ad plasma guns are fitted to vehicle mounts. See the descriptions found in the section on Available Weapons (pg. 199).

Mortars: First available at TL5, the basic mortar is an elevated firing tube into which a prepared round is typically dropped and fired. The tube controls the firing angle and thus the range at which the round will land. Mortars are usually fairly light and portable when not mounted on a vehicle.

Lasers: Similar in design to a personal laser but much larger in scale to accommodate the range and power

VEHICLE MOUNTED WEAPONS

	Power	Min TL	Size	Cost	Damage	Area of Effect	Rate of Fire	Range	Ammo Volume Vl/Rnds	Ammo Cost Cr/Rnds
Mountable Personal Weapons										
Light Machinegun	0	6	5.5vl	1200	1d12 (1d12-5*)	-	20	60m	2.5/100	120/100
Autocannon	0	8	300vl	10,000	6d10 (1d10*)	-	10	111m	100/200	1000/200
VRF Gauss Gun	0	10	2000vl	200,000	2d12 (1d12-4*)	-	100	111m	10/1000	200/1000
*damage vs vehicles										
Standard Vehicle Weapons										
Light Mortar	0	5	10vl	300	1d10	3	1:2	150m	4	20
Medium Mortar	0	5	20vl	7,500	2d12	5	2:3	240m	6	35
Heavy Mortar	0	5	150vl	15,000	3d12	10	1:3	450m	15	50
Very Heavy Mortar	0	5	2000vl	40,000	4d12	20	1:10	600m	100	100
Light Laser	1	7	50vl	2500	1d10	-	1	Sensor	-	-
Medium Laser	1	7	100vl	3500	3d10	-	1	Sensor	-	-
Heavy Beam Laser	2	7	1000vl	1,000,000	6d8	-	1	Sensor	-	-
Heavy Pulse Laser	2	7	1000vl	500,000	6d10	-	1	Sensor	-	-
Light Artillery	0	5	500vl	5000	5d12	2	2:3	705m	6	50
Field Artillery	0	5	900vl	10,000	6d12	4	1:3	1.2km	15	75
Medium Artillery	0	5	2000vl	20,000	7d12	9	1:5	1.2km	40	100
Heavy Artillery	0	5	9000vl	40,000	8d12	18	1:10	1.5km	100	200
Light Mass Driver	2	11	12,000vl	500,000	7d12	25	4	2.1km	15	35
Medium Mass Driver	4	10	20,000vl	1,500,000	9d12	30	4	2.31km	40	50
Heavy Mass Driver	10	9	50,000vl	4,000,000	6d20	35	4	2.46km	150	150
Light MRL (100 tubes)	0	11	60vl	500	1d8	3	1/4/10/20/100	900m	5	10
Medium MRL (40 tubes)	0	6	1800vl	5000	3d8	10	1/4/10/20	1.2km	50	50
Heavy MRL (100 tubes)	0	10	1000vl	5000	6d8	20	1/4/10/20/100	2.1km	20	60
Light Plasma Cannon*	20	10	4000vl	1,000,000	3d12	5	1	450m	-	-
Medium Plasma Cannon*	40	11	6000vl	2,000,000	6d12	10	1	1.2km	-	-
Heavy Plasma Cannon*	80	12	7000vl	5,000,000	9d12	15	1	2.1km	-	-
Light Fusion Cannon*	40	12	4000vl	1,500,000	3d20	8	1	750m	-	-
Medium Fusion Cannon*	80	13	6000vl	3,000,000	6d20	12	1	1.8km	-	-
Heavy Fusion Cannon*	160	14	7000vl	10,000,000	9d20	21	1	3km	-	-
Meson Accelerator	240	15	60,000vl	30,000,000	9d20	50	1	6km	-	-

Power: The power required to fire this weapon (if any).
Min TL: The earliest technological level at which these weapons become available.
Size: The volume required inside a vehicle to fit this type of weapon. May be installed in the allotted tonnage of a turret (if any).

***Energy Weapon Size and Power Modifiers by TL**

The TL listed for each of these weapons is the earliest TL that they are available, however the Size and Power requirements are based on TL14 or higher versions of the weapon. For earlier TL models (when available), consult the chart below to determine the actual Size and Power requirements. These modifiers do not apply to personal class weapons mounted on a vehicle.

Actual TL	*Size and Power Modifier*
TL 10 or less	x5 Size, X2 Power
TL 11	x4 Size, X1.5 Power
TL 12	x3 Size, X1.5 Power
TL 13	x2 Size
TL 14 or greater	x1 Size

Cost: The cost of this weapon in Credits (Cr).
Damage: The base damage this weapon will inflict with a successful attack on another vehicle.
Area of Effect: Some weapons are capable of inflicting their damage over a given area rather than just a specific target. Normally, anyone within the listed area of effect must make a Reflex save (DC20). If successful, the victim only suffers half damage. Anyone within twice the given area of effect must also make a successful Reflex save (DC10) or suffer half the normal damage. If successful, victims in the outer radius of effect suffer no damage at all.
Rate of Fire: How many shot may be fire per round from the weapon.
Range: The range increment for this type of weapon.
Ammo Volume: How much space (vl) the given number of rounds will take up within a vehicle. For example, 2.5/100 would mean ammo for this weapon requires 2.5vl of space for every 100 rounds of ammo carried. If only a single value is listed, that is the volume required for a single round.
Ammo Cost: How much the given amount of ammo will cost in Credits. For example, 120/100 would mean ammo for this weapon costsCr120 for every 100 rounds of ammo carried. If only a single value is listed, that is the cost for a single round.

needed for attacks against armored vehicles and other targets. Vehicle mounted lasers first become available at TL7.

Artillery: An artillery piece is basically an oversized mortar designed for greater range and power, typically mounted on a tow carriage or a self-propelled vehicle (e.g. a tank). Early models are muzzle loaded and are much more prone to misfires and other problems. Later models are breech-loading designs using prepared rounds, greatly increasing the rate of fire and reducing the chance of mishap.

Mass Drivers: Magnetic linear accelerators capable of propelling a projectile at very high velocities, at long ranges, and at rapid rates of fire. These devastating weapons begin to appear at TL9.

Multiple Rocket Launchers (MRLs): Early crude versions of the MRL first appear at TL6 and are rather large and bulky, firing a missile larger than most standard artillery rounds of the era. At later TLs the MRL becomes much smaller and more powerful. In some regions MRLs completely replace artillery in the field.

Plasma and Fusion Cannon: Massively upsized versions of the PGMP or FGMP personal fusion weapons, suitable for use on the modern tactical battlefield. These power-hungry cannon first become available at TL10 and TL12 respectively.

Meson Accelerators: These early TL15 weapons generate high-energy mesons that can be directed against a target. Mesons have very short lives, but can be manipulated to last for specific durations by accelerating them towards relativistic speeds. In combat, the gunner's task is primarily to determine the duration of the mesons based on the range so that the final point of decay is within the hull/chassis/body of the target. Because of their nature, mesons pass through armor, rock, ice, and any other matter without effect. Damage occurs only at the point of decay (i.e. the target).

ELECTRONICS

Various electronic and sensor systems may be installed into a vehicle giving it a much wider range of capabilities and benefits to its occupants and/or drivers.

VISUAL SYSTEMS

Unless view ports are made available there must be some means of a pilot, driver, and gunner to see where they are going and/or what they are shooting at.

Window or View Port: A window or view port may be installed in a vehicle, and take up no actual space or volume. All chassis come with an automatic allowance towards windows and viewports worth Cr200 for every 250vl of chassis size (round down). Additional units have a cost of Cr200 per personal-sized (roughly 0.25 to 0.5 square meters) viewing area, times the maximum atmosphere the window or view port is rated for use. A vacuum rated personal view port has a cost of Cr400. For example, the standard ground car (2000vl) has a window/view port allowance of Cr1600, or enough for 8 windows rated for an atmosphere of 1. Two windows making up the front windshield, two windows that form the back windshield, and four windows for the driver and passengers (two windows on each side).

Video: Provides a standard video representation of everything within the field of view and the range of the recorder. First available at TL7, cost of Cr600 per unit, volume is 0.5vl, requires 0.03EP of power, and has a base clear range of view of 100m. At least one video monitor is required to display the video feed.

Video Monitor: More that one video display monitor may be fed by a single video system feed. A monitor adds +Cr100 to the cost, +0.5vl to the required volume, and +0.02EP to the power requirements.

HUD: A Heads-Up-Display, first available at TL7, may be installed in place of a video display monitor, reducing the volume required for standard video systems. Each HUD adds +KCr10 to the cost, +0.1vl to the required volume, and +0.01EP to the power requirements.

Holographic: Provides a high-resolution, 3-dimensional representation of everything with the field of view and range of the recorder. First available at TL13, cost of Cr2000 per unit, volume is 1.5vl, requires 0.1EP of power, and has a base clear range of view of 100m. At least one holo display is required to view the holo feed.

Holo Display: More than one holo display monitor may be fed by a single holo system feed. Each display adds +Cr500 to the cost, +0.1vl to the required volume, and +0.05EP to the power requirements.

Infrared (IR): The addition of infrared detection capabilities to a visual system allows a vehicle to detect, track, or navigate around obstacles based on variations in local temperatures. IR capabilities are first available at TL6, add +Cr1500 to the cost, +1vl to the required volume, and +0.03EP to the required power of a video of the holo visual system.

Lights: May be added to the interior (dash, overhead, compartment, etc.) or the exterior (headlight, spot beam, etc.) of a vehicle. A light unit costs Cr5. Volume is 0.2vl, and it requires 0.01EP per round. Vehicle lights will illuminate an area of up to 1.5m, or project a beam up to 3m. Multiple lights may be installed to increase the area of illumination, to create a longer beam length from a single lamp, or simply to provide light sources in multiple locations along or within the vehicle. Lighting systems have a maximum area of illumination of 150m and a maximum beam length of 300m.

Light Intensification (LI): LI systems amplify any ambient light (including nothing more than starlight) into

something approaching normal daylight conditions, allowing a vehicle to operate a full capability at night or in very low light situations. An LI system would not work in a situation where there is no light available at all, such as underground. First available at TL7, LI capability add +Cr500 to the cost, +0.2vl to the required volume, and +0.01EP to the required power of a visual system (video or holographic).

Increasing Visual Range: The base range of these visual systems may be increased. For each 100m increase in range, double the cost, increase the size of the unit by 0.1vl in volume, and add 0.01 to the power requirements. For example, to increase the range of a video system from 100m to 1100m range would multiply the cost by x10, increase the size by 1vl, and increase the power requirements by +0.01. The upgraded video unit would thus cost Cr6000, have a volume of 1.4vl, and require 0.13EP of power.

VEHICLE VISUAL SYSTEMS

Type	*Cost*	*Size*	*Power*	*Range*	*TL*
Window/View Port	200	-	-	Sight	1
Light	5	0.2	0.01	1.5/3m	4
Video	600	0.4	0.03	100m	7
Monitor	+100	+0.5	+0.02	-	7
HUD	+10,000	+0.1	+0.01	-	7
Holovideo	2000	1.5	0.1	100m	13
Display	+500	+0.1	+0.05	-	13
IR Capability	+1500	+1	+0.03	-	6
LI Capability	+500	+0.2	+0.01	-	7

Cost: The base cost of the system in credits at the given range capability.

Size: The free volume (vl) that must be available in the chassis to accommodate the system.

Power: The power requirements in Energy Points (EPs) per round to use this system.

Range: The base range of the system at the listed base price. See Increasing Visual Range for increasing a system's base range.

TL: The minimum technology level required to find such a system available for barter or purchase.

PRIMARY SENSOR SYSTEMS

Sonar: A more advanced version of the auditory sensor capable of detecting sounds at greater distances and over a broad range of wavelengths. Underwater, sonar becomes even more effective due to the effects of sound in this environment. A sonar operator may add +1 to all Listen checks for sounds with using the sonar in passive mode, and a +2 bonus to Listen checks when using the sonar in active mode. Passive sonar scans are undetectable, while active sonar scans are automatically detected by other vehicles similarly equipped with sonar and within their detection range. Sonar units first appear at TL6 and cost Cr5000. Volume is 4vl. Sonar requires 0.05EP of power per round. It has a base range of 1km and a maximum range of 50km.

Radar: Standard radar detection systems may be operated in active or passive mode. A radar unit, available at TL 6, costs Cr375,000. Volume is 5vl. Radar requires 0.25EP of power per round and has a base range of 5km. A radar system is required for computer aided attacks.

Ladar: An undetectable (except to the target) tight beam version of the radar system (using a laser instead of radio-frequency emissions) used for pinpoint object targeting and tracking. Ladar is impossible to jam. A ladar unit, available at TL8, costs MCr2.5m. Volume is 5vl. Ladar requires 0.025EP of power per round and has a base range of 5km. Ladar must be used in conjunction with radar systems, but provides a +1 bonus to all vehicle attack rolls (gunner and computer based).

Densitometer: A densitometer is capable of producing a density map of the interior of an object up to the range of the system. Densitometers are very useful in mapping mineral deposits, cave systems, underground rivers, etc. When used for prospecting skill checks, the operator may add +1 to all P/Prospecting skill checks. A densitometer, first available at TL11, costs Cr1000. Volume is 1vl. A densitometer requires 0.4EP of power per round and has a base range of 1m.

Neutrino: Neutrino sensors are designed to detect the presence of fission or fusion reactions within the range of the system. A neutrino sensor, available at TL11, costs Cr1200. Volume is 4vl. Neutrino sensors require 1EP of power per round and have a base range of 1km.

Neural Activity: Neural activity sensors can be used to detect lifeforms within range of the system, and classify

VEHICLE SENSOR SYSTEMS

Type	Cost	Size	Power	Base Range		TL
Sonar	Cr5000	4	0.05	Medium	50km	6
Radar	KCr250	5	0.25	Short	5km	6
Ladar	MCr2.5	5	0.025	Short	5km	8
Densitometer	KCr750	1	0.4	Short	5km	11
Neutrino	KCr60	4	1	Short	5km	11
Neural Activity	KCr20	0.1	0.2	Close	1km	13

Cost: The base cost of the system in credits at the given range capability.
Size: The space (vl) that must be available in the chassis to accommodate the system.
Power: The power requirements in Energy Points (EPs) per round to use this system.
Range: The base range of the system at the listed base price. See Increasing Sensor Range for increasing a system's base range.
TL: The minimum technology level required to find such a system available for barter or purchase.

them based on their level of brain activity. A neural sensor, available at TL13 or higher, costs Cr200. Volume is 0.5vl. Neural Activity Sensors require 0.2EP of power per round and have a base range of 1km.

Increasing Sensor Range: The base range of these sensor systems may be increased. For each range level of increase, double the cost, size, and power requirements. For example, to increase the range of a radar system from Short (5km) to Long (500km) range would multiply the cost, size, and power requirements by x4 (+x2 to increase from short to medium range, +x2 to increase from medium to long range). The upgraded radar unit would thus cost MCr1, have a volume of 20vl, and require 1EP of power per round.

COMMUNICATION SYSTEMS

Voder: A vehicle or robot equipped with a voder is capable of relay data and information through speech. The earliest models, available at TL7, have a very metallic, monotone, and obviously synthesized voice that is often difficult to understand if the listener is not following along closely. As technology improves so does the quality of the 'voice' produced by a voder, allowing for male and female voices, and even certain accents may be recreated. A voder unit costs Cr1200, volume is 0.5vl, and it requires 0.03EP of power per round.

Radio Receiver: A radio receiver is only capable of receiving radio transmissions and broadcasts over a wide range of frequencies. It is not capable of broadcasting. A radio receiver costs Cr50, volume is 0.3vl, and it requires 0.01EP of power per round. The receiver has a base range of reception of 5km.

Radio, 2-way: A standard radio set capable of both broadband reception and broadcasting. A 2-way radio costs Cr75, volume is 0.5vl, and it requires 0.2EP of power per round. The unit has a base range of 5km.

Tight Beam Laser: A tight beam laser offers a virtually undetectable form of communications, visual interference. A laser comm. unit costs Cr1200, volume is 1vl, and it requires 0.05EP of power per round. The unit has a base range of 50km.

Maser: A maser communication system is very similar to the tight beam laser in capability, but since it uses microwaves instead of visual light, it is unaffected by the conditions that can hamper laser based systems. A maser comm. unit costs Cr2400, volume is 1.5vl, and it requires 0.1EP in power per round. The unit has a base range of 5km.

Meson: With the advance of controlled meson decay technologies, the meson communicator offers the most advanced form of secure, long-range communications. Meson beams are capable of passing through anything, including planets, thus it is possible to communicate with someone on the other side of a planet (without the use of satellites) by using an extreme range meson communicator, if the coordinates of the receiver are known. A meson comm. unit costs Cr250,000, volume is 5vl, and it requires 0.5EP of power per round. The unit has a base range of 500km.

Increasing Communication Range: The base range of these communications systems may be increased. For each range level of increase, double the cost, size, and power requirements. For example, to increase the range of a 2-way radio system from Short (5km) to Long (500km) range would multiply the cost, size, and power requirements by x4 (+x2 to increase from short to medium range, +x2 to increase from medium to long range). The upgraded

VEHICLE COMMUNICATION SYSTEMS

Type	Cost	Size	Power	Range		TL
Voder	1200	0.5	0.03	-	-	7
Radio Receiver	50	0.3	0.01	Short	5km	5
Radio, 2-way	75	0.5	0.02	Short	5km	5
Laser	1200	1	0.05	Short	5km	8
Maser	2400	1.5	0.1	Close	5km	8
Meson	250,000	5	0.5	Long	500km	15

Cost: The base cost of the system in credits at the given range capability.
Size: The space (vl) that must be available in the chassis to accommodate the system.
Power: The power requirements in Energy Points (EPs) to use this system.
Range: The base range of the system at the listed base price. See Increasing Communication Range for increasing a system's base range.
TL: The minimum technology level required to find such a system available for barter or purchase.

radio unit would thus cost Cr300, have a volume of 2vl, and require 0.08EP of power.

SECONDARY SENSOR SYSTEMS

Auditory Sensor: Auditory sensors have about the same capability as the human ear for detecting sound. This type of sensor allows the operator to make a Listen check to hear any noise within range of the sensor. An Auditory Sensor system costs Cr200. Volume is 0.2vl and it requires 0.01EP of power per round. The system has a base range of 50m.

Olfactory Sensor: This type of sensor, first available at TL9, allows for the replication of the human range of olfactory sensation (smell). An olfactory sensor system costs Cr1500. Volume is 0.5vl and it requires 0.05EP in power each round. The system has a base range of 3m and a maximum range of 1km.

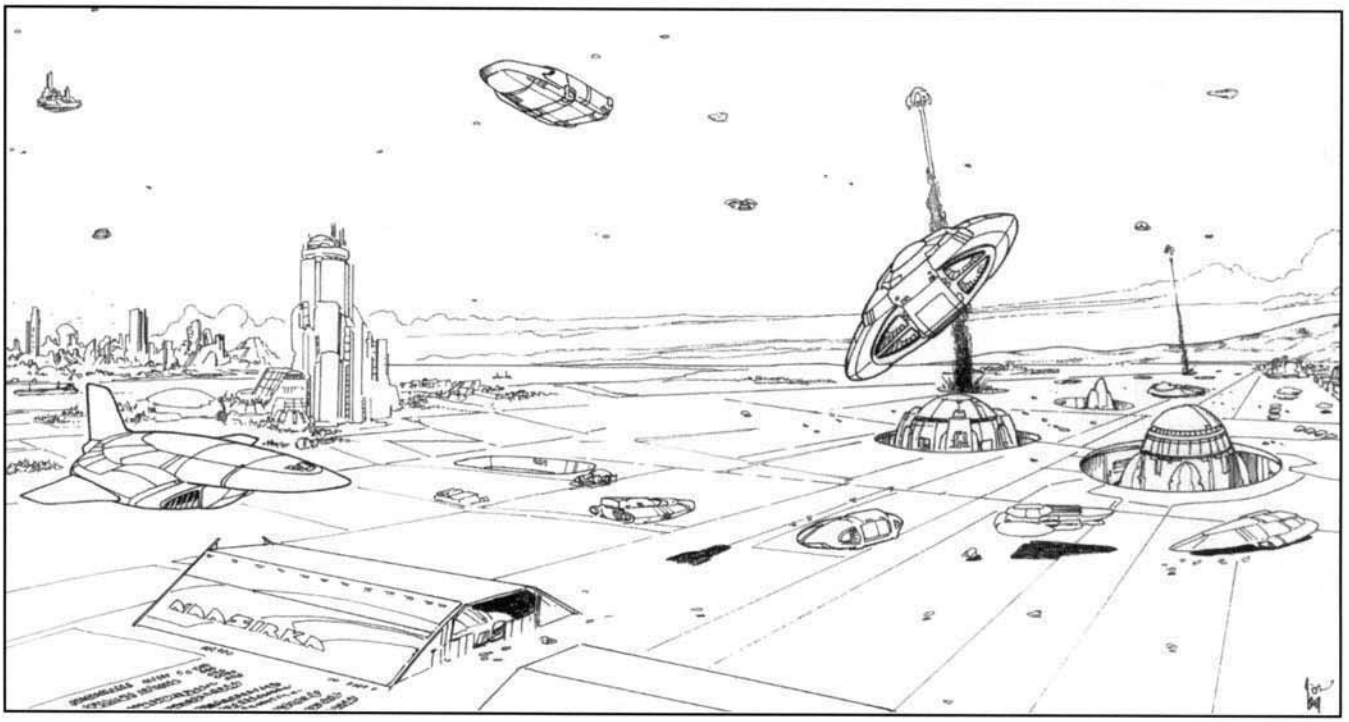
Enhanced Olfactory: The enhanced version of the olfactory sensor allows a wider more specific ability to detect specific scents and airborne particles at a longer range. Enhanced Olfactory Sensors cost Cr2000, have a volume of 1vl and require 0.1EP in power each round. They have a base range of 1km and a maximum range of 5km. Operators using an enhanced olfactory sensor may add +2 to all Spot checks involving scents or smells. Enhanced olfactory sensors are available beginning at TL10.

Tactile Sensor: Tactile sensors installed into a vehicle appendage are capable of feeding back standard human tactile response to the operator (i.e. the operator can 'feel'

SECONDARY SENSOR SYSTEMS

Type	Cost	Size	Power	Range		TL
Auditory Sensor	200	0.2	0.01	Short	50m	5
Olfactory	1500	0.5	0.05	Close	1 km	9
Enhanced Olfactory	2000	1	0.1	Close	1 km	10
Tactile	3000	1	0.2	-	-	8
Enhanced Tactile	6000	2	0.3	-	-	9

Cost: The base cost of the system in credits at the given range capability.
Size: The space (vl) that must be available in the chassis to accommodate the system.
Power: The power requirements in Energy Points (EPs) to use this system.
Range: The base range of the system at the listed base price. See Increasing Lighting and Increasing Olfactory Range for increasing a system's base range.
TL: The minimum technology level required to find such a system available for barter or purchase.



what the appendage is touching). Tactile sensors become available at TL8, and must be installed into an appendage. Each sensor has a cost of Cr3000, volume of 1vl, and requires 0.2EP of power each round.

Enhanced Tactile Response: An improved version of the tactile sensor that gives a +2 bonus to all DEX ability checks and DEX based skill checks when using a vehicle appendage for fine manipulation (such as performing surgery). These sensors each have a cost of Cr6000, volume of 2vl, and require 0.3EP of power per round. ETR sensors are only available at TL9 and later.

Increasing Lighting: The base range of a light source may be increased. For each 1.5/3m increase in range, add Cr5 to the cost, increase the size of the unit by 0.02vl in volume, and double the power requirements. For example, to increase the range of a light from 1.5/3m to 15/30m range would add Cr50 to the cost, increase the size by +0.2vl, and increase the power requirements by +0.1. The upgraded light unit would thus cost Cr100, have a volume of 0.4vl, and require 0.11EP of power.

Increasing Olfactory Range: The base range of an olfactory sensor may be increased to 5km by doubling the size, cost, and power requirements.

THE BOTTOM LINE

Once all components and systems have been selected, the design can be finalized by calculating its performance within the game system.

AGILITY RATING

If the installed Power Plant produced excess Energy Points beyond those required, the excess power may be used to increase the agility of the vehicle itself while in combat. This represents the vehicle's ability to make violent maneuvers to avoid being hit in combat. It is applied in two ways, it acts as an Initiative bonus in combat and it also acts as an AC bonus to the vehicle's defense in combat. A vehicle's Agility rating may never exceed the maximum agility listed for its Drive Train type plus any agility modifiers due to a streamlined or airframe chassis configuration.

Agility Rating: Extra Energy Points / (1 per 250vl of vehicle). Round any resulting fractions down.

E.g. a 1850 vl vehicle with 25 extra energy points:
This gives 25 divided by 7.4 (1850 / 250 = 7.5)
25 divided by 8 gives 3.378, rounded to 3.

ARMOR CLASS

The armor class (AC) of a vehicle begins at a base value of 10. Add to this the Agility rating of the vehicle, its Armor Rating and its Size Modifier. For example a vehicle with an Agility of 3 and an Armor Rating of 2 would have an Armor Class of 15.

Armor Class (AC): 10 + Agility Rating + Armor Rating + Size Modifier

STRUCTURAL INTEGRITY

The structural integrity or SI rating of a vehicle represents the amount of damage it may withstand (whether

VEHICLE STRUCTURAL INTEGRITY

Size	*Weight or Volume*	*Base SI*	*Additional SI (round down)*	*Weight in Pounds (d20 size)*
Fine	up to 0.05	0	0.1 per 0.005 over 0.005	0.11 (1/8)
Diminutive	0.05 to 0.5	1	0.1 per 0.05 over 0.05	1.1 (1)
Tiny	0.5 to 5	2	0.3 per 0.5 over 0.5	11 (8)
Small	5 to 30	5	0.5 per 2.5 over 5	66 (60)
Medium	30 to 250	10	1.5 per 22 over 30	550 (500)
Large	250 to 2000	25	2.5 per 175 over 250	4400 (4000)
Huge	2000 to 15,000	50	2.5 per 1300 over 2000	33,000 (32,000)
Gargantuan	15,000 to 115,000	75	2.5 per 10,000 over 15,000	253,000 (250,000)
Colossal	115,000 to 1,315,000	100	1.5 per 12,000 over 115,000	253,000 or more
Enormous	1,315,000+	250	2.5 per 12,000 over 1,315,000	2,893,000 or more

caused by accidents, attacks or other means) before being destroyed. The SI of any vehicle is based on its size and is determined by the chart above.

VEHICLE SPEED

The maximum speed of a vehicle can be determined by dividing the total Thrust output of the drive train by the Thrust Requirement of the chassis itself. For example: a 10,000vl chassis vehicle has installed a tracked drive train capable of producing 800 Thrust. The Chassis Size Table indicates that a 10,000vl chassis has a Thrust Requirement of 10 per 1kph of speed, thus the maximum speed for this vehicle would be 80kph (800 / 10 = 80).

Maximum Speed: Total Thrust Output / Chassis Thrust Requirement

Standard Acceleration: One-tenth of maximum speed. A vehicle's maximum acceleration is equal to its standard acceleration X its Agility rating.

Other levels of speed for a vehicle are derived as follows:

Very Slow (Stall) Speed: Up to one-tenth of maximum speed. This is stall speed for vehicles employing jet or propeller drive trains.

Slow Speed: Very slow to one-quarter of maximum speed. This is also usually the take-off and landing speed of aircraft.

Cruising Speed: Slow to one-half of maximum speed

Fast Speed: Cruising to three-quarters of maximum speed.

Max Speed: Fast to maximum speed.

Off-Road Speed: Determine the off-road speed factor based on the type and number of drive trains installed as shown.

Underwater Speed: The maximum speed of a watercraft submerged is one-half its normal surface speed, but fuel consumption is doubled. The vehicle must have a pressurized interior.

VEHICLE RANGE

The range listed for most vehicles is based on its cruising range. This value is determined by multiplying the operation duration of a vehicle by the top cruising speed of the vehicle. For example, a vehicle with a 14 hour operational duration and a top cruising speed of 75kph, would have a range of 1050km before refueling is necessary.

SPACECRAFT AND STARSHIP DESIGN

The only real difference between a vehicle and a space vessel is that a spacecraft is capable of maneuvering and operating in interstellar space. A starship takes this further; a starship can enter Jump Space and move to a different star system. Note that vessels intended to travel between the stars in normal space (at sublight speeds, and taking years to get there) are considered to be "space vessels" in these rules because they cannot enter Jump Space.

OFFROAD SPEED

Drive Train Type	*Maximum Off-road Speed*
Wheeled	Very Slow
Tracked	Slow + 5kph or Cruising speed, whichever is slower.
Legged	Cruising
Hovercraft	Slow + 10kph or Cruising speed, whichever is slower.
Per Additional pair of Drive Trains over 1	+5kph

SPECIAL FEATURES OF SPACECRAFT AND STARSHIP DESIGN

Displacement: The size of a starship or spacecraft is rated in displacement tons (t) rather than vl, since they are much bigger than most vehicles. Larger ships may be rated in kilotons (Kt)

Designations: Starship design tends to follow a procedure quite similar to that used for vehicles, but spacefaring vessels are subdivided into several types for ease of classification:

Starships are vessels capable of traveling through Jump space under their own power. Starships must be over 99 tons in displacement, but otherwise can be of any size.

Spacecraft: Also known as spaceships, spacecraft are large vessels that are not capable of entering Jump Space under their own power.

Small Craft: Small space vessels of 99t or less displacement, often carried aboard other vessels, are known as Small Craft. Because all small craft are not large enough to carry a jump drive, all small craft are also considered spacecraft.

Big Craft: Larger craft intended to be carried aboard another vessel are known as Big Craft. The only difference between a Big Craft and a Space Vessel is whether the craft is carried aboard (and thus subordinate to) another vessel.

Hull Weight: To determine the weight of a ship simply multiply by 1.35 to determine weight in metric tons or mTons (multiply by 1350 to determine weight in kilograms). USP: Spacecraft and Starship data is presented in a shorthand form called a Universal Ship Profile (USP). A USP gives critical data such as hull size and Jump capability at a glance.

DESIGN PHILOSOPHY

Anyone designing a starship will have a clear role in mind for it, though this role may be quite broadly defined. While the expense involved guarantees that extraneous systems are not added, there is a strong argument for a vessel to have a reasonable range of capabilities. One-trick ponies are an expensive luxury and are found only in the military. However, vessels will be focused on a particular mission. In very broad terms, the most common missions are: Military, Commercial and Specialist.

Commercial and Specialist ships are built as big as they need to be for their mission, assuming the builder can afford them.

Commercial vessels are generally classified according to their size and role. Ships of 100-2000 tons are usually referred to as Merchants (Or Free Traders, if privately owned), while those over 2000 tons are usually termed "Freighters", "Liners" or "Freightliners". Very large ships may have titles such as Bulk Transporters or Megafreighters. Some smaller ships do claim these rather grand titles, such as the 600-ton Liner.

Commercial ships are designed to be as economical as possible, and to last a long time between refits. They may carry some armament, but for the most part they are built on the "removal van" model. The overriding concerns are ease of loading and the ability to haul as much cargo as possible at the cheapest possible price.

Specialist ships are designed for a particular mission, which can be just about anything. They are optimised for that mission, and carry whatever other systems are necessary to make it possible. Thus a lab ship has the best scientific equipment available, a courier has high-Jump drives. A survey vessel carries sensors and vehicles. Jump capability or cargo capacity come a long way second in most such designs, unless it is vital to the mission (such as an exploration or courier ship).

Military ships vary greatly, since the military mission has many sub-roles that must be filled. Ships tend to be named for their role rather than size, which can cause some confusion. For example, powerful interstellar states typically build Heavy Cruisers that are larger (and more capable) than the entire fleets of smaller powers. Planetary and minor-power navies cannot afford anything approaching the size of vessels employed by these larger navies, but of course will name their ships however they like. Thus the Escort Destroyers of a major power may be the same size as the Command Cruiser of one of their allies. A lone light cruiser of the Imperial Grand Fleet may be able to take out a whole planetary navy of so-called Battleships and Assault Dreadnaughts.

Military ships are built to many designs with an infinite number of variations. Even transport vessels are built tougher than their civilian counterparts. Most military ships are fast and mount good electronics and sensors in addition to the obvious armament. The main missions are:

- Patrol/Escort: Small ships intended to police the spaceways and deter piracy. These are the commonest ships in any fleet.
- Strike: Fast, well-armed but relatively fragile ships intended for raiding and strike operations
- Cruiser: General-purpose major warships. Cruisers do most of the navy's work
- Line-of-Battle: Powerful ships such as battleships and dreadnoughts designed to destroy an enemy's major units
- Carrier or Tender: A lightly armed ship that transports smaller combat ships
- Assault: Ships designed to land troops on a world, and/or to support them there.
- Tanker: Ships designed to carry and supply fuel to other vessels

• Logistics: Ships that carry supplies for a fleet or squadron but do not fight
• Transport & Supply: Large and small freight-carrying vessels.
• Courier: Small, fast ships that carry information.

As a general rule, most navies classify ships roughly on size:

• 100-1000 tons: Close Escorts, Patrol Ships, Couriers
• 1000-10,000 tons: Escorts, Destroyers
• 10-40 kilotons: Light Cruisers, Light Carriers
• 40-100 kilotons: Cruisers, Heavy Cruisers, Strike Carriers
• 100kt +: Fleet Units (Battleships, Dreadnoughts, Fleet Carriers)
• 500kt: The very largest warships.

This is not always the case, however. For example, the term "cruiser" is often given to some very small ships, and can be misleading. In this case it is a reference to the long cruises such vessels undertake on patrol or piracy-suppression duty.

Non-starships (those without Jump engines), also known as spacecraft, can be very large. Various names are given to non-starships. While these are actually interchangeable, most have become associated with a particular class of vessel. The common usage is:

• Launch: A slow, 20-ton utility passenger/cargo craft. Available in a lifeboat variant and as the Gig, a faster, armed version used mainly by the military
• Ship's Boat: A fast, 30-ton utility craft used by many starships
• Pinnace: A long-range 40-ton streamlined small craft
• Cutter: A common, 50-ton craft used mainly by starports and customs services. The cutter can take a variety of slot-in modules, making it suitable for anything from cargo handling to rescue work; customs inspection and even some military action
• Shuttle/Lighter: A streamlined 95t design is most common but these cargo & passenger transfer vessels come in many shapes and sizes

Larger non-starships do exist. Non-Jump-capable freighters ply the routes between the secondary holdings of a major system. There are also many types of military non-starship:

• Fighter: A small (5-50 ton) vessel armed with light weapons. Mainly useful for patrol and security work
• Gunship/System Defense Boat: A larger, heavily armed non-starship designed to patrol and defend a local region
• Monitor: The non-jump equivalent of cruisers and battleships are termed Monitors
• Battle Rider: A specialist Monitor designed to be carried between star systems by a tender

Non-starships, ton for ton, can carry more armament and cargo than their jump-capable brethren.

TECHNOLOGY LEVEL

The technology level of a shipyard is based on the technological level of the world that it serves. Normally a ship cannot be built using components of a higher technology level than the shipyard itself; a TL12 shipyard can only build a ship with up to TL12 components. However, if there are higher tech level shipyards available at nearby star systems, it is possible to construct a higher technology ship, but high-tech components will have to be built elsewhere and shipped in at twice their normal cost. This will delay production by 20-50%.

SHIP HULLS

Once a role for the ship, its general size and its tech level have been decided upon, components can be purchased. The first requirement is a hull suitable to contain all the other components. The construction of any ship begins with the hull. The hull forms the shell into or onto which the remaining components of the ship are installed. Two types of hulls are available; manufactured and planetoid. Manufactured hulls are constructed out of high-tech composite materials, while planetoids are simply large hollowed-out asteroids. For obvious reasons, planetoid hulls are far less expensive then their manufactured counterparts but they also waste a lot of interior space. Planetoid hulls can be "Buffered" to make them more resilient. This simply means leaving more waste space (rock) to strengthen the vessel.

To design a ship using a hull size not listed, simply add the data from the appropriate hull sizes that total the size of your ship.

Example 1: To construct a 350-ton ship, simply add the data from the 100-ton entry three times (100 + 100 + 100 = 300), and add the data for the 50-ton entry once (300 + 50 = 350).

Example 2: To design a 73,000-ton ship, add the 50,000-ton entry once, the 10,000-ton entry twice (50,000 + 10,000 + 10,000 = 70,000), and the 1000-ton entry three times (70,000 + 1000 + 1000 + 1000 = 73,000).

The construction time for a custom hull is equal to the construction time of the next higher listed hull size.

Note that while any size hull can be constructed, all Jump-capable starships must have a minimum size hull of 100 tons.

MANUFACTURED HULLS

Hull	Required Computer	Build Time	Bridge**	Cylinder	Needle/ Wedge	Cone	Close Struct	Sphere	Flatten Sphere	Disp Struct
1	Model 1	3	0.02/0.2	0.1	0.12	0.11	0.06	0.07	0.08	0.05
5	Model 1	4	0.1/1	0.5	0.6	0.55	0.3	0.35	0.4	0.25
10	Model 1	5	0.2/2	1	1.2	1.1	0.6	0.7	0.8	0.5
50	Model 1	7	1/10	5	6	5.5	3	3.5	4	2.5
100	Model 1	9	2	10	12	11	6	7	8	5
200	Model 1	11	4	20	24	22	12	14	16	10
400	Model 1	14	8	40	48	44	24	28	32	20
500	Model 1	18	10	50	60	55	30	35	40	25
600	Model 1	22	12	60	72	66	36	42	48	30
800	Model 2	25	16	80	96	88	48	56	64	40
1000	Model 2	27	20	100	120	110	60	70	80	50
5000	Model 3	36	100	500	600	550	300	350	400	250
10,000	Model 4	48	200	1000	1200	1100	600	700	800	500
50,000	Model 5	52	1000	5000	6000	5500	3000	3500	4000	2500
100,000	Model 5	56	2000	10,000	12,000	11,000	6000	7000	8000	5000
500,000	Model 6	58	10,000	50,000	60,000	55,000	30,000	35,000	40,000	25,000
1,000,000	Model 6	60	20,000	100,000	120,000	110,000	60,000	70,000	80,000	50,000

** Amounts shown are for calculation reference only. A starship must allocate a minimum of 20 tons in bridge space, while small craft must allocate a minimum of 4 tons for bridge space.

MANUFACTURED HULLS

When constructing a manufactured hull, it is necessary to consider not only the size of the hull itself, but how the hull will be configured. This will affect the Streamlining (or lack thereof) of the ship and thus its ability to enter a world or gas giant's atmosphere, and thus whether or not it may land and take off from a world with an atmosphere.

Hull: The displacement tonnage of the ship if immersed in liquid hydrogen. Also represents the available space in tons for installing other equipment, systems, and components, storing fuel, etc.

Required Computer: The minimum model computer that must be installed to run the ship.

Build Time: How long the ship will take to build from start to finish, in months.

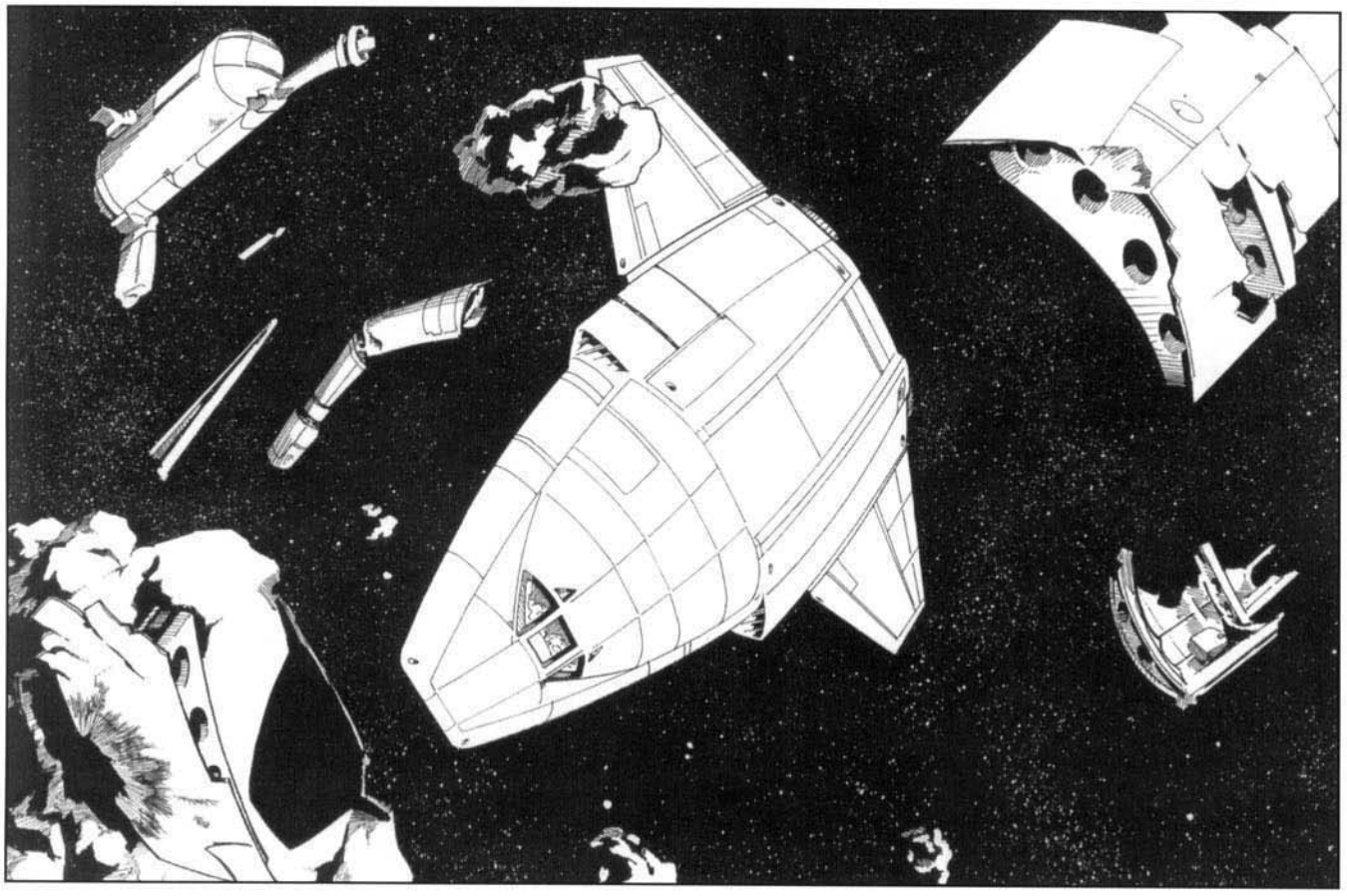
Bridge: The required amount of tonnage that must be allocated to bridge control for this size hull. For starships, if this tonnage is below 20 tons for the entire ship, a minimum of 20 tons must be allocated anyway. For small craft, at least 4 tons must ultimately be allocated toward bridge space. For example a 100-ton ship would require 20 tons of bridge space allocated, even though the table specifies 4 tons. But an 1100-ton ship would require 24 tons of bridge space, using the 1000-ton hull and the 100-ton hull specifications.

Cylinder: A cylindrical hull shape, which may be somewhat flattened or flared. Cylinders only offer partial streamlining. This is the standard hull design and costs are as listed. USP Code 3. Cost listed is in Megacredits (MCr).

Needle/Wedge: A somewhat 'flattened' version of the Cone. Like the Cone, a Needle/Wedge is also fully streamlined. The Needle/Wedge configuration will increase the cost of the hull by 20% (this is already factored into the costs listed in the Manufactured Hulls Table). USP Code 1. Cost listed is in Megacredits (MCr).

Cone: Similar to the Cylinder, but tapering to something of a point at one end. Cones are fully streamlined. Design and construction of a ship using a Cone configuration will increase the cost of the hull by 10% (this is already factored into the costs listed in the Manufactured Hulls Table). USP Code 2. Cost listed is in Megacredits (MCr).

Close Structure: A Close Structure is only partially streamlined. The term is used for vessels that consist of a number of similarly or differently-shaped structures joined without significant projections. Close Structured configurations reduce the cost of the hull by 40% (this is already factored into the costs listed in the Manufactured Hulls Table). USP Code 4. Cost listed is in Megacredits (MCr).



Sphere: Literally a perfectly round hull, though possibly with some projections. A Sphere is only partially streamlined. Using a Sphere based ship design will reduce the cost of the hull by 30% (this is already factored into the costs listed in the Manufactured Hulls Table). USP Code 5. Cost listed is in Megacredits (MCr).

Flattened Sphere: A " flying saucer". The Flattened Sphere is fully streamlined. A Flattened Sphere configuration will reduce the cost of a hull by 20% (this is already factored into the costs listed in the Manufactured Hulls Table). USP Code 6. Cost listed is in Megacredits (MCr).

Dispersed Structure: A Dispersed Structure is completely unstreamlined. The term is used for ships that have several awkwardly shaped parts sticking out at various points. Components are often connected by narrow accessways and struts rather than a solid hull. Dispersed Structures reduce the cost of the hull by 50% (this is already factored into the costs listed in the Manufactured Hulls Table). USP Code 7. Cost listed is in Megacredits (MCr).

PLANETOID HULLS

Planetoids (asteroids, small moonlets, etc.) may be transported to an orbital shipyard for use as a ship's hull. The interior will be hollowed out providing space for drives, power plants, and other equipment and features needed for the operation of the ship as per a manufactured hull.

Although such planetoids are pretty much free for the taking in any star system, there is still a cost involved in transporting the planetoid into orbit and the fusion tunneling and excavation of the planetoid itself. Towing is usually available at a standard fee of Cr100 per ton of planetoid moved into orbit. Excavation will typically run Cr1000 per ton excavated (not total tonnage of the planetoid).

The main drawback with planetoids is that a fair bit of their tonnage must remain unused to maintain structural integrity. Standard planetoids lose 20% of their available possible tonnage to this waste space, while a buffered planetoid designed to withstand greater combat damage loses 30% of its available tonnage to waste space. For example, a 100 ton planetoid would only have a maximum available tonnage for drives and other features of 80 tons (100 x 20% = -20 tons). A 100 ton buffered planetoid would only have a maximum available tonnage of 70 tons (100 x 30% = -30 tons).

Hull: The displacement tonnage of the ship if immersed in liquid hydrogen. Also represents the available space in tons (less any wasted space) for installing other equipment, systems, and components, storing fuel, etc.



Required Computer: The minimum model computer that must be installed to run the ship.

Build Time: How long the ship will take to build from start to finish, in months.

Bridge: The required amount of tonnage that must be allocated to bridge control for this size hull. For starships, if this tonnage is below 20 tons for the entire ship, a minimum of 20 tons must be allocated anyway. For small craft, at least 4 tons must be ultimately allocated toward bridge space. For example a 100-ton ship would require 20 tons of bridge space allocated, even though the table specifies 4 tons. But an 1100-ton ship would require 24 tons of bridge space, using the 1000-ton hull and the 100-ton hull specifications.

MCr: The cost of the hull in Megacredits.

Planetoid: Wasted (unusable space) in tons for standard planetoid hulls.

Buffered: Wasted (unusable space) in tons for standard buffered planetoid hulls.

DRIVE REQUIREMENTS AND ARMOR FACTORING

Whether a manufactured or planetoid hull, if a ship is to do much more than act as a stationary platform, it must install jump and/or maneuver drives.

Hull: The size of the ship's hull in tons. For unlisted hull sizes, add the requirements for the appropriate entries totaling the ship's size. For example, when determining the drive and armor requirements for a 25,000-ton ship, use the entry for a 10,000-ton hull twice, and the entry for a 5,000-ton hull.

Drive Units: The minimum number of Jump Drive (for interstellar travel) and Maneuver Drive (for in-system travel) units that must be installed in the ship. Jump drives are not required on small craft and space ships. While most ships have maneuver drives it is possible to design a ship without them; a stationary orbital weapons platform for example.

Armor Factoring: If the ship is to be armored, this is the armor factor that must be used when calculating how much armor must be installed to achieve the desired Armor USP rating for the ship.

PLANETOID HULLS

Hull	*Required Computer*	*Build Time*	*Bridge***	*MCr*	*Planetoid*	*Buffered Planetoid*
1	Model 1	3	0.02/0.2	0.0011	0.2	0.3
5	Model 1	4	0.1/1	0.0055	1	1.5
10	Model 1	5	0.2/2	0.011	2	3
50	Model 1	7	1/10	0.055	10	15
100	Model 1	9	2	0.11	20	30
200	Model 1	11	4	0.22	40	60
400	Model 1	14	8	0.44	80	120
500	Model 1	18	10	0.55	100	150
600	Model 1	22	12	0.66	120	180
800	Model 2	25	16	0.88	160	240
1000	Model 2	27	20	1.1	200	300
5000	Model 3	36	100	5.5	1000	1500
10,000	Model 4	48	200	11	2000	3000
50,000	Model 5	52	1000	55	10,000	15,000
100,000	Model 5	56	2000	110	20,000	30,000
500,000	Model 6	58	10,000	550	100,000	150,000
1,000,000	Model 6	60	20,000	1100	200,000	300,000

** Amounts shown are for calculation reference only. A starship must allocate a minimum of 20 tons in bridge space, while small craft must allocate a minimum of 4 tons for bridge space.



DRIVES AND ARMOR

Hull	Drive Units**	Armor Factoring
1	0.02	0.01
5	0.1	0.05
10	0.2	0.1
50	1	0.5
100	2	1
200	4	2
400	8	4
500	10	5
600	12	6
800	16	8
1000	20	10
5000	100	50
10,000	200	100
50,000	1000	500
100,000	2000	1000
500,000	10,000	5000
1,000,000	20,000	10,000

** Ships under 100 tons may not install a jump drive. For such vehicles, this applies to maneuver drives only.

HULL TONNAGE AND CLASSIFICATION USP CODES

A ship is classified by its tonnage and function as expressed by a USP code. Find the tonnage of your ship on the table (pg. 260) to determine both codes. For civilian vessels, select the closest appropriate classification for the size and function of the ship under Civilian Classifications. Military ships would obviously use the Military Classifications column instead.

HULL TONNAGE AND CLASSIFICATION USP CODES

Hull USP Code	Tonnage	Civilian Classifications	Military Classifications
0	to 99		
1	100-199	Seeker (J), Scout/Courier (S)	Scout/Courier (S)
2	200-299	Far Trader (A2), Free Trader (A), Yacht, (Y) Safari Ship (K)	
3	300-399		Close Escort (CE)
4	400-499	Subsidized Merchant (R), Corsair (P), Lab Ship (L)	Patrol Cruiser (T), System Defense Boat (SDB)
5	500-599		
6	600-699	Subsidized Liner (M)	
7	700-799		
8	800-899	Mercenary Cruiser (MC)	
9	900-999		
A	1000-1999		Escort (E), Destroyer (D)
B	2000-2999	Freighter (R2) or Liner (M2)	
C	3000-3999		
D	4000-4999		
E	5000-5999		
F	6000-6999		
G	7000-7999		
H	8000-8999		
J	9000-9999		
K	10,000-19,999		Light Cruiser (LC), Light Carrier (LCV)
L	20,000-29,999		
M	30,000-39,999		
N	40,000-49,999		Cruiser (C), Heavy Cruiser (HC), Strike Carrier (SCV)
P	50,000-74,999		
Q	75,000-99,999		
R	100,000-199,999		Battleship (B), Dreadnaught (BD), Fleet Carrier (FCV)
S	200,000-299,999		
T	300,000-399,999		
U	400,000-499,999		
V	500,000-699,999		
W	700,000-899,999		
X	900,000-999,999		
Y	1,000,000+		
Z	Reserved		

HULL STRUCTURAL INTEGRITY

The SI rating of any small craft or starship is based on its size as determined by the Hull Structural Integrity table, pg. 261.

HULL STREAMLINING

Depending on the configuration you selected for a ship's hull, it will either be Unstreamlined, Partially Streamlined, or Fully Streamlined. Streamlined hulls can be constructed in an Airframe configuration, for even better performance in atmosphere.

Streamlined: The streamlined hull configuration allows a ship to function and maneuver in the atmosphere of any world, including take-off and landings. In an atmosphere, a streamlined ship's top speed is 2-G.

Partially Streamlined: These configurations allow a ship to function and maneuver in the upper atmosphere of worlds with an atmosphere of Very Thin (2) or heavier, but they may not land on such worlds. In an atmosphere a partially streamlined ship has a top speed of 1-G.

Unstreamlined: An unstreamlined ship may not enter any part of a Very Thin (2) or heavier atmosphere for any reason.

HULL STRUCTURAL INTEGRITY

Hull Size	Structural Integrity Points SIs (round down)
1-9 tons	50 + 2.5 per additional 1 ton
10-99 tons	75 + 2.5 per additional 10 tons
100-999 tons	100 + 15 per additional 100 tons
1000-9999 tons	250 + 25 per additional 1000 tons
10,000-99,999 tons	500 + 25 per additional 10,000 tons
100,000-999,999 tons	750 + 25 per additional 100,000 tons
1,000,000+ tons	1000 + 100 per additional 1,000,000 tons

AIRFRAME ATMOSPHERIC SPEEDS

Maneuver Drive	Maximum	Cruising	Nap-Of-The-Earth
1-G	3500kph	2625kph	875kph
2-G	4700kph	3525kph	1175kph
3-G	5300kph	3975kph	1325kph
4-G	5600kph	4200kph	1400kph
5-G	5800kph	4350kph	1450kph
6-G	5900kph	4425kph	1475kph

Atmospheric Density	Speed Modifier
Vacuum, Trace, or Very Thin	x 2
Thin	x 1.5
Dense	x 0.75
Very Dense	x 0.25

UPGRADING STREAMLINING

Most hull configurations begin either Partially or Fully Streamlined. The only hull configuration that begins as unstreamlined is a Dispersed Structure, and it may never be streamlined under any circumstances. Upgrading a Partially Streamlined hull to a Fully Streamlined hull costs Cr5000 per tonnage size of the hull and will increase the required Flight Avionics Computer by 1 Model. For example, to upgrade a 100-ton Cylinder configuration hull to a Fully Streamlined hull would cost Cr500,000 extra (5000 x 100 = 500,000), and the installed Flight Avionics computer must be a Model/1bis rather than just a Model/1.

AIRFRAMES

Airframe hulls are designed for maximum performance within an atmosphere. A ship with an airframe hull may use its full acceleration rating within an atmosphere (see the Airframe Atmospheric Speeds table above). An airframe must begin with a Fully Streamlined hull (automatic or improved to that level), add 10% to the cost of the hull, add +1 to the minimum Model Flight Avionics computer required, and allocate the following tonnage for control surfaces from the available hull space.

THE BRIDGE

When designing a ship the term 'bridge' is used to represent all of the command and control systems on board a vessel. In essence everything needed to run and control the vessel's subsystems and make it all work, with the exceptions of the main computer, power plant, and drives. The minimum Bridge required is already determined for the standard hulls listed earlier, but for custom sized hulls here are the minimum requirements:

The tonnage and cost for the bridge of a ship may be allocated among the following areas as per their normal cost and size requirements:

1) Main command and control bridge. This is the heart and soul of a vessel's control and operation, typically housing at least the commander's stations, helm and navigation controls, along with the communications and sensor station. A minimum of 10 tons must be allocated to the main command and control bridge, though larger ships will in almost all cases have correspondingly larger command and control bridges if not secondary bridges installed.
3) Command (non-passenger) Workstations and Terminals
4) Airlocks
5) Ship's Locker
6) Engineering Shops
7) Vehicle Shops
8) Laboratories
9) Sickbays

STREAMLINING UPGRADE COSTS

	Unstreamlined	*Partially Streamlined*	*Fully Streamlined*
Cylinder	-	Auto	Cr5000/ton
Needle/Wedge	-	-	Auto
Cone	-	-	Auto
Closed	-	Auto	Cr5000/ton
Sphere	-	Auto	Cr5000/ton
Flat Sphere	-	-	Auto
Dispersed	Auto	X	X

AIRFRAME CONTROL SURFACES

Hull Size	*Tonnage Lost to Control Surface*
1 ton	0.05
10 tons	0.5
100 tons	5
1000 tons	50
5000 tons	250
10,000 tons	500
100,000 tons	5000
1,000,000 tons	50,000
Custom Hull	5% of total Hull Size

SHIP'S COMPUTER

A ship's computer actually consists of 4 systems; the Main Computer along with the Flight Avionics, Sensor, and Communications subsystems. Each of these systems will, in most cases, include 2 or more backups. These backups are included in the cost of the computer system.

MAIN COMPUTER

Any spaceship or starship must install at minimum a Model/1 Main Computer to handle the operation of the ships and integration of the avionics, sensor, and communications subsystems. The Model number of the computer must also be sufficient to support the Jump and Flight

CUSTOM SIZED HULL MINIMUM REQUIREMENTS

Ship Type	*Required Tonnage*	*Minimum Tonnage*	*Cost*
Starship or Spaceship	2% of Ship's total tonnage	20 tons	Cr5,000 per ton of Ship
Small craft	20% of Ship's total tonnage	4 tons	Cr25,000 per ton of Bridge installed

SHIP'S COMPUTERS

Computer Model	Min TL	Cost	Size	EPs	Jump Support	Flight Avionics Support	Sensors and Comm. Support	Free CPU Output
Model/1	5	*	0.1	0	Jump-1	Model/1	Model/1	5
Model/1bis	6	*	0.1	0	Jump-2	Model/2	Model/1	5
Model/2	7	*	0.2	0	Jump-2	Model/2	Model/2	20
Model/2bis	8	*	0.2	0	Jump-3	Model/3	Model/2	20
Model/3	9	*	0.3	1	Jump-3	Model/3	Model/3	300
Model/4	10	*	0.4	2	Jump-4	Model/4	Model/4	400
Model/5	11	*	0.5	3	Jump-5	Model/5	Model/5	1000
Model/6	12	*	0.6	5	Jump-6	Model/6	Model/6	1320
Model/7	13	*	0.7	7	Jump-6	Model/7	Model/7	1680
Model/8	14	*	0.8	9	Jump-6	Model/8	Model/8	2080
Model/9	15	*	0.9	12	Jump-6	Model/9	Model/9	2520

* Cost is determined after selecting the Flight Avionics, Sensors, and Communications subsystems. See Final Costs, pg. 264.

Avionics subsystems, thus the Model number of the ship's computer must equal or exceed the Model number of either of these subsystems (whichever is higher). Ships smaller than 100 tons may install a computer up to a maximum model number equal to the size of the hull divided by 10. Thus, a 20-ton vessel could install at best a Model/2 computer, while an 80-ton vessel could install up to a Model/8 computer.

The computer is also required to support aid Jump navigational plotting, synchronizing and initiating the Jump drives, and maintain the ship's integrity while in Jump space. The Model number of the computer also equals the farthest Jump the ship is capable of (i.e.: a starship equipped with a Model/2 computer could do at most a single Jump-2 at one time. A Model/5 computer would allow up to a Jump-5).

BIS Computers: A 'bis' version of the Model/1 and Model/2 computer is available. A 'bis' computer acts as one model level higher for determining Jump and Flight Avionics support, but acts as its normal model number for sensor and communications support. For example a Model/2 bis computer could support a Jump-3 and a Model-3 Flight Avionics subcomputer, but can still only support Model/2 Sensor and Communications systems. Double the final cost for a BIS computer.

FLIGHT AVIONICS

The size of a spaceship or starship determines the required Model of Flight Avionics that must be installed to be able to properly fly the craft. Streamlining and Airframe designs will also further increase these requirements to allow for complete control while operating within an atmosphere.

Streamlined Hulls: If the type of hull being used is not automatically streamlined, add +1 to the Minimum Flight Avionics Model Number required. If Flight Avionics is below minimum, apply a -1 Agility penalty for each model number below the minimum of the ship's flight avionics system when flying within in an atmosphere.

Airframe Hulls: If the type of hull being used was automatically streamlined to begin with, add +1 to the Minimum Flight Avionics Model Number required, otherwise add +2 to the minimum Model required. If Flight Avionics is below minimum, apply a -1 Agility penalty for each model number below the minimum of the ship's flight avionics system when flying within in an atmosphere.

FLIGHT AVIONICS

Ship Size	Minimum Model #	Min TL	Size	Cost Factor
1-600 tons	Model/1	5	0.4	0.9
601-1000 tons	Model/2	7	0.8	1.8
1001-4000 tons	Model/3	9	1.2	2.7
4001-10,000 tons	Model/4	10	1.6	3.6
10,001-50,000 tons	Model/5	11	2.0	4.5
50,001-100,000 tons	Model/6	12	2.4	5.4
100,001+ tons	Model/7	13	2.8	6.3
100,001+ tons	Model/8	14	3.2	7.2
100,001+ tons	Model/9	15	3.6	8.1

SHIP SENSORS

Sensor Range	Minimum Model #	Min TL	Size	Cost Factor	
Close Range	Model/1	5	0.3	0.6	
Short Range	Model/2	7	0.6	1.2	
Medium Range	Model/3	9	0.9	1.8	
Long Range	Model/4	10	1.2	2.4	
Very Long Range	Model/5	11	1.5	3	
Extreme Range	Model/6	12	1.8	3.6	
System Wide	Model/7	13	2.1	4.2	
1 Parsec	Model/8	14	2.4	4.8	Passive, very basic system survey data
2 Parsecs	Model/9	15	2.7	5.4	Passive, very basic system survey data

SENSORS

Sensors are required on every starship or spaceship as safe navigation is nearly impossible without them. The range and quality of the sensors installed depends on the Sensor Model selected.

COMMUNICATIONS

At a minimum, all spacecraft and starships must install a Model/1 communications subsystem, which provides close range communications and the required transponder code system. Ships caught with altered or deliberately disabled transponder systems are dealt with harshly by the authorities.

FIBER OPTIC BACKUP (FIB)

Fiber optic backups (FIB) for the entire system may be installed to harden the system against the effects of radiation damage. Such radiation protection increases the size and cost of the entire system (Main Computer and ALL subsystems) by x2.

FINAL COSTS

Once the Main Computer, Flight Avionics, Sensor, and Communications models have been selected, the final costs can be determined. Add the Cost Factor of all the subsystems and multiply that total by the Model Number of the Main Computer. This is the final cost in MCr.

Final Cost: Main Computer Model Number • Total Cost Factor of All Subsystems (Flight Avionics, Sensors, and Communications)

DRIVES AND POWER PLANTS

These systems are the heart of any ship. The power plant provides the energy required to make the vessel capable of travel either using maneuver drives to cross interplanetary distances or Jump drives to voyage between the stars.

JUMP DRIVES

A Jump Drive is required for any interstellar craft, and may only be installed on ships of 100-tons in size or larger.

COMMUNICATIONS

Communication Range	Minimum Model #	Min TL	Size	Cost Factor
Close Range	Model/1	5	0.2	0.5
Short Range	Model/2	7	0.4	1
Medium Range	Model/3	9	0.6	1.5
Long Range	Model/4	10	0.8	2
Very Long Range	Model/5	11	1	2.5
Extreme Range	Model/6	12	1.2	3
System Wide	Model/7	13	1.4	3.5
System Wide	Model/8	14	1.6	4
System Wide	Model/9	15	1.8	4.5

Maser	+1 to the Minimum Communications Model Number required. Ignores atmospheric conditions
Meson	+2 to the Minimum Communications Model Number required. Multiply installed Communications Model price by x5. Can penetrate anything but meson screens

It is the means by which a ship may cross the vast distances involved in interstellar travel in a matter of days rather than decades or centuries. Jump drives require large amounts of fuel to power the ship across the threshold into Jump Space; fully 10% of the ship's total tonnage per Jump potential of the drive.

The size of the ship's hull determines the number of jump units that must be installed in a ship to allow it to enter Jump space (see the Drives and Armor table on pg. 259). All installed units must be of the same type.

JUMP DRIVES

Type	TL	Cost	Size	EP	Fuel
Jump-1	9	MCr4	1 ton	0.5	5 tons
Jump-2	11	MCr6	1.5 tons	1	10 tons
Jump-3	12	MCr8	2 tons	1.5	15 tons
Jump-4	13	MCr10	2.5 tons	2	20 tons
Jump-5	14	MCr12	3 tons	2.5	25 tons
Jump-6	15	MCr14	3.5 tons	3	30 tons

In rare cases, a ship may have more than one jump drive installed as a backup or secondary system. This second drive must also meet the installed jump unit requirements based on the size of the ship's hull. Only one Jump drive may be actively used at any given time.

Jump-1 Drive Unit: Consists of the jump grid, jump capacitor, and actual drive unit. Cost is MCr4. Requires 1 ton of space, a supply of 0.5 EP per round, and 5 tons of dedicated Jump Fuel. Not available before TL9. Propels the ship 1 parsec (3.27 light years) in distance while a week is spent in jump space.

Jump-2 Drive Unit: Consists of the Jump grid, Jump capacitor, and actual drive unit. Cost is MCr6. Requires 1.5 tons of space, a supply of 1 EP per round, and 10 tons of dedicated Jump Fuel. Not available before TL11. Propels the ship 2 parsecs (6.54 light years) in distance while a week is spent in Jump space.

Jump-3 Drive Unit: Consists of the Jump grid, Jump capacitor, and actual drive unit. Cost is MCr8. Requires 2 tons of space, a supply of 1.5 EP per round, and 15 tons of dedicated Jump Fuel. Not available before TL12. Propels the ship 3 parsecs (9.81 light years) in distance while a week is spent in Jump space.

Jump-4 Drive Unit: Consists of the Jump grid, Jump capacitor, and actual drive unit. Cost is MCr10. Requires 2.5 tons of space, a supply of 2 EP per round, and 20 tons of dedicated Jump Fuel. Not available before TL13. Propels the ship 4 parsecs (13.08 light years) in distance while a week is spent in Jump space.

Jump-5 Drive Unit: Consists of the Jump grid, Jump capacitor, and actual drive unit. Cost is MCr12. Requires 3 tons of space, a supply of 2.5 EP per round, and 25 tons of dedicated Jump Fuel. Not available before TL14. Propels the ship 5 parsecs (16.35 light years) in distance while a week is spent in Jump space.

Jump-6 Drive Unit: Consists of the Jump grid, Jump capacitor, and actual drive unit. Cost is MCr14. Requires 3.5 tons of space, a supply of 3 EP per round, and 30 tons of dedicated Jump Fuel. Not available before TL15. Propels the ship 6 parsecs (19.62 light years) in distance while a week is spent in Jump space.

JUMP FUEL OPTION: In campaigns where the Referee wishes to make interstellar trade and commerce more economically feasible, reduce the Jump Fuel requirements by one-half. A Jump-4 ship would then only require 10 tons of fuel per drive unit. Please note however that because this is an optional rule, all published ship designs will not use it. Use of this optional will also greatly affect the suitability of starships previously designed for use with Classic Traveller, in T20.

Jump Drive USP Rating: A ship's Jump Drive USP rating is equal to its maximum range in parsecs.

MANEUVER DRIVES

If a ship is to be capable of independent movement in normal space (as opposed to Jump Space), maneuver drives are required. Although unusual, there are some ship designs that do not have maneuver drives installed. Xboats (Express Messenger Boats) are one example. Maneuver drives do not require fuel directly; instead they draw their energy from the vessel's installed power plant (which must be fueled).

The Drives and Armor table on pg. 259 determines the number of maneuver drive units that must be installed based on the size of the ship's hull. All installed units must be of the same type.

1-G Maneuver Drive Unit: Costs MCr1.5 per unit, requires 1 ton of space, and requires 0.5 EP in power per round. Becomes available at TL7. The ship may accelerate or decelerate at a maximum of 1-G per round.

2-G Maneuver Drive Unit: Costs MCr1.75 per unit, requires 2.5 tons of space, and requires 1 EP in power per round. Becomes available at TL7. The ship may accelerate or decelerate at a maximum of 2-Gs per round.

3-G Maneuver Drive Unit: Costs MCr2 per unit, requires 4 tons of space, and requires 1.5 EP in power per

MANEUVER DRIVES

Type	TL	Cost	Size	EP
1-G	7	MCr1.5	1 ton	0.5
2-G	7	MCr1.75	2.5 tons	1
3-G	8	MCr2	4 tons	1.5
4-G	8	MCr2.75	5.5 tons	2
5-G	8	MCr3.5	7 tons	2.5
6-G	9	MCr4.25	8.5 tons	3

round. Becomes available at TL8. The ship may accelerate or decelerate at a maximum of 3-Gs per round.

4-G Maneuver Drive Unit: Costs MCr2.75 per unit, requires 5.5 tons of space, and requires 2 EP in power per round. Becomes available at TL8. The ship may accelerate or decelerate at a maximum of 4-Gs per round.

5-G Maneuver Drive Unit: Costs MCr3.5 per unit, requires 7 tons of space, and requires 2.5 EP in power per round. Becomes available at TL8. The ship may accelerate or decelerate at a maximum of 5-Gs per round.

6-G Maneuver Drive Unit: Costs MCr4.25 per unit, requires 8.5 tons of space, and requires 3 EP in power per round. Becomes available at TL9. The ship may accelerate or decelerate at a maximum of 6-Gs per round.

Maneuver Drive USP Rating: A ship's Maneuver Drive USP rating is equal to its maximum possible acceleration in Gs.

POWER PLANT

All vessels regardless of size and purpose require the installation of a Power Plant. The installed Power Plant must produce enough power in the form of Energy Points (EP) to power either the ship's maneuver drive or Jump drive at full capacity at any given time. Since a ship does not use its maneuver drives while in jump space, it is not necessary for the power plant to have to supply power to both systems at the same time.

The power plant should also produce enough EP to power any install subsystems such as weapons, screens, and other facilities. If a ship does not produce enough EP to power all of its systems, the chief engineer will have to reroute power from one system to another as needed. Most ships are designed with power plants large enough to handle all the system aboard the ship operating at the same time (with the exception of the maneuver or Jump drive as appropriate).

TL7 Fission Power Plant: Produces 1 EP per round, volume is 2 tons per unit, cost is MCr6 per unit, and requires 1 tons of fuel per 4 weeks of operation per unit installed. Unused EPs are lost at the end of each round and may not be carried over as surplus into the next round. Not available before TL7.

TL-9 Fusion Power Plant: Produces 1 EP per round, volume is 1.5 tons per unit, cost is MCr4.5 per unit, and requires 1 tons of fuel per 4 weeks of operation per unit installed. Unused EPs are lost at the end of each round and may not be carried over as surplus into the next round. Not available before TL9.

TL13 Fusion Power Plant: Produces 1 EP per round, volume is 1 tons per unit, cost is MCr3 per unit, and requires 1 tons of fuel per 4 weeks of operation per unit installed. Unused EPs are lost at the end of each round and may not be carried over as surplus into the next round. Not available before TL13.

TL15 Fusion Power Plant: Produces 2 EP per round, volume is 1 ton per unit, cost is MCr3 per ton, and requires 1 ton of fuel per 4 weeks of operation per unit installed. Unused EPs are lost at the end of each round and may not be carried over as surplus into the next round. Not available before TL15.

TL16 Fusion Power Plant: Produces 3 EP per round, volume is 1 ton per unit, cost is MCr3 per ton, and requires 1 ton of fuel per 4 weeks of operation per unit installed. Unused EPs are lost at the end of each round and may not be carried over as surplus into the next round. Not available before TL16.

TL17 Antimatter Power Plant: Produces 8 EP per round, volume is 1 ton per unit, cost is MCr1 per ton, and requires 0.1 tons of fuel per year of operation per unit installed.

Ship's Agility: Once you have calculated the required Energy Point cost of all installed components, if the installed Power Plant produced excess Energy Points beyond those required, these may be used to increase the agility of the ship itself while in combat. This represents the ship's ability to make violent maneuvers to avoid being hit in combat. A ship's Agility rating may never exceed the installed Maneuver Drive rating.

Ship's Agility Rating: Extra Energy Points / (1 per 100 tons of ship). Round fractions down.

Optionally, the formula: Extra Energy Points x (100 / total ship tonnage) may be used. Some referees may find this second formula easier to use with spreadsheets and basic calculators, but it will cause some minor differences when applied to non-standard ship tonnages.

FUEL

Jump and Power Plant fuel are available in unrefined and refined versions. Unrefined fuel is little more than plain water or atmospheric gases from a gas giant. Refined fuel is unrefined fuel that has been processed and purified into liquid hydrogen.

Streamlined ships may draw unrefined fuel for free from any available water source (including ice) on a world, aster-

oid, or even a comet. On some worlds however this may be illegal, or may require a permit first. Make a basic check using the Law Level of the world as a DC. If the check is successful, no permits are needed and no restrictions exists. If the check fails, a permit and fee will usually be required before refueling will be allowed. If the check fails by 10 points or more, refueling outside of the starport is illegal. Once the ship has landed near such a water based fuel supply, the crew may begin pumping the unrefined fuel aboard, a process that will take approximately 4 hours to complete.

Streamlined and partially streamlined ships that are equipped with Fuel Scoops may skim the upper atmosphere of gas giants to collect unrefined fuel for free. The upper atmosphere of a gas giant is not the most hospitable place in the world for a starship, requiring the pilot to make a successful Pilot skill check (DC15) to avoid complications. Refueling from a gas giant will normally take approximately 10 hours to complete.

Fuel Scoops: No extra tonnage cost, but cost Cr1000 per ton of ship

UNREFINED FUEL

Unrefined fuel, while often free for the taking is dangerous to use, and can often result in malfunctions and Misjumps. Fuel Purification plants can be installed on ships and are capable of refining the raw fuel into pure liquid hydrogen or refined fuel. It takes a single fuel purification plant 20 - Plant TL hours to refine 200 tons of fuel. Multiple purification plants may be installed to increase the amount of fuel that may be processed at any given time.

TL: The minimum technological level at which a subsystem or component first becomes available.
Tons: The number of tons of space that must be available in the hull to accommodate the subsystem or component.
Cost: Cost is listed in Credits.

FUEL PURIFICATION PLANTS

TL	Tons	Cost
8	10	40,000
9	9	38,000
10	8	36,000
11	7	34,000
12	6	32,000
13	5	30,000
14	4	28,000
15	3	30,000

SHIP POWER PLANTS

Type	*TL*	*Cost*	*Size*	*EP*	*Fuel*
Fission	7	MCr6	2 tons	+1	1 ton
Fusion	9	MCr4.5	1.5 tons	+1	1 ton
Fusion	13	MCr3	1 ton	+1	1 ton
Fusion	15	MCr3	1 ton	+2	1 ton
Fusion	16	MCr3	1 ton	+3	1 ton
Antimatter	17	MCr1	1 ton	+8	0.1 tons

DROP TANKS

Reusable drop tanks may be fitted to the outside of any ship to increase its range. The fuel from the drop tanks is fed to the Jump Drives just before jump and the tanks jettisoned when the fuel transfer is complete. Obviously, such tanks must be replaced each time they are used. Jettisoned tanks are almost always recovered, usually by the company that manufactures and sells them, which allows the cost to be kept down somewhat.

When installed and attached to a ship they increase the ship's overall tonnage, thus reducing the effectiveness of the ship's maneuver drives. When the tanks are jettisoned, the ship will regain its normal maneuvering capabilities.

Drop tanks can be used in two ways:

The ship can jump, pump fuel from its drop tanks into its now-empty internal storage, and jump again with or without dropping the tanks. Dropping the tanks may increase jump range for the second jump. In this case it is quite safe to jump, as the ship can maneuver away from its now-empty and dropped tanks.

Alternatively, the fuel from drop tanks can be used along with or instead of internal jump fuel. Since most of the Jump fuel is used up in initiating the Jump, the tanks can be drained and blasted free just as the ship is about to jump, leaving some fuel in the internal tanks to maintain the Jumpfield. Using drop tanks in this manner increases the risk of a Misjump, as the vessel will be jumping in proximity to the discarded tanks. Because of the risk, this method is never used by commercial ships. In the OTU, drop tanks are not available for commercial ships until the 1100s.

L-Hyd Drop Tanks: TL15; Cr10,000 + Cr1000 per ton of fuel capacity

SHIP DEFENSES

While the hull of a small craft or starship is sufficient to protect it from micrometeorites, low-level radiation, and other common hazards of space travel, they are not designed to provide much in the way of defense against

enemy attacks. To provide such defense a ship must install hull armor, electronic screens, or both.

STANDARD HULL ARMOR

The hull of a ship may be armored and reinforced to withstand greater damage in combat situations. Ships of any configuration except a Dispersed Structure (Hull USP 7) may be armored. If no armor is installed a ship is considered to have a Hull Armor USP rating of 0. Planetoids (Hull USP 8) have an automatic base Hull Armor USP rating of 3, Buffered Planetoids (Hull USP 9) enjoy an automatic based Hull Armor USP rating of 6, and both may be armored additionally from there.

A ship with a manufactured hull may never have an Armor USP rating greater than the Tech Level of the ship itself. Ships based on a planetoid hull have a maximum Armor USP rating of 3 + the Tech Level of the ship, while Buffered Planetoids have a maximum Armor USP rating of 6 + the Tech Level of the ship.

TL7-9 Armor: Weight is 4 tons per unit. Base cost is KCr300 plus KCr400 per unit installed.

TL10-11 Armor: Weight is 3 tons per unit. Base cost is KCr300 plus KCr300 per unit installed.

TL12-13 Armor: Weight is 2 tons per unit. Base cost is KCr300 plus KCr200 per unit installed.

TL14+ Armor: Weight is 1 ton per unit. Base cost is KCr300 plus KCr100 per unit installed.

Armor USP Rating: Without armor, a ship's Armor USP rating is 0. To achieve the first layer of armor (Armor USP rating of 1), a ship must install twice as many armor units as the armor factor specified for the hull size and TL of the armor. For example a TL12, 200-ton ship with an Armor USP rating of 1 must have installed 8 units of armor.

Once the first layer of armor is installed, the ship need only allocate an amount of space equal to the armor factor specified for the hull size and TL of the armor per +1 improvement in the ship's Armor USP rating. Following our previous example, the same TL12, 200-ton ship could improve its Armor USP rating to a maximum of 12 (limited by its TL) after installing an additional 44 units or armor (for a total of 52 units).

SCREENS

Ships may deploy various types of defensive screens capable of reducing or eliminating the damage from certain types of attacks. Screens are considered a passive defense system; they are either on or off. When on they function continuously without having to be reactivated each time they need to be used. In combat the USP rating of the screen is used in place of the Armor rating of the ship where appropriate.

Nuclear Dampers: Nuclear dampers suppress nuclear explosions, effectively rendering missiles equipped with nuclear warheads useless. Note that nuclear dampers will not defeat the effects of a distant detonation. Thus a ship with nuclear dampers can still suffer blast damage from a warhead detonating distance away so long as there is a medium (e.g. an atmosphere) to carry the blast effect. Similarly, missiles that detonate at a distance and use nuclear energy to generate laser pulses will still affect the screened ship. A direct hit with a nuclear warhead will not, however.

Meson Screens: Meson screens are effective against Meson Gun attacks.

Force Fields: Also known as Black Globe Generators, these devices envelop a ship in an energy-absorbing screen capable of absorbing all incoming and outgoing energy, in any form. The energy is captured by the screen and redirected into large capacitors installed on the ship.

A Jump Drive has energy capacitors already built-in and may be used for storing energy redirected by a Black Globe. Additional capacitors are also available and may be purchased and installed as desired. A Jump drive has capacitors equal in size to (0.5% x Jump USP Rating) x Hull Tonnage. So a Jump-3 capable 200-ton ship would have 3 tons of capacitors, while a Jump-3 capable 200,000 ton ship would have 3000 tons in capacitors. Extra capacitors are available for MCr4 per ton. A 1-ton capacitor (in a Jump drive or not) can store up to 36 Energy Points.

Black Globes are not commercially available; they are either recovered artifacts or experimental versions installed on highly classified military ships. While Black Globes are the ultimate in defensive screens, they also are a bit problematical. They stop

NUCLEAR DAMPERS

Tons	*EPs*	*MCr*	*TL*	*USP*
50	10	50	12	1
15	20	40	13	2
20	30	45	13	3
8	40	30	14	4
10	50	35	14	5
12	60	38	14	6
10	70	30	15	7
15	80	40	15	8
20	90	50	15	9

Tons: The number of tons of space that must be available in the hull to accommodate the subsystem or component.

EPs: The power requirements in Energy Points (EPs) to use this component or subsystem.

MCr: Cost is listed in Megacredits.

TL: The minimum technological level that at which a subsystem or component first becomes available.

MESON SCREENS

Tons	EPs	MCr	TL	USP
90	0.2	80	12	1
30	0.4	50	13	2
45	0.6	55	13	3
16	0.8	40	14	4
20	1	45	14	5
24	1.2	50	14	6
20	1.4	40	15	7
30	1.6	50	15	8
40	1.8	60	15	9

Tons: The number of tons of space that must be available in the hull to accommodate the subsystem or component.

EPs: The power requirements in Energy Points (EPs) to use this component or subsystem, for every 100 tons of ship size. For example a 20,000 ton ship with a factor 4 meson screen would require 160 EPs (0.8 x (20,000 / 100)).

MCr: Cost is listed in Megacredits.

TL: The minimum technological level that at which a subsystem or component first becomes available.

BLACK GLOBE GENERATORS

Tons	EPs	MCr	TL	USP
10	-	400	15	1
15	-	600	15	2
20	-	800	15	3
25	-	1000	15	4
20	-	-	16	5
30	-	-	16	6
35	-	-	16	7
20	-	-	17	8
20	-	-	17	9

Tons: The number of tons of space that must be available in the hull to accommodate the subsystem or component.

EPs: The power requirements in Energy Points (EPs) to use this component or subsystem.

MCr: Cost is listed in Megacredits.

TL: The minimum technological level that at which a subsystem or component first becomes available.

any energy from getting in, but they also stop it from getting out. A ship within a Black Globe is effectively blind, its sensors and communications will fail to penetrate the globe. Weapons fire will be treated just as if they were an enemy attack.

SHIP WEAPONS

While it is not surprising that a military ship would be armed, even private ships often install weapons for defensive (and sometimes offensive) purposes. Pirates and similar hazards, while not as common as popular vid shows portray, are a threat to starships. Weaponry is thus considered desirable in some areas.

WEAPON TYPES

The following various types of weapon systems may be installed on small craft and starships:

Sandcaster: A sandcaster is not a weapon, but a fairly basic defense system designed to protect the craft that fires it in a defensive envelopment of ceramic particles known as "sand". This sand absorbs laser energy and obscures the target vessel, giving a measure of defense against incoming missiles and energy weapons. Sand fired defensively by a ship will continue at the original course and speed of the ship. If the ship does not accelerate, decelerate, or change course, the ship will stay within the defensive cloud for a time until it drifts apart.

Missiles: Missiles are available with two types of warheads, a standard high explosive or plasma warhead, and a nuclear warhead. Nuclear missiles also inflict radiation damage against a target.

Bomb-Pumped Laser Missiles: In some areas, nuclear-pumped laser warheads are also used. These weapons use a nuclear device to generate energy for a cluster of laser pulses. Since they detonate short of a ship, such weapons are not defeated by nuclear dampers and do no radiation damage. Laser missiles are similar in effect to close-range laser fire. Successful defensive energy weapon fire on the missile will destroy it before detonation, and any other defenses that affect laser fire will work against the laser pulses.

Mining Laser: A low-powered beam laser suitable for asteroid mining. A mining laser may be used as a weak offensive or defensive weapon if needed.

Beam Laser: A weapons-grade beam laser designed for defensive applications. If need be a beam laser can be used for offense.

Pulse Laser: A weapons-grade pulsed laser designed for both offensive and defensive use.

Plasma Weapon: A high-energy system suitable for short range offensive power. Fires a stream of superheated plasma.

Particle Accelerators: A particle accelerator fires a stream of charged or neutral particles; usually electrons or hydrogen nuclei, at high velocities. These weapons inflict both standard and radiation damage against a target.

Fusion Weapon: A further refinement of the plasma weapons, fusion weapons bring the ionized gas to the point fusion before discharging the beam.

Meson Weapons: A meson gun generates high-ener-

SMALL CRAFT AND STARSHIP WEAPON TYPES

Weapon Type	*Damage Dice*	*Threat Range***	*Critical Damage*	*Special Damage (dice)*
Missile	d6	18	x1	
Nuclear Missile*	d6	17	x2	Radiation (d12)
Bomb-Pumped Laser Missile***	d10	19	X1	
Mining Laser	d6	20	x1	
Beam Laser	d8	20	x1	
Pulse Laser	d10	19	x2	
Plasma	d12	18	x2	
Particle Accelerator	d12	17	x1	Radiation (d10)
Fusion	d20	16	x5	
Meson	d20	15	x10	Radiation (d12)

* All missiles do a base 5d6 damage +1d6 per USP factor (not added to Radiation damage)

** If spinal mount, increase Threat Range by 5.

*** Treat bomb-pumped laser missiles as 1d6 (+1 extra hit per USP Factor) from a pulse laser with no radiation damage.

Damage Dice: The number of damage dice to be rolled equals the USP code rating of the attacking weapon system. For example, a USP code 6 Pulse Laser would inflict 6d10 damage against its target if it hits. Major weapons (i.e.: spinal mounts) always roll 16 dice for damage regardless of their actual USP code rating.
Threat Range: If the natural attack roll is this value or higher, a critical threat has occurred. A second attack roll should be made using the same modifiers as the original attack roll. If this second roll is also a successful hit, a critical hit is scored.
Critical Damage: The extra damage inflicted by a critical hit with this weapon.
Special Damage: Any radiation damage that may be inflicted by this weapon, specifying the type of damage dice to use.

gy mesons that can be directed against a target. Mesons have very short lives, but can be manipulated to last for specific durations by accelerating them towards relativistic speeds. In combat, the gunner will determine the necessary duration of the mesons so that the final point of decay is within the hull/chassis/body of the target. Because of their nature, mesons pass through armor, rock, ice, and any other matter without effect. Damage occurs only at the point of decay (i.e. the target).

SHIP'S ORDNANCE AND STORAGE

While most starship weaponry is energy based, missiles and sandcasters once fired must be reloaded from available stocks. A ship must be sure to provide adequate stores of this ordnance, lest they be caught short at a critical moment in battle!

Missile Magazine: A missile magazine is normally installed alongside the turret or bay mounting the weapon system itself, to reduce the distance the ordinance must travel. A magazine can hold up to 20 missiles (standard or nuclear), and is armored (AR1) in case of accidental detonation of the magazine by enemy fire. A ship may install as many missile magazines as needed and can be fit aboard.

Sand Canisters: A standard single reload for a sandcaster system. Sand canisters do not require any protective storage as they are non-explosive.

Standard Missiles: A missile equipped with a standard high explosive warhead.

Nuclear Missiles: A missile equipped with a nuclear warhead. Nuclear missiles are generally only found on military ships and are illegal for civilians to possess in most jurisdictions.

Bomb-Pumped Laser Missiles: Also illegal for civilian use, bomb-pumped laser missiles are preferred by some navies and ignored by others.

HARDPOINTS

Hardpoints are external weapon fittings that can be installed upon a ship's hull. One hardpoint may be installed per 100 tons not otherwise allocated to large weapon systems (weapon bays and spinal mounts). Vessels smaller

than 100 tons may install a single hardpoint. Hardpoints require no tonnage but cost Cr100,000 for each hardpoint. Hardpoints must be designated when the ship is designed and may not be added after construction is begun.

Turrets: One turret (any type) may be installed per available hardpoint on the ship. A turret can be added or replaced at any time to an existing hardpoint. For example, a 100-ton ship with 1 hard point installed and a single laser turret installed on that hard point, could be upgraded to mount a double or triple turret at any time, or the turret could be completely removed if desired.

Weapon Bays: Subtract 10 potential hardpoints for every weapon bay (50 or 100 ton) installed. For example, a ship with 20 100-ton weapon bays installed would lose 200 potential hardpoints. One weapon bay, regardless of size, may be installed per 1000 tons of ship. Round all tonnage down to the nearest 1000 tons. For example a 1900 ton ship may install only 1 weapon bay. Weapon bays may not normally be mounted in ships smaller than 1000 tons.

Major Weapons (Spinal Mounts): Subtract one potential hardpoint for every 100 tons of major weapons system installed. For example, a ship sporting a 5000 ton spinal mounted meson gun would lose 50 potential hardpoints. Only one Major weapon system may be installed on a ship regardless of the size of the ship.

HARDPOINTS OPTION: When determining potentially available hardpoints, subtract the total Major Weapon (Spinal Mount) and Weapon Bay tonnage installed from the total Hull tonnage. Use this new total when calculating hardpoint availability at 1 per 100 tons, and ignore the Major Weapons and Weapons Bays modifiers. Please note however that because this is an optional rule, all published ship designs will not use it. Use of this rule will also greatly affect the suitability of starships previously designed for use with Classic Traveller, in T20.

BAY WEAPON OPTION: Ships have been designed in previous versions of Traveller that squeezed weapon bays into vessels smaller than 1000 tons. Optionally, a single 50-ton bay may be fitted into any ship big enough to carry it. Such a vessel loses half its potential hardpoints. Since vessels of this type have been used in Traveller materials in the past, T20 vessels may occasionally be created which use this rule.

TURRET WEAPONS

Turrets are available in single, double, and triple weapon configurations and may mount lasers (beam or pulse), energy weapons (plasma or fusion), sand casters, particle accelerators, and missile racks. Ships with 10 or fewer turrets may mix the types of weapons mounted in each turret. Plasma and Fusion guns and Particle Accelerators cannot be mixed with any other weapon in a given turret.

Popup turrets take up considerably more room, as they are designed to remain hidden within the body of the ship until needed, at which time they 'pop out' and go into action. Because of their secretive nature most authorities frown upon them

Missile Racks and Sandcasters: These are launchers for that particular type of ordinance, and do not include the ordnance itself. Missiles and Sand Canisters must be purchased separately. Each Missile Rack or Sandcaster can hold up to 3 shots in internal magazines.

STARSHIP AND SMALL CRAFT ORDINANCE

Item	*Tons*	*Cost*
Missile Magazine	1	100,000
Sand Canisters	0.05(50kg)	400
Standard Missiles	0.05 (50kg)	5,000
Nuclear Missiles	0.05 (50kg)	50,000
Bomb-Pumped Missile	0.05 (50kg)	75,000

Tons: The number of tons of space that must be available in the hull to accommodate the subsystem or component.
Cost: The cost of the item in Credits.

BARBETTES

Barbettes are really little more than an extra-large turret. One barbette may be installed per available hardpoint. Barbettes may only mount particle accelerators.

TURRET TYPES

Type	*Cost*	*Notes*
Single	0.5	-
Double	0.75	-
Triple	1	-
Popup	x5	Double the size requirements for installed weaponry.

Cost: The cost of the turret in Megacredits (MCr).

AVAILABLE TURRET WEAPONS

Installed Weapons	Tons	EPs	MCr	Min TL	+1 TL Mod	+2 TL Mod	USP = # Required Installed 1	2	3	4	5	6	7	8	9	Range
Missile Rack	1	0	0.75	7	13+	-	1	3	6	12	18	30	-	-	-	90,000km
Mining Laser	1	0.5	0.5	7	13+	-	1	4	8	-	-	-	-	-	-	15,000km
Beam Laser	1	1	1	7	13+	-	1	2	3	6	10	15	21	30	-	30,000km
Pulse Laser	1	1	0.5	7	13+	-	1	3	6	10	21	30	-	-	-	45,000km
Plasma Gun	2	1	1.5	10	11+	12+	1	4	10	16	20	-	-	-	-	4500km
Fusion Gun	2	2	2	12	14+	-	-	-	-	1	4	10	16	20	-	4500km
Sandcaster	1	0	0.25	7	8+	10+	1	3	6	8	10	20	30	-	-	-
Particle Accelerator	3	5	3	15	-	-	-	1	2	4	6	8	10	-	-	30,000km

Tons: The tonnage of the turret based on the type of weaponry it contains, regardless of the actual number of weapons mounted in it. Particle accelerators may only be singly mounted (i.e. one weapon in a turret). Plasma and Fusion guns may be installed in single or dual mounts.
EPs: The Energy Point requirement for each weapon mounted on the ship of that type.
Min TL: The minimum tech level at which this type of weapon may be installed.
+1 TL Mod: If all installed weapons of this type are at the TL indicated or higher, the USP rating for those weapons is increased by 1.
+2 TL Mod: If all installed weapons of this type are at the TL indicated or higher, the USP rating for those weapons is increased by 2. This modifier is not cumulative with the +1 TL Mod.
USP = # Required Installed: The number of weapons that must be installed in a battery, or turret, to achieve the desired USP rating (1-9).
Range: The range at which this weapon may engage a target without penalty.

BARBETTES

Installed Weapons	Tons	EPs	MCr	Min TL	+1 TL Mod	+2 TL Mod	USP = # Required Installed 1	2	3	4	5	6	7	8	9	Range
PA Barbette	5	5	4	14	-	-	1	2	4	6	8	10	-	-	-	30,000km

Tons: The tonnage of the barbette.
EPs: The Energy Point requirement for each weapon mounted on the ship of that type.
Min TL: The minimum tech level at which this type of weapon may be installed.
+1 TL Mod: If all installed weapons of this type are at the TL indicated or higher, the USP rating for those weapons is increased by 1.
+2 TL Mod: If all installed weapons of this type are at the TL indicated or higher, the USP rating for those weapons is increased by 2. This modifier is not cumulative with the +1 TL Mod.
USP = # Required Installed: Show the number of weapons that must be installed in a battery to achieve the desired USP rating (1-9).
Range: The range at which this weapon may engage a target without penalty.

BAY WEAPONS

Weapon bays are large areas near the skin of a ship's hull that mount large weapon systems. These weapon systems can be easily installed and removed as need arises. Bays must be built into the ship during initial construction and may not be added once a ship has already been built, though a ship can be built with empty bays and fitted-out later. Bays are available in 100 and 50 ton versions. The cost of the bay itself is included in the listings for bay weapons. Only one bay (regardless of size) may be installed per 1000 tons of ship size.

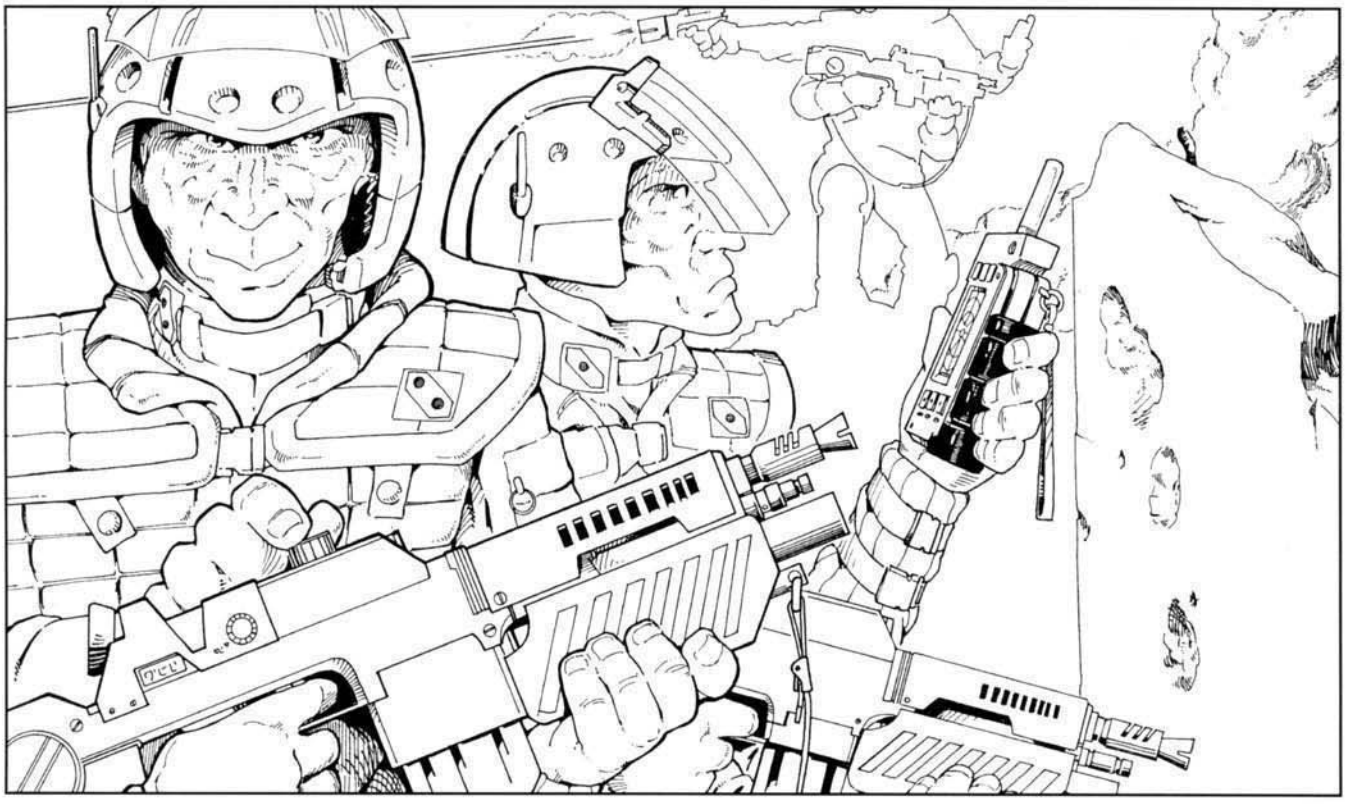
SPINAL MOUNTS

Spinal mounts are the heaviest weapon available to a starship, and run along the length of a vessel's structure (hence the name). They may only be installed on ships larger than 1,000 tons in size. Spinal weapons may either be a particle accelerator or a meson gun. Because they form the spine of the ship, upon which everything else is built, only a single spinal mounted weapon may be installed.

If a particle accelerator is selected as the spinal mount, then particle accelerator weapons may not be installed in other bays, barbettes, and turrets. Similarly, if a meson gun is selected, then meson guns may not be installed in other bays, barbettes, and turrets.

SHIP'S VEHICLES

Any vehicle, small craft (1-99 tons), or large craft (100+ tons) that is permanently carried aboard another ship and available for use by the crew of the ship is classified as a ship's vehicle.



BAY WEAPONS

	Tons	EPs	MCr	USP/Attack Bonus by Tech Level 7	8	9	10	11	12	13	14	15	Range
100 Ton Bay	100	-	1										
Meson Gun	-	200	70	-	-	-	-	-	-	3	5	9	45,000km
Particle Accelerator	-	60	35	-	6	6	7	7	8	8	9	9	60,000km
Repulsor	-	10	10	-	-	-	2	4	6	7	8	9	-
Missile	-	0	20	7	7	7	8	8	9	9	9	9	90,000km
Nuclear Missile	-	0	20	7	7	7	8	8	9	9	9	9	90,000km
50 Ton Bay	50	-	0.5										
Meson Gun	-	100	50	-	-	-	-	-	-	-	-	4	30,000km
Particle Accelerator	-	30	20	-	-	-	3	3	4	4	5	5	45,000km
Repulsor	-	5	6	-	-	-	-	-	-	-	3	5	-
Missile	-	0	12	-	-	-	7	7	8	8	9	9	90,000km
Nuclear Missile	-	0	12	-	-	-	7	7	8	8	9	9	90,000km
Plasma Gun	-	10	5	-	-	-	4	5	6	6	6	6	15,000km
Fusion Gun	-	20	8	-	-	-	-	-	7	8	9	9	15,000km

Tons: The amount of free tonnage that must be available in the hull in order to accommodate this weapon.
EPs: The number of energy points required to maintain and fire this weapon.
MCr: The cost of the weapon in Megacredits.
TL: The minimum technological level at which this weapon is available.
USP: The combat rating of this weapon based on its technological level.
Range: The range at which this weapon may effectively engage a target without penalty.

PARTICLE ACCELERATOR SPINAL MOUNT

Tons	EPs	MCr	Damage	TL	USP	Range
5500	500	3500	16d12	8	10	105,000km
5000	500	3000	16d12	9	11	105,000km
4500	500	2400	16d12	10	12	105,000km
4000	600	1500	16d12	11	13	105,000km
3500	600	1200	16d12	12	14	105,000km
3000	600	1200	16d12	13	15	105,000km
2500	700	800	16d12	14	16	105,000km
2500	700	500	16d12	15	17	105,000km
5000	800	3000	16d12	10	18	105,000km
4500	800	2000	16d12	11	19	105,000km
4000	800	1600	16d12	12	20	105,000km
3500	900	1200	16d12	13	21	105,000km
3000	900	1000	16d12	14	22	105,000km
2500	900	800	16d12	15	23	105,000km
4500	1000	2000	16d12	12	24	105,000km
4000	1000	1500	16d12	13	25	105,000km
3500	1000	1200	16d12	14	26	105,000km
3000	1000	1000	16d12	15	27	105,000km

Tons: The amount of free tonnage that must be available in the hull in order to accommodate this weapon.
EPs: The number of energy points required to maintain and fire this weapon.
MCr: The cost of the weapon in Megacredits.
Damage: The damage the weapon will inflict if it hits a target.
TL: The minimum technological level at which this weapon is available.
USP: The combat rating of this weapon
Range: The range at which this weapon may engage a target without penalty.

COMPONENTS

Accommodations for the storage, launch, recovery, and maintenance of ship's vehicles must be provided.

Vehicle Hanger: Vehicles carried aboard a starship or small craft must allocate storage space equal to the size of the vehicle (in tons).

Small Craft Hanger: A starship may carry other small craft (craft under 100-tons) within their hulls as long as a Small Craft Hanger has been made available for it. If the ship carrying the small craft displaces 1000 tons or less, the small craft hanger must be at least as large (100%) as the small craft (in tons) it is meant to house.

If the mothership is larger than 1000 tons in size, the small craft hanger must allocate an amount of space equal to 130% of the size of a smaller ship that will be housed within. For example, to store a 40-ton Pinnace aboard a starship, a small craft hanger of 52 tons or larger must be provided.

Large Craft Hanger: A starship may carry other smaller starships (craft over 100-tons) within their hulls as long as a Large Craft Hanger has been made available for it. The large craft hanger must allocate an amount of space equal to 110% of the size of smaller ship that will be housed within. For example, to store a 100-ton Scout/Courier aboard a larger starship, a large craft hanger of 110 tons or larger must be provided.

Maintenance Shop: 1 shop can accommodate up to 20 mechanics. Maintenance shops are not required, but add +2 to any attempt at repairing a vehicle or small craft. A vehicle shop requires 10 tons of space and has a cost of MCr2.

External Docking Mount: To conserve interior deck space, it is possible to mount a small or large craft on the outside of another ship. Rather than taking up space from the hull, whenever a craft is docked to the ship the size of the craft is added to the hull size of the ship for purposes of determining acceleration, jump capability, fuel use, etc. An external docking mount does require a small amount of interior space from the mothership's hull. This is equal to 30% of the size of the craft to be docked. For example, to

MESON GUN SPINAL MOUNT

Tons	EPs	MCr	Damage	TL	USP	Range
5000	500	10,000	16d20	11	10	75,000km
8000	600	12,000	16d20	11	11	75,000km
2000	600	3000	16d20	12	12	75,000km
5000	700	5000	16d20	12	13	75,000km
1000	700	800	16d20	13	14	75,000km
2000	800	1000	16d20	13	15	75,000km
1000	800	400	16d20	14	16	75,000km
2000	900	600	16d20	14	17	75,000km
1000	900	400	16d20	15	18	75,000km
8000	1000	10,000	16d20	12	19	75,000km
5000	1000	3000	16d20	13	20	75,000km
4000	1000	800	16d20	14	21	75,000km
2000	1000	600	16d20	15	22	75,000km
8000	1100	5000	16d20	13	23	75,000km
7000	1100	1000	16d20	14	24	75,000km
5000	1100	800	16d20	15	25	75,000km
8000	1200	2000	16d20	14	26	75,000km
7000	1200	1000	16d20	15	27	75,000km

Tons: The amount of free tonnage that must be available in the hull in order to accommodate this weapon.
EPs: The number of energy points required to maintain and fire this weapon.
MCr: The cost of the weapon in Megacredits.
Damage: The damage the weapon will inflict if it hits a target.
TL: The minimum technological level at which this weapon is available.
USP: The combat rating of this weapon
Range: The range at which this weapon may engage a target without penalty.

install an external docking mount capable of carrying a 40-ton small craft would require 12 tons of hull space in the mothership.

An external docking mount will reduce the streamlining of a small craft or starship by one factor (i.e. streamlined to partially streamlined, etc). This streamlining penalty can be avoided by doubling the cost of the mount to reflect the extra care and expense of working the mount directly into the streamlining of the mothership itself.

Launch Facilities: Any ship with at least one large or small craft hanger is also considered to have a launch facility from which one craft (of any size) may be launched or recovered per turn. There is no cost or size requirement for this facility, but only one is available per 10,000 tons in size of the mothership. For example, a 20,000-ton starship can have up to two separate launch facilities available and could launch or recover up to two large or small craft per turn.

Launch Tubes: Rapid launch facilities typically used for the fast launching and recovery of fighters and other military craft. A launch tube must allocate at least 25 times the tonnage of the largest craft that will use the facility. For example, to install a launch tube capable of launching and recovering craft up to 40 tons in size, the launch tube itself must be 1000 tons in size.

CREW REQUIREMENTS

The size of the crew and the positions required to be filled aboard a vessel depend on its size.

SMALL CRAFT

Small craft are 1-99 ton, non-jump capable ships. A small craft only requires 1 crewmember, the pilot. One or more gunners may be added as crew members as needed. If a bridge is installed on the craft, space and accommodations are automatically provided for 2 crew members.

STANDARD VESSELS

A standard vessel is any ship of 100 to 1000 tons in size, jump capable or not, and requires the following crew

SHIP'S VEHICLES, COMPONENTS

Component	Size	Cost
Vehicle Hanger	-	-
Small Craft Hanger	100%/130%	2,000 per ton
Large Craft Hanger	110%	2,000 per ton
Maintenance Shop	10 tons	2,000,000 each
External Docking Mount	30%	4,000 per ton
Launch Facilities	-	-
Launch Tubes	x25	2000 per ton

Size: The size, in tons that must be allocated to accommodate this component. See the descriptions for Hangers, Docking Mounts, and Launch Tubes.
Cost: The cost of the component in Credits per given amount.

for proper, safe operation.

Pilot: All ships require at least one pilot. This is a command position.

Astrogator: 1 Astrogator is needed aboard any vessel that uses Jump drive. Astrogator is a required crew position on a vessel of 201 tons or larger. Ships of 200 tons and smaller can allow the computer to handle the task (utilizing pre-plotted Jump coordinates), or the Pilot may handle it if he or she has any T/Astrogation skill rank. Astrogator is a command position.

Engineer: 1 Engineer is required per 35 tons of Jump Drive, Maneuver Drive, and Power Plant installed. A ship with fewer than 35 tons of drives installed does not require an engineer.

Steward: 1 Steward is required per 8 high passengers, or 50 middle passengers (or non-command crew). A steward is required even if there is only 1 high passenger aboard, but if there are none then a Steward is not required if there are less than 50 middle passengers or non-command crew on board.

Medic: 1 Medic is required per ship of 200 tons or more. An additional medic is required for every 120 passengers and crew in excess of 120.

Gunner: As required.

CAPITAL VESSELS

Any vessel displacing over 1000 tons is considered a Capital vessel. Because of their large size, these types of ships typically require a much larger crew for safe and efficient operation making them costly to run. Most ships of this size will be owned by militaries or very large corporations, and crewed by their personnel.

Command Officers: A capital vessel requires the following command personnel to oversee the rest of the crew's operation:

Captain (Commanding Officer): 1 per ship

Executive or First Officer: 1 per ship

Helm Officer: 2 per ship. Requires Pilot skill and the Vessel/Starship feat.

Astrogation Officer: 2 per ship Requires T/Astrogation skill

Medical Officer: 1 per ship. Requires T/Medical skill.

Flight Officer: 1 per ship if the ship carries extra crew for any small craft on board. Requires Pilot skill

Gunnery Officer: 1 per ship. Requires Gunnery skill.

Communications Officer: 1 per ship. Requires T/Communications skill.

Engineering Officer: 2 per ship. Requires T/Engineering skill.

Command Crew: There should be 1 support personnel/ratings for every 2 command officers. On ships of 20,000 tons or larger this number should be increased to 5 support personnel/ratings for every 10,000 tons of ship.

AVAILABLE SMALL CRAFT

The small craft listed here are presented in detail starting on pg. 311.

SHIP'S VEHICLES, SMALL CRAFT

Small Craft	Tons	MCr	Speed	Crew	Cargo
Launch	20	9.842	1-G	2	9.5
Ship's Boat	30	30.362	6-G	2	3.2
Pinnace	40	45.522	5-G	2	5.1
Cutter	50	51.422	4-G	2	1.4(+30)
Fuel Module	30	1			
ATV Module	30	1.8			
Open Module	30	2			
Slow Boat	30	25.682	3-G	2	8.4
Slow Pinnace	40	26.722	2-G	2	16.8
Shuttle	95	54.42	3-G	2	44.6
Fighter	10	27.3	6-G	1	2.2

Medical Crew: 1 additional medic is required to support the ship's Medical officer for every 250 crew members or middle passengers, and every 120 high passengers on board.

Engineering Crew: There should be 1 engineering petty officers for every 100 tons of Jump Drive, Maneuver Drive, and Power Plant tonnage (combined) installed over 200 tons.

Gunnery Crew: Each Defensive Screen device (Force Field, Nuclear Damper, Meson Screen) installed requires 4 crew to operate. Weapon Bays require 2 crew each for normal operation. Turrets require a crew of 1 per battery (regardless of size. Major weapons (Spinal Mounts) require a crew of 1 per 100 tons of major weapon installed. There should also be at least one petty officer overseeing each battery, screen, or major weapon installation.

Flight Crew: In addition to the crew for each craft carried onboard the ship, there should be at least 1 mechanic per craft. Each Launch Tube installed requires an additional 10 crew members to oversee launch and recovery operations. If there are more than 3 vehicles (ATVs, air/rafts, etc.) carried aboard the ship, the flight crew will include the crews for each vehicle, along with an additional 1 mechanic per 3 vehicles.

Service Crew: These are the ratings that handle the mundane day to day operations of the ships to keep it running such as maintenance, supply, security, food services, and other essential but less than noteworthy functions. You should allow for 3 service crew per 1000 tons of ship. Thus a 20,000 ton ship would require 60 service crew. On ships with a complement of Ship's Troops (see below), this can be reduced to only 2 service crew per 1000 tons of ship.

Ship's Troops: Most military ships over 1,000 tons have a marine (or military) contingent on board acting as security and available for ship's defense and boarding actions. Depending on the actual role and function of the ship, the actual number of Ship's Troops aboard will range from 3 per 100 tons of ship, all the way to 3 per 1000 tons of ship.

AVAILABLE VEHICLES

The vehicles listed here are presented in detail starting on pg. 284.

SHIP'S VEHICLES, VEHICLES

Vehicle	*Tons*	*Cost*	*Notes*
Ground Car	2	5400	TL 5+
ATV (Wheeled)	8	48,840	TL 12+
ATV (Tracked)	8	47,240	TL 12+
Hovercraft	6	143,600	TL 7+
Air/Raft	5	273,200	TL 8+
Speeder	6	MCr3.974	TL 8+
G-Carrier	8	502,880	TL 8+

ACCOMMODATIONS AND FITTINGS

Accommodations and provisions must be made for any crew or passengers in the form of sleeping accommodations, privacy, personal hygiene, medical care, and other needs.

Stateroom: While a stateroom typically houses a single passenger, they can be equipped to accommodate up to 2 passengers (at a discounted rate), or 2 crew members. Staterooms actually average 2.5 tons, with the additional tonnage being used for life-support (1/2 ton), corridors, access ways, the galley, and recreation areas. The Captain of a ship is always allowed to have a private stateroom. Other command crew and officers are also usually given their own staterooms. When necessary, a stateroom may be used to hot-bunk 4 crew members or non-commercial passengers, but this only allows each access for half a day. A stateroom requires 4 tons of space and cost Cr500,000.

Small Cabin: Can accommodate 1 middle passenger or crew member. Like the stateroom, a small cabin is actually only about 1 ton, with the additional tonnage used elsewhere as corridors, etc. When necessary, a small cabin may be used to accommodate 2 crew members or non-commercial passengers, but this only allows each access for half a day. A small cabin requires 2 tons of space and cost Cr250,000.

Low Berth: Travel via cryogenic suspension capsule. Can accommodate 1 low passenger. Travel via Low Berth is not entirely without risk (see Low Passage pg. 343). A low berth requires 0.5 tons of space and cost Cr50,000.

Emergency Low Berth: Similar to a standard low berth, but capable of accommodating up to 4 people. The chance of survival is the same as in a normal Low Berth, except that only one saving roll is made for all passengers within. They each apply their Fortitude saving throw modifiers for their character, but they share the same single 1d20 roll. An emergency low berth requires 1 ton of space and has a cost of Cr100,000.

Small Craft Couch: Provides acceleration protection and life-support for a single passenger or crew member. These accommodations are not designed for prolonged use (over 24 hours). A small craft couch requires 0.5 tons

of space and has a cost of Cr25,000.

Engineering Shop: 1 shop can accommodate up to 20 engineers. Engineering shops are not required, but add +2 to any Technical: Engineering, Mechanical, Electronic, or Gravitic repairs attempted. An engineering shop requires 6 tons of space and has a cost of MCr1.

Laboratory: A single laboratory can accommodate up to 2 scientists. Labs are not required, but add +2 to any Research conducted within. A lab requires 8 tons of space and has a cost of MCr5.

Sickbay: A sickbay can handle up to 2 patients at a time. While not required, a sickbay adds +2 to any T/Medical skill checks made while treating patients within. An installed sickbay requires 8 tons of space and has a cost of MCr5.

AutoDoc: A small self-contained diagnostic, robotic medical system about the size of a Low Berth chamber or large coffin. See Medical Technology (pg. 217). An autodoc requires 2 tons of space and has a cost of MCr10.

Airlock: At least one airlock is required in any small craft or starship, and more than one is usually installed allowing for passengers to embark and disembark from one location while not having to avoid cargo being loaded or unloaded through the cargo airlock. One airlock is provided on every hull built at no additional charge, but takes up the normal 3 tons of space within the hull itself. Any airlocks beyond this first must be bought and installed separately.

Fresher: A personal hygiene cubical providing basic facilities for cleansing and the relief of bodily waste. Freshers are already provided for in a stateroom, but at least 1 is required for every 10 passengers or crew traveling in lesser accommodations (except low berth).

Cargo Space: Cargo space is basically any remaining tonnage on a ship not used by another subsystem, component, fuel tank, etc. To designate such areas as 'cargo space' costs nothing.

STARSHIP/SMALL CRAFT ACCOMMODATIONS AND FITTINGS

Accommodation	*Tons*	*Cost*
Stateroom	4	500,000
Small Cabin	2	250,000
Low Berth	0.5	50,000
Emergency Low Berth	1	100,000
Small Craft Couch	0.5	25,000
Engineering Shop	6	1,000,000
Vehicle Shop	10	2,000,000
Laboratory	8	5,000,000
Sickbay	8	5,000,000
Autodoc	2	10,000,000
Airlock	3	5000
Fresher	0.5	2000
Cargo Space	Any	None

Tons: The number of tons of space that must be available in the hull to accommodate the subsystem or component.
Cost: The cost of the item in Credits.

FINALIZING DESIGNS AND CONSTRUCTION

BATTERIES

Ships with more than one turret containing the same number and type of weapon installed may group them into batteries. Ships with more than ten turrets of the same type must group them into batteries. A battery may contain as few as one and as many as ten turrets. A mixed turret (i.e.: two or more different weapons installed in the same turret) may not be grouped into a battery, and each weapon in the turret is considered a single battery unto itself. Each battery may fire once per round.

For example, a ship has eighty triple beam lasers turrets. They may be grouped into 80 batteries of one turret (attack bonus of +3), 40 batteries of two turrets (attack bonus of +4), 16 batteries of five turrets (attack bonus of +6), or 8 batteries of ten turrets (attack factor of +8). Other configurations are possible, but these constitute the optimal configurations based on the Turret Weapons table.

BLUEPRINTS

If the ship to be built is a new design that has never been constructed before, a Naval Architect is needed to take the requirements and produce a workable design and blueprints to build from. These blueprints will cost 1% of the final price of the ship, and take four weeks to draw. The plans can be hurried, reducing the time required to draw them to only two weeks, but this will raise the architect's fee to 1.5%. A qualified Naval Architect is anyone with the Naval Architect feat (see pg. 107 for more information).

SHIPYARDS

Shipyards capable of constructing starships (ships with

a jump drive) are available at most worlds with a Class A starport. Spaceships (ships without a jump drive) may be built at the shipyards found at most Class A and Class B starports.

PAYING FOR IT ALL

Most ship purchases are typically financed rather than paid in full at the time of delivery, though such arrangements can be made for a 10% cash discount.

USED SHIPS

Given the cost of most new ships, a used ship may be a bit more affordable (though probably not much...) than a new one. A used version of a ship will usually be for sale at a price roughly equal to 90% of the original price minus an additional 10% per 10 years of age (or fraction thereof).

FINANCING

As long as the person attempting to finance the purchase has no (accessible) criminal history and appears of good reputation, a loan for a new or used ship can usually be secured with a 20% down payment and the ship itself as collateral. A ship loan will be for a period of 40 years, with a monthly payment equal to 1/240th of the total price of the ship. If paid out regularly over the entire 40-year loan period, the eventual total cost paid for a ship will be 220% of its original price.

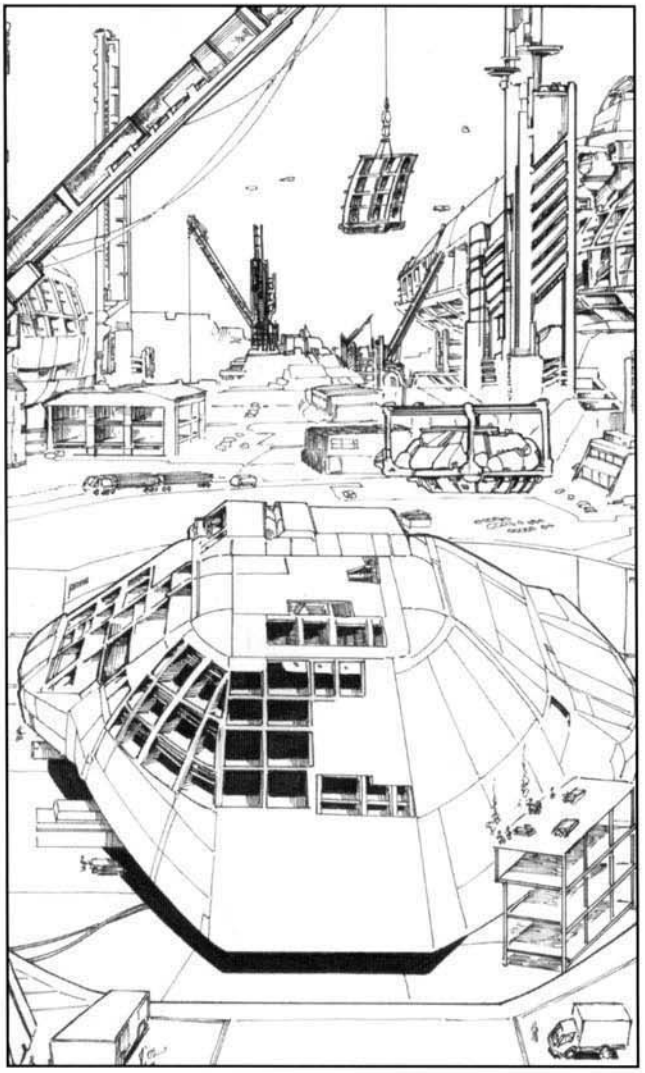
Taking Over a Payment: A payment (and thus ownership and title) may be taken over by a new party, but the lending agency will usually require two conditions. Any payments that are currently behind must be paid to date, and twelve additional payments (1 years worth) are required at the time of the transfer to show the good faith of the new owner.

Late Payments and 'Skips': Late payments are fined a 10% penalty per month late. If a payment is more than 12 months late, the lending agency will usually report the ship and owner as 'skipped' and turn the account over to a bounty-hunting agency for collection.

Depreciation: The value of a newly constructed ship decreases by 10% immediately upon purchase. If properly maintained (routine or annual maintenance), the value of the ship will decrease at a rate of 1% for every two years of age. Without proper maintenance this rate of depreciation rises to 1% for every year of age.

CREATING DECKPLANS

Deckplans for a ship can easily be drawn out on square grid graph paper, at a scale of 1.5 meters per square. This assumes 1.5 meters per side with a clearance (height) of 3 meters. One ton of displacement on a ship is based on the weight of Hydrogen (not water), and is equal to approximately 14 cubic meters. One 'map square' (1.5 meters x 1.5 meters x 3 meters) is approximately 6.75 cubic meters, thus two map squares equals one ton on a ship.



By using this scale, ship components and compartments can be drawn in relative detail on the deckplans using their listed tonnage. By counting the squares on a deckplan that have already been mapped in, the accuracy of the plans can be checked. Ideally, this should total no more than twice the hull tonnage of the ship when all squares have been counted. If the final count comes within 20% of the specified hull tonnage x 2, then they should be considered acceptable.

Remember that when allocating space for staterooms and cabins, only a portion of the listed tonnage is actually used for the stateroom itself. The remainder is used for common areas, corridors, galleys, and other accommodations for the crew and passengers.

STANDARD DESIGNS

This chapter contains examples of standard computers, vehicles and spacecraft in use throughout the ***Traveller*** universe.

VEHICLE DATA BLOCK

Every vehicle uses the following data block for easy reference to commonly used information during play. The have been designed to fit well on a standard 3"x5" index card. The information presented in the leftmost column is that which will be most used during normal operation of travel, trade, and commerce. The information in the middle column is the data the will be most needed when the vessel is engaged in combat. The rightmost column is used to detail the vehicle's offensive weapon systems. At the bottom of each block will be a listing of any other equipment or supplies installed or stored aboard the vessel, that have not already been detailed.

Class:	EP Output:	
Cost:	Agility:	
Tech Level:	Initiative:	
Size:	AC:	
Streamlining:	AR:	
Pressurized?	SI:	
Climate Control?	Visual:	
Drive Train:	Crew:	
Passengers:	Sensors:	
Cargo Space:	Fuel:	
Range:	Comm.:	
Speeds:		
Acceleration =		
Offroad =	Very Slow =	Slow =
Cruising =	Fast =	Maximum =
Other Equipment:		

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

STARSHIP AND SPACECRAFT DATA BLOCK

Every starship and spacecraft uses the following data block for easy reference to commonly used information during play. The have been designed to fit well on a standard 3"x5" index card. The information presented in the leftmost column is that which will be most used during normal operation of travel, trade, and commerce. The information in the middle column is the data the will be most needed when the vessel is engaged in combat. The rightmost column is used to detail the ship's offensive weapon systems. At the bottom of each block will be a listing of any other equipment or supplies installed or stored aboard the vessel, that have not already been detailed.

Class:	EP Output:
Tech Level:	Agility:
Size:	Initiative:
Streamlining:	AC:
Jump Range:	Repulsors:
Acceleration:	Nuclear Dampers:
Fuel:	Meson Screens:
Duration:	Black Globes:
Crew:	AR:
Staterooms:	SI:
Small Cabins:	Main Computer:
Bunks:	Sensor Range:
Couches:	Comm. Range:
Low Berths:	
Cargo Space:	Cost:
Atmospheric Speeds:	NoE =
Cruising =	Maximum =
Other Equipment:	

TAS Form 3.1 (Condensed)

Ship's Data (Commercial)

STANDARD COMPUTERS

HAND COMPUTER

0.135vl. A small hand-held computer system, complete with miniature keyboard and view screen. While technically these types of computers can be built at any TL, the effective computer power of a hand computer before TL9 is negligible. Even at this point they are little more than glorified address books with limited computing capability. It is not until about TL11 that the true hand computer becomes a standard part of most societies and capable of any real processing power.

Type	*TL*	*Units*	*Cost*	*Volume*	*EP*	*CPU*	*Model*	*INT*	*PP*
Parallel	9	x0.25	50	0.135	0.003	2.5	B1	0	2/1
Synaptic	11	x0.5	75	0.135	0.006	5	B2	0	3/2
Adv. Synaptic	13	x1	100	0.135	0.009	10	B3	0	4/2
Positronic	16	x10	1000	0.135	0.009	25	B4	0	5/3

PORTABLE COMPUTER

1.35vl. A lightweight portable computer, complete with a full sized keyboard and small view screen. Until about TL 8 or 9, these small computers are found only in use among high ranking businessmen, executives, and government officials, but they soon become fairly commonplace with the general population. Portable computers (Portacomps) start to be replaced by the hand computer at TL11.

Type	*TL*	*Units*	*Cost*	*Volume*	*EP*	*CPU*	*Model*	*INT*	*PP*
Linear	7	x1	250	1.35	0.09	2	B1	0	2/1
Parallel	9	x2.5	500	1.35	0.03	25	B4	0	5/3
Synaptic	11	x5	750	1.35	0.06	50	B7	1	8/4
Adv. Synaptic	13	x10	1000	1.35	0.09	100	B9	1	10/5
Positronic	16	x100	10,000	1.35	0.09	250	A2	2	13/7

STANDARD DESKTOP COMPUTER

13.5vl. The desktop computer can be found at most TL and is never really replaced due to its reasonable power to size ratio when compared to other types of computers.

Type	*TL*	*Units*	*Cost*	*Volume*	*EP*	*CPU*	*Model*	*INT*	*PP*
Linear	7	x10	2500	13.5	0.9	20	B4	0	5/3
Parallel	9	x25	5000	13.5	0.3	250	A2	2	13/7
Synaptic	11	x50	7500	13.5	0.6	500	A7	3	18/9
Adv. Synaptic	13	x100	10,000	13.5	0.9	1000	M1	4	28/11
Positronic	16	x1000	100,000	13.5	0.9	2500	M1	4	28/11

MINIFRAME COMPUTER

135vl. Miniframes are typically found powering the computer networks for businesses, manufacturing plants, research facilities, and other locations where massive computing power is required, and size is not a major issue.

Type	*TL*	*Units*	*Cost*	*Volume*	*EP*	*CPU*	*Model*	*INT*	*PP*
Electromechanical	5	x10	10,000	135	9	10	B3	0	4/2
Linear	7	x100	25,000	135	9	200	A1	2	12/6
Parallel	9	x250	50,000	135	3	2500	M1	4	28/11
Synaptic	11	x500	75,000	135	6	5000	M2	4	35/12
Adv. Synaptic	13	x1000	100,000	135	9	10,000	M4	5	49/13
Positronic	16	x10,000	1,000,000	135	9	25,000	M6	6	65/14

SHIP'S COMPUTER

Varies. The computers below are built using advanced synaptic components, but do not reflect the costs of the additional software and interfaces needed for the computer to be used on board a starship. Such fittings increase the cost listed below by x10. Divide the EP requirements by 10 when installing on a starship.

Type	TL	Units	Cost	Volume	EP	CPU	Model	INT	PP
Model/1	5	x1000	100,000	135	9	2500 (x4)	M1	4	28/11
Model/2	7	x2000	200,000	270	18	5000 (x4)	M2	4	35/12
Model/3	9	x3000	300,000	405	27	7500 (x4)	M3	5	42/12
Model/4	10	x4000	400,000	540	36	10,000 (x4)	M4	7	49/13
Model/5	11	x5000	500,000	675	45	12,500 (x4)	M4	7	49/13
Model/6	12	x6000	600,000	810	54	15,000 (x4)	M5	6	57/13
Model/7	13	x7000	700,000	945	63	17,500 (x4)	M5	6	57/13
Model/8	14	x8000	800,000	1080	72	20,000 (x4)	M5	6	57/13
Model/9	15	x9000	900,000	1215	81	22,500 (x4)	M6	6	65/14

AUTOPILOT COMPUTER

(Hardwired) A basic computer system capable of operating a single vehicle or vessel type safely, and with access to limited emergency maneuvers intended to bring the vehicle back under control rather than undertaking automated combat maneuvers. Software is hardwired; the computer cannot be transferred to a different type of vehicle.

Type	TL	Units	Cost	Volume	EP	CPU	Model	INT	PP
Linear	7	x112.5	28,125	151.87	10.12	300	A3	2	14/7
Parallel	9	x22.5	4500	12.15	0.27	300	A3	2	14/7
Synaptic	11	x22.5	3375	6.07	0.27	300	A3	2	14/7
Adv. Synaptic	13	x22.5	2250	3.04	0.202	300	A3	2	14/7
Positronic	16	x90	9,000	1.21	0.081	300	A3	2	14/7

Software	PP Cap	Cost	INT Mod	Ability Mod.	Total Skill Mod.
*Low Basic Logic	2	1000	+0	-	-
*Limited Verbal Interface	2	500	+0	-	-
Driving	5	5000	-	-4 (Int)	+1
Navigation	5	5000	-	-5 (Edu)	+0
Totals	14	11,500	+0	-	-

*always operating

TARGETING COMPUTER

(Hardwired). A basic fire control computer capable of controlling missiles and other weapon systems. Programs are hardwired and cannot be upgraded.

Type	TL	Units	Cost	Volume	EP	CPU	Model	INT	PP
Linear	7	x168.75	42,187	227.81	15.19	450	A6	3	17/9
Parallel	9	x33.75	6750	18.22	0.405	450	A6	3	17/9
Synaptic	11	x33.75	5062.5	9.11	0.405	450	A6	3	17/9
Adv. Synaptic	13	x33.75	3375	4.56	0.304	450	A6	3	17/9
Positronic	16	x135	13,500	1.82	0.121	450	A6	3	17/9

Software	*PP Cap*	*Cost*	*INT Mod*	*Ability Mod.*	*Total Skill Mod.*
*Low Basic Logic	2	1000	+0	-	-
*Limited Verbal Interface	2	500	+0	-	-
Gunner Interact	1	1000	-	-	-
Predict	1	7500	-	-	-
Select	1	3000	-	-	-
Return Fire	1	5000	-	-	-
Anti-Missile	2	1000	-	-	-
Weapons Systems	1	4000	-	-	-
Gunnery	6	6000	-	-5 (Wis)	+3 (+2 Predict)
Totals	17	29,000	+0		
*always operating					

MODEL/M1 ROBOT BRAIN

TL12. Cr119600. A fairly universal 'brain' used in many types of robots, with a reasonable intelligence, a few basic skills, and the ability to learn as it works. This model currently has enough data storage to hold up to 10,000 experience points. More storage capacity may be added as needed. Only the basic programming itself is provided. Additional skill programs or other software must be purchased and installed separately. Twenty of the brains 28 total PP points are constantly devoted to supporting its intelligence, leaving only 8 PP free for use with other programs.

Computer Core

Units:	Synaptic x90 (10% reduction due to miniaturization)
Size:	24.3vl
Cost	Cr135,000
Total PP	28
Max PP	11
EP: 1.08	
CPU Output:	1000 (Model/1 Master Computer)

Data Storage

Units	Synaptic x10
Storage Capacity	10,000XP
Size:	0.135vl
Cost	Cr2,500

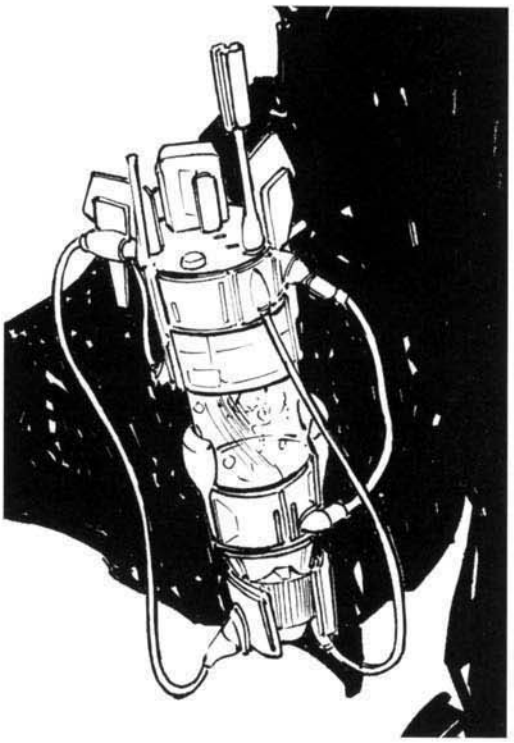
Software

Programming	*Cost*	*PP*	*Notes*
Low Autonomous Logic	Cr7000	10	Int +2, Dex +2
Full Verbal Command	Cr5000	10	Int +2
Cost	Cr12,000	20	

Abilities

Str -, Dex +2, Con -, Int 8 (-1), Wis 0 (-5), Edu 2 (-4), Cha 0 (-5), Soc (-5)

Total Cost:	Cr149,500 (Cr119,600)
Total Size:	24.435vl
Total EP:	1.08



STANDARD VEHICLES AND ROBOTS

All of the following vehicles and robots are commonly available (unless otherwise noted), and have been designed from the ground up using the T20 vehicle design system. Vehicles may be used as described, or be customized using the design system rules.

Vehicle and Robots Table:

Vehicle/Robot	*TL*	*Cost*	*Size*	*Max Speed*	*SI*	*AC*
Personal Robot	12	Cr174,801	100vl	10kph	12	10
Battledress	13	Cr90,335	300vl	10kph	25	26
Jeep	5	Cr2540	1000vl	120kph	50	12
Ground Car	5	Cr5400	2000vl	150kph	53	10
Small Cargo Truck	5	Cr12,280	5000vl	120kph	60	10
Wheeled ATV	12	Cr48,840	10,000vl	100kph	75	10
Tracked ATV	12	Cr47,240	10,000vl	80kph	75	11
Wheeled AFV	12	Cr67,040	10,000vl	100kph	75	16
Tracked AFV	12	Cr65,440	10,000vl	80kph	75	16
Hovercraft	7	Cr143,600	8000vl	150kph	68	13
Primitive Biplane	4	Cr11,840	1000vl	200kph	50	11
Cargo Plane	4	Cr363,760	10,000vl	600kph	75	10
Cargo Jet	7	MCr1.594	12,000vl	1100kph	75	10
Helicopter	5	Cr82,760	5000vl	250kph	60	11
Air/raft	8	Cr273,200	6000vl	120kph	63	10
Pressurized Air/raft	8	Cr372,720	8000vl	120kph	68	10
GCarrier	8	Cr502,880	10,000vl	120kph	75	10
Speeder	8	MCr3.947	8000vl	1100kph	68	10
Grav Belt	12	Cr9,232	200vl	120kph	5	10
Small Steamship	4	Cr337,800	150,000vl	60kph	100	10
Hydrofoil	7	Cr197,200	60,000vl	100kph	88	10
Submersible	6	MCr1.875	500,000vl	40kph (20kph)	160	10

ROBOTS AND AUGMENTED ARMOR

PERSONAL SERVICE ROBOT (PERCY)

Medium (Intelligent) Robot

TL12, Cr174,801, 100vl. The personal service robot, (PSR), also called a Purser (Per-Ser) or just simply a Percy, is an early robotic design that first begins to appear with the development of the synaptic computers. Its 'humanesque' appearance combined with its protocol, etiquette, and personality interfaces make the Percy well suited for a wide range of tasks that require constant interfacing with people in the performance of their duties. In private use, the Percy serves admirably as a butler, housekeeper, cook, or similar repetitive or remedial tasks. In commercial use PSRs are found in positions as waiters, cooks, and janitors. Percys also undertake jobs that may be too hazardous for a person, but which are not too complex for the Percy's limited programming. The Percy can operate for up to 72 hours before its fuel cells will require refueling.



Combat Statistics

Str 10, Dex 12, Wis 0, pInt 8, pCha 10, Edu 6, Soc 0
Initiative: +0 Agility: 0 AC: 10 AR: 0 SI: 12
Off-road: 7.5kph, Very Slow: 1kph, Slow: 2.5kph, Cruising: 5kph, Fast: 7.5kph, Maximum: 10kph

TL12 Design Specifications

Installed Components	*Size*	*Cost*	*EP*	*CPU/SP*	*Range*
100vl Chassis	+100	100	-	-	
Drive Train, Legged (2)	-2.814	301.5	-0.067	-	
Adv. Fuel Cell	-9	600	+6	-	
Fuel	-21.6	-	-	-	72 hours
Holovideo Visual	-1.5	2000	-0.1	-	
Auditory Sensors	-0.2	200	-0.04	-	50m
Olfactory Sensor	-0.5	1500	-0.05	-	1km
Sensors, Normal Touch	-4	12,000	-0.6	-	
Voder	-0.5	1200	-0.03	-	
Appendage (Str 10, Dex 10)	-5	10,000	-1		
Appendage (Str 10, Dex 10)	-5	10,000	-1		
Model/M1 Robot Brain (Int 8)	-24.435	119,600	-1.08	-	
Totals	*+25.451*	*Cr157,501.5*			

Software Installed	*PP*	*Cost*	*Notes*
Personality Interface (Cha 10)	5*	50,000	Cha 10
Library Data Inter.	1*	3000	Edu +4
Valet	2	2000	
Cooking	2	2000	P/Cooking-2
Driving	2	2000	Driving-2 (Ground Car)
Cleaning	2	2000	P/Janitorial-2
* Must constantly be running			
Totals	-	218,501.5 (Cr174,801.2 with 20% standard design discount)	

BATTLE DRESS

Large Augmented Armor

TL13, Cr95,135, 300vl. Battle Dress is a suit of personal armor similar in construction to Combat Armor. What sets Battle Dress apart is the fact that it is fully powered, in effect being a personal vehicle that is worn rather than driven.

Battle Dress consists of an armored frame, servo-assisted limbs, a sensor package and (sometimes) built-in weaponry. The armor is available in various configurations, from light, fast recon suits to heavy assault configurations capable of stopping almost any weapon on the battlefield. However, even the heaviest Battle Dress does not turn the wearer into an invulnerable tank. Battle Dress-equipped troops still function as infantry (albeit infantry who can shrug off smallarms fire and even some support weapons); they can thus go where tanks cannot, make use of low cover etc. Battle Dress requires special training to use and is not available to civilians.

The statistics given here are for standard TL 13 medium Battle Dress.

BATTLE DRESS

Class: Augmented Armor	**EP Output:** 12 (6.825 excess)
Cost: Cr95,135	**Agility:** 5 (+5 EP)
Tech Level: 13	**Initiative:** +5 (+5 agility)
Size: Large (300vl)	**AC:** 24 (+10 armor, +5 agility, -1 Size)
Streamlining: Standard	**AR:** 10
Pressurized? Yes	**SI:** 25
Climate Control? Yes	**Visual:** Holovideo (1km), Infrared (1km), Light Intensification (1km)
Drive Train: Legged (2)	
Crew: 1	
Passengers: 0	**Sensors:** Auditory (50m), Tactile
Cargo Space: 14vl	
Fuel: 43.2vl	
Range: 72 hours	**Comm.:** 2-way Radio (5km)
Speeds:	
Acceleration = 1kph	
Offroad = 7.5kph	Very Slow = 1kph Slow = 2.5kph
Cruising = 5kph	Fast = 7.5kph Maximum = 10kph

Other Equipment: 2 appendages (STR 20/+5, DEX 10/+0).

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL13 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
300vl Chassis	+300	300	-
Control Systems	-110	275	-
TL13 Armor (AR10)	-66	3594	-
Pressurized Interior	-15	375	-0.375
Drive Train, Legged (2)	-8.4	900	-0.2
Adv. Fuel Cell	-18	1200	+12
Fuel	-43.2	-	-
Appendage (Str 20, Dex 10)	-10	51,000	-2
Tactile Sensor	-1	3000	-0.2
Appendage (Str 20, Dex 10)	-10	51,000	-2
Tactile Sensor	-1	3000	-0.2
Holovideo Visual	-1.5	2000	-0.1
LI Video	-0.2	500	-0.01
IR Video	-1	1500	-0.03
Auditory Sensors	-0.2	200	-0.04
Radio, 2-way	-0.5	75	-0.02
Totals	*+14*	*Cr118,919 (Cr95,135 with 20% standard design discount)*	

GROUND VEHICLES

JEEP

Large Ground Vehicle

TL5, Cr2580, 1000vl. A self-powered wheeled vehicle based on the ground car (see below) concept, but designed for off-road and rugged terrain use. Typically, a jeep has a cruising range of 600km at a speed of 60 kph, and has a maximum speed of 120 kph. Off-road performance is better than the standard ground car, though jeeps (other than specialist luxury models) lack creature comforts to the point where some are truly excruciating to drive. Fuel for a jeep depends on local tech level and fuel sources; it is usually chemical fuel (hydrocarbons or hydrogen), or an electric battery. A jeep can carry a driver and up to three additional passengers plus luggage (214vl). Luxury models (which are as comfortable as any ground car on the market) may be available at higher prices. The basic jeep is unpressurized, and may indeed be open-topped. Jeeps are designed to be somewhat tolerant of atmospheric and environmental conditions; they will not usually malfunction when transferred to another world, so long as it is reasonably similar to their world of origin.

JEEP

Class: Ground Vehicle	**EP Output:** 20 (7 excess)
Cost: Cr2580	**Agility:** 1 (+1 EP)
Tech Level: 5	**Initiative:** +1 (+1 agility)
Size: Large (1000vl)	**AC:** 10 (+1 agility, -1 size)
Streamlining: Standard	**AR:** 0
Pressurized? No	**SI:** 50
Climate Control? No	**Visual:** Headlights (Beam 12m), Brakelights (Area 1.5m)
Drive Train: Wheeled (4)	
Crew: 1	
Passengers: 3	**Sensors:**
Cargo Space: 214vl	
Fuel: 100vl	
Range: 600km	**Comm.:**
Speeds:	

Acceleration = 12kph		
Offroad = 20kph	Very Slow = 12kph	Slow = 30kph
Cruising = 60kph	Fast = 90kph	Maximum = 120kph

Other Equipment:

TAS Form 3.1v (Condensed) **Vehicle Data (Commercial)**

TL5 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
1000vl Chassis	+1000	1000	-
Controls	-110	275	-
Drive Train, Wheeled (4)	-144	600	-12
Int. Combustion Power Plant	-100	1000	+20
Fuel	-100	-	-
Passengers Seating (3)	-330	300	-
2 Headlights, Beam (12m)	-1.6	40	-0.08
2 Brakelights, Illumination	-0.4	10	-0.02
Cargo/Luggage	-214	-	-
Totals	*0*	*Cr3225 (Cr2580 with 20% standard design discount)*	

GROUND CAR

Large Ground Vehicle

TL5, Cr5440, 2000vl. An ordinary self-powered wheeled vehicle suitable for local use in civilized areas or on roads. Typically, a ground car has a cruising range of 1050 km at a speed of 75 kph, and has a maximum speed of 150 kph. If capable of off-road travel at all, speed is generally limited to 15 kph. Fuel for a ground car depends on local tech level and fuel sources; it is usually chemical fuel (hydrocarbons or hydrogen), or an electric battery. Most ground cars require a driver, although at higher tech levels the some luxury models may be equipped to steer themselves (and on highly civilized worlds, driving under human control is illegal in cities). A car can carry five additional passengers plus luggage (268vl). Other models (convertibles, sports models, limousines, trucks, motorcycles, unicycles, vans, etc.) may be available at varying prices. The basic ground car is unpressurized. Ground cars are mass production items manufactured for a specific world; they will tend to malfunction when transferred to a world not similar to their world of origin.

At TL7, an optional Climate Control system becomes available for a cost of Cr800. It requires 20vl of space and 0.2EP of power.

GROUND CAR

Class: Ground Vehicle	**EP Output:** 35 (4 excess)	
Cost: Cr5440	**Agility:** 0	
Tech Level: 5	**Initiative:** +0	
Size: Large-Huge (2000vl)	**AC:** 9 (-1 agility)	
Streamlining: Standard	**AR:** 0	
Pressurized? No	**SI:** 53	
Climate Control? TL7 Option	**Visual:** Headlights (Beam 12m), Brakelights (Area 1.5m)	
Drive Train: Wheeled (4)		
Crew: 1		
Passengers: 5	**Sensors:**	
Cargo Space: 268vl		
Fuel: 245vl		
Range: 1050km	**Comm.:**	
Speeds:		
Acceleration = 15kph		
Offroad = 25kph	Very Slow = 15kph	Slow = 37kph
Cruising = 75kph	Fast = 112kph	Maximum = 150kph
Other Equipment:		

TAS Form 3.1v (Condensed) **Vehicle Data (Commercial)**

TL5 Design Specifications			
Installed Components	*Size*	*Cost*	*EP*
2000vl Chassis	+2000	2000	-
Controls	-400	1000	-
Drive Train, Wheeled (4)	-360	1500	-30
Int. Combustion Power Plant	-175	1750	+35
Fuel	-245	-	-
Passengers Seating (5)	-550	500	-
2 Headlights, Beam (12m)	-1.6	40	-0.08
2 Brakelights, Illumination	-0.4	10	-0.02
Cargo/Luggage	-268	-	-
Totals	*+0*	*Cr6800 (Cr5440 with 20% standard design discount)*	

SMALL CARGO TRUCK

Huge Ground Vehicle

TL5, Cr12,320, 5000vl. A typical, no-frills commercial delivery/cargo truck with a 2500kg cargo capacity. The truck only has room for one passenger other than the driver. These cargo trucks have an average speed of 60kph and are capable of top speeds reaching 120kph. At cruising speed, a cargo truck has a range of 480km.

At TL7, an optional Climate Control system becomes available for a cost of Cr2000. It requires 50vl of space and 0.5EP of power.

SMALL CARGO TRUCK

Class: Ground Vehicle	**EP Output:** 65 (4 excess)
Cost: Cr12,320	**Agility:** 0
Tech Level: 5	**Initiative:** +0
Size: Huge (5000vl)	**AC:** 8 (-2 size)
Streamlining: Standard	**AR:** 0
Pressurized? No	**SI:** 60
Climate Control? TL7 Option	**Visual:** Headlights (Beam 12m), Brakelights (Area 1.5m)
Drive Train: Wheeled (6)	
Crew: 1	
Passengers: 1	**Sensors:**
Cargo Space: 2523vl	
Fuel: 260vl	
Range: 480km	**Comm.:**
Speeds:	
Acceleration = 12kph	
Offroad = 12kph	Very Slow = 12kph	Slow = 40kph
Cruising = 60kph	Fast = 80kph	Maximum = 120kph
Other Equipment:	

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL5 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
5000vl Chassis	+5000	5000	-
Controls	-1000	2500	-
Drive Train, Wheeled (6)	-780	4500	-60
Int. Combustion Power Plant	-325	3250	+65
Fuel	-260	-	-
Passengers Seating (1)	-110	100	-
2 Headlights, Beam (12m)	-1.6	40	-0.08
2 Brakelights, Illumination	-0.4	10	-0.02
Cargo/Luggage	-2525	-	-
Totals	*+0*	*Cr15,400 (Cr12,320 with 20% standard design discount)*	

WHEELED ALL TERRAIN VEHICLE

Huge Ground Vehicle

TL12, Cr52,880, 10,000vl. An 8-wheeled vehicle intended for world surface exploration, or for transport across undeveloped areas. An all terrain vehicle (abbreviated ATV) has a range of 5000 km, cruises on roads at 50 kph, and can achieve a maximum speed of 100 kph. Off roads, speed depends on terrain; on open plain, it will approach normal road performance while in difficult terrain average speed will be 25 kph or less. An ATV may be powered by a battery recharged from a ship's power plant, or it may contain a small fusion pack requiring hydrogen or water for fuel. The ATV is designed to serve on many different worlds under widely varying conditions, including vacuum and insidious atmospheres, and high or low gravity. An ATV requires one driver and may carry up to 16 passengers. The interior of the vehicle is fully pressurized and contains complete (though cramped) eating, sleeping, and travel facilities for eight. The wheeled ATV typically has 8 large, gel-filled tires. These are self-sealing and provide sufficient buoyancy to allow the ATV to float in reasonably calm water. Slow headway can be made using water jet propulsion.

WHEELED ALL TERRAIN VEHICLE (ATV)

Class: Ground Vehicle	**EP Output:** 120 (6.4 excess)
Cost: Cr52,880	**Agility:** 0
Tech Level: 12	**Initiative:** +0
Size: Huge (10,000vl)	**AC:** 8 (-2 size)
Streamlining: Standard	**AR:** 0
Pressurized? Yes	**SI:** 75
Climate Control? Yes	**Visual:** Headlights (Beam 12m), Brakelights (Area 1.5m)
Drive Train: Wheeled (8)	
Crew: 1	
Passengers: 8 (16)	**Sensors:**
Cargo Space: 938vl	
Fuel: 600vl	
Range: 5000km	**Comm.:**
Speeds:	
Acceleration = 10kph	
Offroad = 25kph	Very Slow = 10kph	Slow = 25kph
Cruising = 50kph	Fast = 75kph	Maximum = 100kph

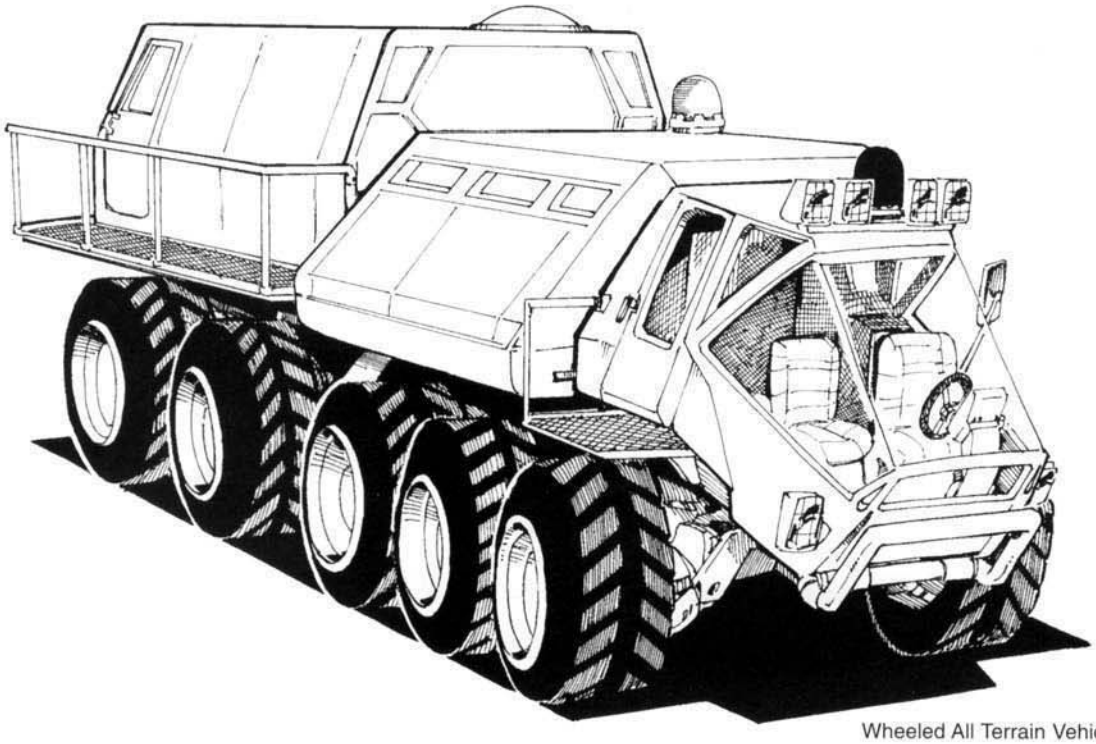
Other Equipment: Galley facilities for 8, fresher.

TAS Form 3.1v (Condensed)

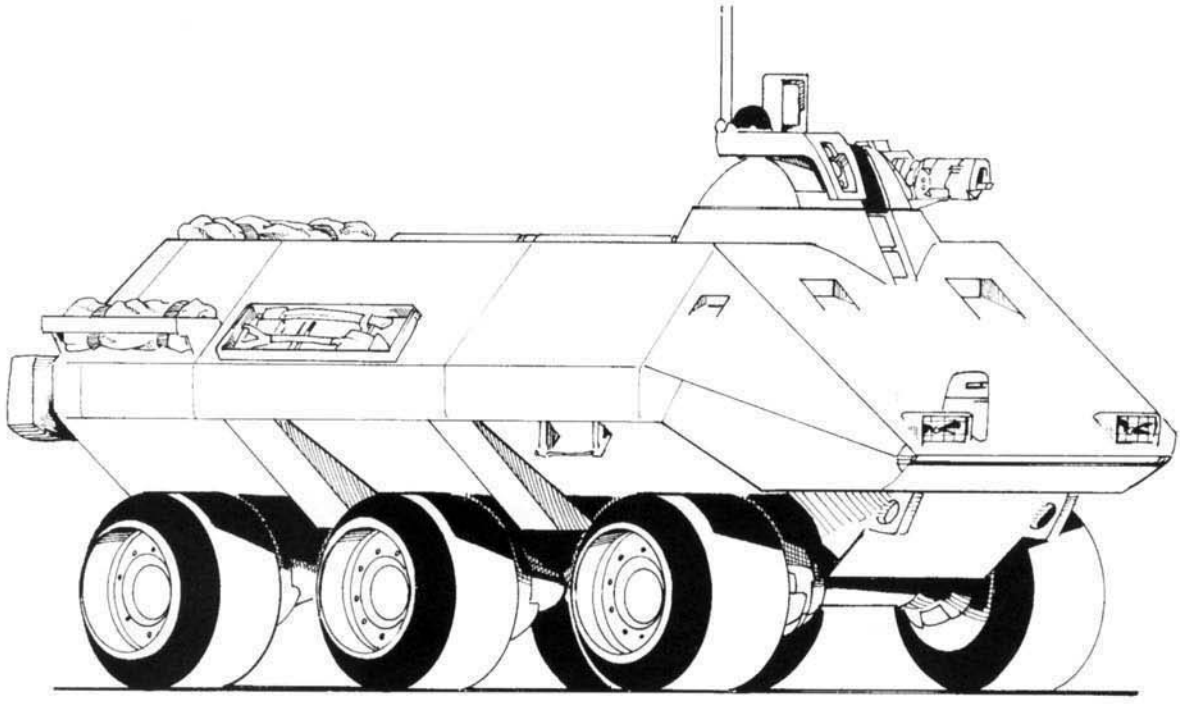
Vehicle Data (Commercial)

TL12 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
10,000vl Chassis	+10,000	10,000	-
Pressurized Interior	-500	12,500	-12.5
Climate Control	-100	5,000	-1
Drive Train, Wheeled (8)	-1400	10,000	-100
Advance Fuel Cell	-180	12,000	+120
Fuel	-600	-	-
Controls	-2000	5000	-
Passengers Seating (8)	-880	800	-
Passengers Bunks (8)	-1600	2000	-
Galley Facilities (8)	-1600	8000	-
Fresher Facilities (1)	-200	750	-
2 Headlights, Beam (12m)	-1.6	40	-0.08
2 Brakelights, Illumination	-0.4	10	-0.02
Cargo/Luggage	-938	-	-
Totals	+0	Cr66,100 (Cr52,880 with 20% standard design discount)	



Wheeled All Terrain Vehicle, page 290



Wheeled Armored Fighting Vehicle, page 293

TRACKED ALL TERRAIN VEHICLE

Huge Ground Vehicle

TL12, Cr51,280, 10,000vl. The tracked ATV is a somewhat slower version of the wheeled ATV, but with better off-road speed and handling. An all terrain vehicle (abbreviated ATV) has a range of 5000 km, cruises on roads at 40 kph, and can achieve a maximum speed of 80 kph. Off roads, speed depends on terrain; on open plain, it will approach normal road performance, while in difficult terrain, average speed will be 25 kph or less. An ATV may be powered by a battery recharged from a ship's power plant, or it may contain a small fusion pack, requiring hydrogen or water for fuel. The ATV is designed to serve on many different worlds under widely varying conditions, including vacuum and insidious atmospheres, and high or low gravity. A tracked ATV requires one driver, and may carry up to 8 passengers. The interior of the vehicle is fully pressurized and contains complete (though cramped) eating, sleeping, and travel facilities for eight. Harsh terrain performance is better than for the wheeled variant, but a tracked ATV cannot float.

TRACKED ALL TERRAIN VEHICLE (ATV)

Class: Ground Vehicle	**EP Output:** 180 (6.4 excess)	
Cost: Cr51,280	**Agility:** 0	
Tech Level: 12	**Initiative:** +0	
Size: Huge (10,000vl)	**AC:** 8 (-2 size)	
Streamlining: Standard	**AR:** 0	
Pressurized? Yes	**SI:** 75	
Climate Control? Yes	**Visual:** Headlights (Beam 12m), Brakelights (Area 1.5m)	
Drive Train: Tracked (2)		
Crew: 1		
Passengers: 8 (16)	**Sensors:**	
Cargo Space: 508vl		
Fuel: 900vl		
Range: 5000km	**Comm.:**	
Speeds:		
Acceleration = 8kph		
Offroad = 25kph	Very Slow = 8kph	Slow = 20kph
Cruising = 40kph	Fast = 60kph	Maximum = 80kph

Other Equipment: Galley facilities for 8, fresher.

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL12 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
Chassis	+10,000	10,000	-
Pressurized Interior	-500	12,500	-12.5
Climate Control	-100	5,000	-1
Drive Train, Tracked (2)	-1440	2,000	-160
Advance Fuel Cell	-270	18,000	+180
Fuel	-900	-	-
Controls	-2000	5000	-
Passengers Seating (8)	-880	800	-
Passengers Bunks (8)	-1600	2000	-
Galley Facilities (8)	-1600	8000	-
Fresher Facilities (1)	-200	750	-
2 Headlights, Beam (12m)	-1.6	40	-0.08
2 Brakelights, Illumination	-0.4	10	-0.02
Cargo/Luggage	-508	-	-
Totals	*+0*	*Cr64,100 (Cr51,280 with 20% standard design discount)*	

WHEELED ARMORED FIGHTING VEHICLE

Huge Ground Vehicle

TL12, Cr71,080, 10,000vl. Many designs of armored fighting vehicle (abbreviated AFV) exist, at a range of tech levels and capabilities. This representative design is similar to the wheeled ATV, and can be used as an exploration vehicle. It has a range of 5000 km, cruises on roads at 50 kph, and can achieve a maximum speed of 100 kph. Off roads, speed depends on terrain; on open plain, it will approach normal road performance, while in difficult terrain, average speed will be 13 kph or less. An AFV may be powered by a battery recharged from a ship's power plant, or it may contain a small fusion pack, requiring hydrogen or water for fuel. Mid-tech AFVs are local to a single world; higher-tech versions are usually designed to be tolerant of varying conditions and can thus serve on many worlds and under widely varying conditions, including vacuum and insidious atmospheres, and high or low gravity. An AFV requires one driver, may carry one additional crewmember that operates the weapon system, and is capable of transporting up to 22 soldiers. The interior of the vehicle is fully pressurized. Like its ATV cousin, the Wheeled AFV can float and make headway in calm water.

WHEELED ARMORED FIGHTING VEHICLE (AFV)

Class: Ground Vehicle	**EP Output:** 120 (2.8 excess)	
Cost: Cr71,080	**Agility:** 0	
Tech Level: 12	**Initiative:** +0	
Size: Huge (10,000vl)	**AC:** 14 (+6 armor, -2 size)	
Streamlining: Standard	**AR:** 6	
Pressurized? Yes	**SI:** 75	
Climate Control? Yes	**Visual:** Headlights (Beam 12m), Brakelights (Area 1.5m)	
Drive Train: Wheeled (8)		
Crew: 1		
Passengers: 22	**Sensors:**	
Cargo Space: 498vl		
Fuel: 600vl		
Range: 5000km	**Comm.:**	
Speeds:		
Acceleration = 10kph		
Offroad = 25kph	Very Slow = 10kph	Slow = 25kph
Cruising = 50kph	Fast = 75kph	Maximum = 100kph
Other Equipment:		

Heavy Manned Turret: Medium Lasers (x3), Attack Bonus +0, Damage 5d10.

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL12 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
Chassis	+10,000	10,000	-
TL12 Armor (AR6)	-1400	15,600	-
Pressurized Interior	-500	12,500	-12.5
Climate Control	-100	5,000	-1
Drive Train, Wheeled (8)	-1400	10,000	-100
Advance Fuel Cell	-180	12,000	+120
Fuel	-600	-	-
Controls	-2000	5000	-
Passengers Seating (22)	-2420	2200	-
2 Headlights, Beam (12m)	-1.6	40	-0.08
2 Brakelights, Illumination	-0.4	10	-0.02
Heavy Manned Turret	-600	6000	-0.6
Medium Lasers (3)	(-300)	10,500	-3
Cargo/Luggage	-498	-	-
Totals	*+0*	*Cr88,850 (Cr71,080 with 20% standard design discount)*	

TRACKED ARMORED FIGHTING VEHICLE

Huge Ground Vehicle

TL12, Cr69,480, 10,000vl. The tracked AFV is a somewhat slower version of the wheeled AFV, but with better off-road speed and handling. It has a range of 5000 km, cruises on roads at 40 kph, and can achieve a maximum speed of 80 kph. Off roads, speed depends on terrain; on open plain, it will approach normal road performance, while in difficult terrain, average speed will be 20 kph or less. An AFV may be powered by a battery recharged from a ship's power plant, or it may contain a small fusion pack, requiring hydrogen or water for fuel. The AFV is designed to serve on many different worlds under widely varying conditions, including vacuum and insidious atmospheres, and high or low gravity. An AFV requires one driver, may carry one additional crewmember that operates the weapon system, and is capable of transporting up to 22 soldiers. The interior of the vehicle is fully pressurized but has no eating, sleeping, etc facilities for four. Tracked AFVs do not float.

TRACKED ARMORED FIGHTING VEHICLE (AFV)

Class: Ground Vehicle	**EP Output:** 180 (2.8 excess)	
Cost: Cr69,480	**Agility:** 0	
Tech Level: 12	**Initiative:** +0	
Size: Huge (10,000vl)	**AC:** 14 (+6 armor, -2 size)	
Streamlining: Standard	**AR:** 6	
Pressurized? Yes	**SI:** 75	
Climate Control? Yes	**Visual:** Headlights (Beam 12m), Brakelights (Area 1.5m)	
Drive Train: Tracked (2)		
Crew: 1		
Passengers: 22	**Sensors:**	
Cargo Space: 368vl		
Fuel: 900vl		
Range: 5000km	**Comm.:**	
Speeds:		
Acceleration = 8kph		
Offroad = 25kph	Very Slow = 8kph	Slow = 20kph
Cruising = 40kph	Fast = 60kph	Maximum = 80kph
Other Equipment:		

Heavy Manned Turret: Medium Lasers (x3), Attack Bonus +0, Damage 5d10.

TAS Form 3.1v (Condensed) **Vehicle Data (Commercial)**

TL12 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
Chassis	+10,000	10,000	-
TL12 Armor (AR6)	-1400	15,600	-
Pressurized Interior	-500	12,500	-12.5
Climate Control	-100	5,000	-1
Drive Train, Tracked (2)	-1440	2,000	-160
Advance Fuel Cell	-270	18,000	+180
Fuel	-900	-	-
Controls	-2000	5000	-
Passengers Seating (22)	-2420	2200	-
2 Headlights, Beam (12m)	-1.6	40	-0.08
2 Brakelights, Illumination	-0.4	10	-0.02
Heavy Manned Turret	-600	6000	-0.6
Medium Lasers (3)	(-300)	10,500	-3
Cargo/Luggage	-368	-	-
Totals	*+0*	*86,850 (69,480 with 20% standard design discount)*	

AIR CUSHION VEHICLES

HOVERCRAFT

Huge Air Cushion Vehicle

TL7, Cr348,640, 8000vl. Hovercraft are supported on a cushion of air (at about 1 to 3 meters altitude). Usable only on worlds with an atmosphere of 4 or greater, a hovercraft is capable of cruise speeds of 75kph, with bursts of speed up to 150kph. Distance between refuelings is 375km. Hovercraft may move over both land and water with equal ease, but encounter difficulty with broken ground, precipices, or storms. A crew of one is sufficient to operate the vehicle; hovercraft can carry up to 15 passengers plus the operator. Cargo capacity is 2905kg. No armor or weaponry is generally provided.

HOVERCRAFT

Class: Air Cushion Vehicle	**EP Output:** 400 (98.8 excess)	
Cost: Cr348,640	**Agility:** 3	
Tech Level: 7	**Initiative:** +3 (+3 agility)	
Size: Huge (8000vl)	**AC:** 11 (-2 size)	
Streamlining: Standard	**AR:** 0	
Pressurized? No	**SI:** 68	
Climate Control? Yes	**Visual:** Spotlight (Beam 120m)	
Drive Train: Air Cushion		
Crew: 1		
Passengers: 15	**Sensors:** Radar (5km)	
Cargo Space: 2905vl		
Fuel: 500vl		
Range: 375km	**Comm.:** 2-way Radio (500km)	
Speeds:		
Acceleration = 15kph		
Offroad = 47kph	Very Slow = 15kph	Slow = 37kph
Cruising = 75kph	Fast = 112kph	Maximum = 150kph
Other Equipment:		

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL7 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
8000vl Chassis	+8000	8000	-
Climate Control	-80	4000	-0.8
Drive Train, Air Cushion	-450	126,000	-300
Turbine Power Plant	-800	40,000	+400
Fuel	-500	-	-
Controls	-1600	4000	-
Passengers Seating (15)	-1650	1500	-
Spotlight, Beam (120m)	-8	2000	-0.4
Radar	-5	250,000	-0.25
2-way Radio (500km)	-2	300	-0.08
Cargo/Luggage	-2905	-	-
Totals	*+0*	*Cr435,800 (Cr348,640 with 20% standard design discount)*	

AIRCRAFT

PRIMITIVE BIPLANE

Large Aircraft

TL5, Cr11,840, 1000vl. A very small early model aircraft. It can achieve a cruise speed of 100kph, with bursts up to a maximum of 200kph; range is 300km or roughly 3 hours flying time at cruising speed. The biplane's engine depends on chemical fuel. The plane carries two; the pilot and a passenger, and can also carry up to 549kg of cargo.

PRIMITIVE BIPLANE

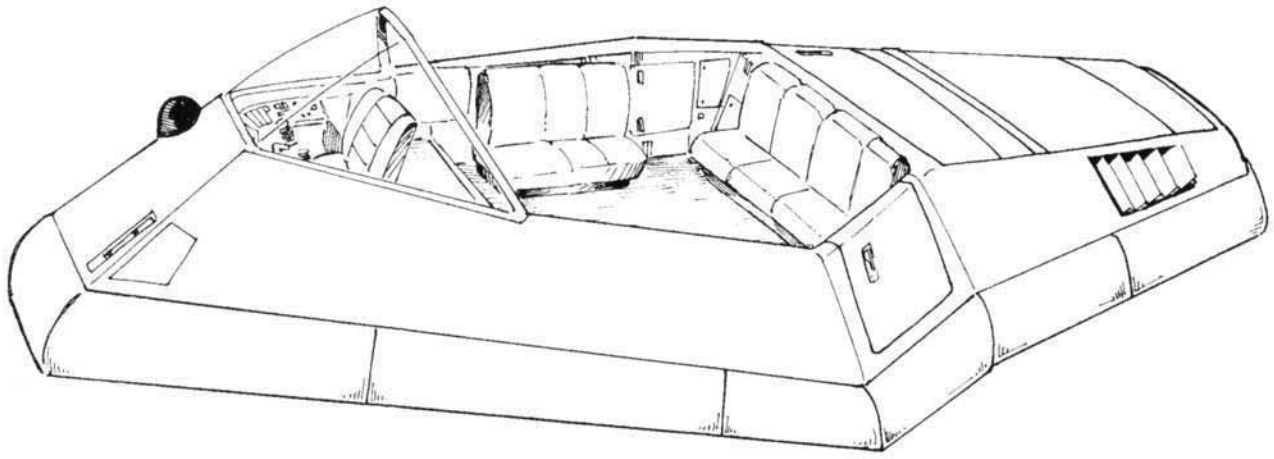
Class: Aircraft	**EP Output:** 14 (4 excess)	
Cost:	**Agility:** 1	
Tech Level: 5	**Initiative:** +1 (+1 agility)	
Size: Large (1000vl)	**AC:** 10 (+1 agility, -1 size)	
Streamlining: Standard	**AR:** 0	
Pressurized? No	**SI:** 50	
Climate Control? No	**Visual:**	
Drive Train: Propeller		
Crew: 1		
Passengers: 1	**Sensors:**	
Cargo Space: 549vl		
Fuel: 21vl		
Range: 300km	**Comm.:**	
Speeds:		
Acceleration = 20kph		
Offroad = n/a	Stall = 20kph	Slow = 50kph
Cruising = 100kph	Fast = 150kph	Maximum = 200kph
Other Equipment:		

TAS Form 3.1v (Condensed)

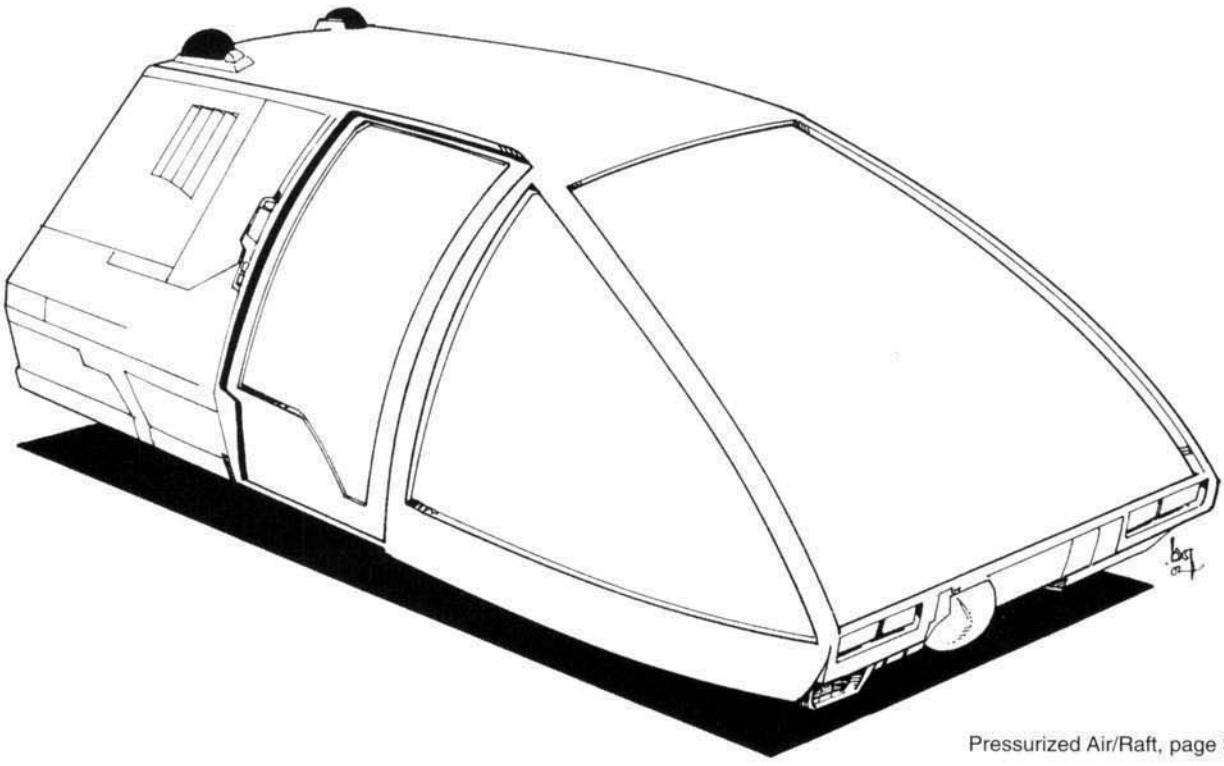
Vehicle Data (Commercial)

TL5 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
1000vl Chassis	+1000	1000	-
Drive Train, Propeller	-50	12,500	-10
Int. Combustion Power Plant	-70	700	+14
Fuel	-21	-	-
Controls	-200	500	-
Passengers Seats (1)	-110	100	-
Cargo/Luggage	-549	-	-
Totals	*+0*	*Cr14,800 (Cr11,840 with 20% standard design discount)*	



Hovercraft, page 295



Pressurized Air/Raft, page 302

CARGO PLANE

Huge Aircraft

TL5, Cr364,000, 10,000vl. A twin propeller monowing aircraft intended for cargo transport. The plane cruises at 300kph (maximum speed is 600kph) with a range of 3600km. Fuel is standard chemical fuel. The craft requires a crew of two (only one of whom needs pilot skill and the appropriate vehicle feat) and carry six passengers and roughly 2 metric tons of cargo.

CARGO PLANE

Class: Aircraft	**EP Output:** 330 (30 excess)
Cost: Cr364,000	**Agility:** 0
Tech Level: 5	**Initiative:** +0
Size: Huge (10,000vl)	**AC:** 8 (-2 size)
Streamlining: Partial	**AR:** 0
Pressurized? No	**SI:** 75
Climate Control? No	**Visual:**
Drive Train: Propeller (2)	
Crew: 2	
Passengers: 6	**Sensors:**
Cargo Space: 1948vl	
Fuel: 1980vl	
Range: 3600km	**Comm.:** 2-way Radio (500km)
Speeds:	
Acceleration = 60kph	
Offroad = n/a	Stall = 60kph Slow = 150kph
Cruising = 300kph	Fast = 450kph Maximum = 600kph
Other Equipment:	

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL5 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
10,000vl Chassis	+10,000	10,000	-
Partial Streamlining	-	10,000	-
Drive Train, Propeller (2)	-1650	412,500	-300
Int Combustion Power Plant	-1650	16,500	+330
Fuel	-1980	-	-
Controls	-2000	5000	-
Passengers Seats (7)	-770	700	-
2-way Radio (500km)	-2	300	-0.08
Cargo/Luggage	-1948	-	-
Totals	*+0*	*Cr455,000 (Cr364,000 with 20% standard design discount)*	

CARGO JET

Huge Aircraft

TL7, MCr1.794, 12,000vl. A twin jet monowing aircraft intended for cargo transport. The plane cruises at 660kph, has a maximum safe speed of 1100kph (technically 1320 but limited by the airframe configuration) with a range of 3960km. Fuel is standard chemical jet fuel. The craft requires a crew of two, only one of whom needs pilot skill and the appropriate vehicle feat, carries up to six passengers and roughly 5 metric tons of cargo.

CARGO JET

Class: Aircraft	**EP Output:** 230 (14.67 excess)	
Cost: Cr1,794,400	**Agility:** 0	
Tech Level: 6	**Initiative:** +0	
Size: Huge (12,000vl)	**AC:** 8 (-2 size)	
Streamlining: Airframe	**AR:** 0	
Pressurized? Yes	**SI:** 75	
Climate Control? No	**Visual:**	
Drive Train: Jet (2)		
Crew: 2		
Passengers: 6	**Sensors:** Radar (5km)	
Cargo Space: 5218vl		
Fuel: 345vl		
Range: 3960km	**Comm.:** 2-way Radio (500km)	
Speeds:		
Acceleration = 132kph		
Offroad = n/a	Stall = 132kph	Slow = 330kph
Cruising = 660kph	Fast = 990kph	Maximum = 1100kph
Other Equipment:		

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL6 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
10,000vl Chassis	+12,000	12,000	-
Airframe	-	36,000	-
Pressurized Interior	-600	15,000	-15
Drive Train, Jet (2)	-2200	MCr1.9	-200
Turbine Power Plant	-460	23,000	+230
Fuel	-345	-	-
Controls	-2400	6000	-
Passengers Seats (7)	-770	700	-
Radar	-5	250,000	-0.25
2-way Radio (500km)	-2	300	-0.08
Cargo/Luggage	-5218	-	-
Totals	*+0*	*Cr2,243,000 (Cr1,794,400 with 20% standard design discount)*	

HELICOPTER

Huge Aircraft

TL5, Cr82,760, 5,000vl. Single engine rotary wing aircraft capable of vertical take-off and landing, as well as maneuvering in tight places. The helicopter can cruise at 125kph with a top speed of 250kph; range is 750km at cruising speed or roughly 6 hours. The vehicle requires a crew of 1 (the pilot) and can carry 7 passengers and up to roughly additional 1 metric ton of cargo.

HELICOPTER

Class: Aircraft	**EP Output:** 225 (15 excess)	
Cost: Cr82,760	**Agility:** 0	
Tech Level: 5	**Initiative:** +0	
Size: Huge (5000vl)	**AC:** 8 (-2 size)	
Streamlining: Standard	**AR:** 0	
Pressurized? No	**SI:** 60	
Climate Control? No	**Visual:**	
Drive Train: Rotary Wing		
Crew: 1		
Passengers: 7	**Sensors:**	
Cargo Space: 905vl		
Fuel: 675vl		
Range: 750km	**Comm.:**	
Speeds:		
Acceleration = 25kph		
Offroad = n/a	Very Slow = 25kph	Slow = 62kph
Cruising = 125kph	Fast = 187kph	Maximum = 250kph
Other Equipment:		

TAS Form 3.1v (Condensed) **Vehicle Data (Commercial)**

TL5 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
5000vl Chassis	+5,000	5,000	-
Drive Train, Rotary Wing	-525	84,000	-210
Int Combustion Power Plant	-1125	11,250	+225
Fuel	-675	-	-
Controls	-1000	2500	-
Passengers Seats (7)	-770	700	-
Cargo/Luggage	-905	-	-
Totals	*+0*	*Cr103,450 (Cr82,760 with 20% standard design discount)*	

GRAV VEHICLES

AIR/RAFT

Huge Grav Vehicle

TL8, Cr273,200, 6000vl. A light anti-gravity ("grav") vehicle which uses null-grav modules (often known as "lifters") to counteract gravity for lift and propulsion. An air/raft can cruise at 60kph (but is extremely subject to wind effects), with some capable of higher speed to about 120kph. An air/raft can reach orbit in several hours (number of hours equal to planetary size digit in the UWP); passengers must wear vac suits for this journey. Interplanetary travel in an air/raft is not possible. Range on a world is effectively unlimited, requiring refueling once per week. An air/raft can carry the pilot and up to 3 passengers plus roughly 4 metric tons of cargo. They are usually unpressurized and open-topped.

AIR/RAFT

Class: Grav Vehicle	**EP Output:** 10 (2.8 excess)	
Cost: Cr273,200	**Agility:** 0	
Tech Level: 8	**Initiative:** +0	
Size: Huge (6000vl)	**AC:** 8 (-2 size)	
Streamlining: Standard	**AR:** 0	
Pressurized? No	**SI:** 63	
Climate Control? No	**Visual:**	
Drive Train: Grav		
Crew: 1		
Passengers: 3	**Sensors:**	
Cargo Space: 4001.2vl		
Fuel: 420vl		
Range: 1 week	**Comm.:**	
Speeds:		
Acceleration = 12kph		
Offroad = n/a	Very Slow = 12kph	Slow = 30kph
Cruising = 60kph	Fast = 90kph	Maximum = 120kph
Other Equipment:		

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL8 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
6000vl Chassis	+6000	6000	-
Drive Train, Grav	-28.8	331,200	-7.2
Turbine Power Plant	-20	1000	+10
Fuel	-420	-	-
Controls	-1200	3000	-
Passengers Seats (3)	-330	300	-
Cargo/Luggage	-4001.2	-	-
Totals	*+0*	*Cr341,500 (Cr273,200 with 20% standard design discount)*	

PRESSURIZED AIR/RAFT

Huge Grav Vehicle

TL8, Cr376,000, 8000vl. A slightly larger, enclosed and pressurized version of the basic air/raft. Performance, cargo and passenger capacities are roughly the same as the basic air/raft.

PRESSURIZED AIR/RAFT

Class: Grav Vehicle	**EP Output:** 21 (0.6 excess)	
Cost: Cr376,000	**Agility:** 0	
Tech Level: 8	**Initiative:** +0	
Size: Huge (8000vl)	**AC:** 8 (-2 size)	
Streamlining: Standard	**AR:** 0	
Pressurized? Yes	**SI:** 68	
Climate Control? Yes	**Visual:**	
Drive Train: Grav		
Crew: 1		
Passengers: 3	**Sensors:**	
Cargo Space: 4655.6		
Fuel: 882vl		
Range: 1 week	**Comm.:**	
Speeds:		
Acceleration = 12kph		
Offroad = n/a	Very Slow = 12kph	Slow = 30kph
Cruising = 60kph	Fast = 90kph	Maximum = 120kph
Other Equipment:		

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL8 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
8000vl Chassis	+8000	8000	-
Pressurized Interior	-400	10,000	-10
Climate Control	-80	4,000	-0.8
Drive Train, Grav	-38.4	441,600	-9.6
Turbine Power Plant	-44	2100	+21
Fuel	-882	-	-
Controls	-1600	4000	-
Passengers Seats (3)	-330	300	-
Cargo/Luggage	-4655.6	-	-
Totals	*+0*	*Cr470,000 (376,000 with 20% standard design discount)*	

GCARRIER

Huge Grav Vehicle

TL8, Cr506,880, 10,000vl. An enclosed military or quasi-military grav vehicle. The GCarrier is an armored air/raft type vehicle intended originally for troop carrier duties. Performance is similar to that of the air/raft, but the vehicle generally has a gun mount and is armored. It requires a crew of one (with pilot skill and the Vessel/grav feat), plus a gunner for the craft's weapon, if any. It can carry 14 persons (including the driver and gunner), plus roughly 1.1 metric tons of cargo.

GCARRIER

Class: Grav Vehicle	**EP Output:** 30 (0.9 excess)	
Cost: Cr506,880	**Agility:** 0	
Tech Level: 8	**Initiative:** +0	
Size: Huge (10,000vl)	**AC:** 14 (+6 armor, -2 size)	
Streamlining: Standard	**AR:** 6	
Pressurized? Yes	**SI:** 75	
Climate Control? Yes	**Visual:**	
Drive Train: Grav		
Crew: 2		
Passengers: 12	**Sensors:**	
Cargo Space: 1092vl		
Fuel: 1260vl		
Range: 1 week	**Comm.:**	
Speeds:		
Acceleration = 12kph		
Offroad = n/a	Very Slow = 12kph	Slow = 30kph
Cruising = 60kph	Fast = 90kph	Maximum = 120kph
Other Equipment:		

Heavy Manned Turret: Medium Lasers (x3), Attack Bonus +0, Damage 5d10.

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL8 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
10,000vl Chassis	+10,000	10,000	-
TL8 Armor (AC6)	-2800	28,200	-
Pressurized Interior	-500	12,500	-12.5
Climate Control	-100	5,000	-1
Drive Train, Grav	-48	552,000	-12
Turbine Power Plant	-60	3000	+30
Fuel	-1260	-	-
Controls	-2000	5000	-
Passengers Seats (14)	-1540	1400	-
Heavy Manned Turret	-600	6000	-0.6
Medium Lasers (3)	(-300)	10,500	-3
Cargo/Luggage	-1092	-	-
Totals	*+0*	*Cr633,600 (Cr506,880 with 20% standard design discount)*	

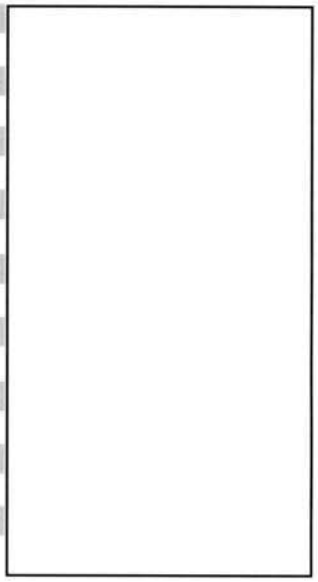
SPEEDER

Huge Grav Vehicle

TL8, MCr3.947, 8000vl. A streamlined grav-powered craft intended for high-speed transport between points on a world's surface. Similar in principle to the air/raft and the GCarrier, the speeder is streamlined and optimized for speed. It is capable of 720 kph cruise speed, with a top speed of 1320kph (though maximum safe speed is only 1100kph), and has a virtually unlimited range. Refueling is required only once per week. The speeder carries a pilot (who requires the pilot skill and the Vessel/grav feat), a single passenger, and 238kg of cargo. The speeder is capable of reaching orbit within an hour.

SPEEDER

Class: Grav Vehicle	**EP Output:** 117 (0.2 excess)	
Cost: Cr3,950,960	**Agility:** 0	
Tech Level: 8	**Initiative:** +0	
Size: Huge (8000vl)	**AC:** 8 (-2 size)	
Streamlining: Airframe	**AR:** 0	
Pressurized? Yes	**SI:** 68	
Climate Control? Yes	**Visual:**	
Drive Train: Grav		
Crew: 1		
Passengers: 1	**Sensors:**	
Cargo Space: 238vl		
Fuel: 4872vl		
Range: 1 week	**Comm.:**	
Speeds:		
Acceleration = 144kph		
Offroad = n/a	Very Slow = 144kph	Slow = 360kph
Cruising = 720kph	Fast = 1080kph	Maximum = 1100kph
Other Equipment:		

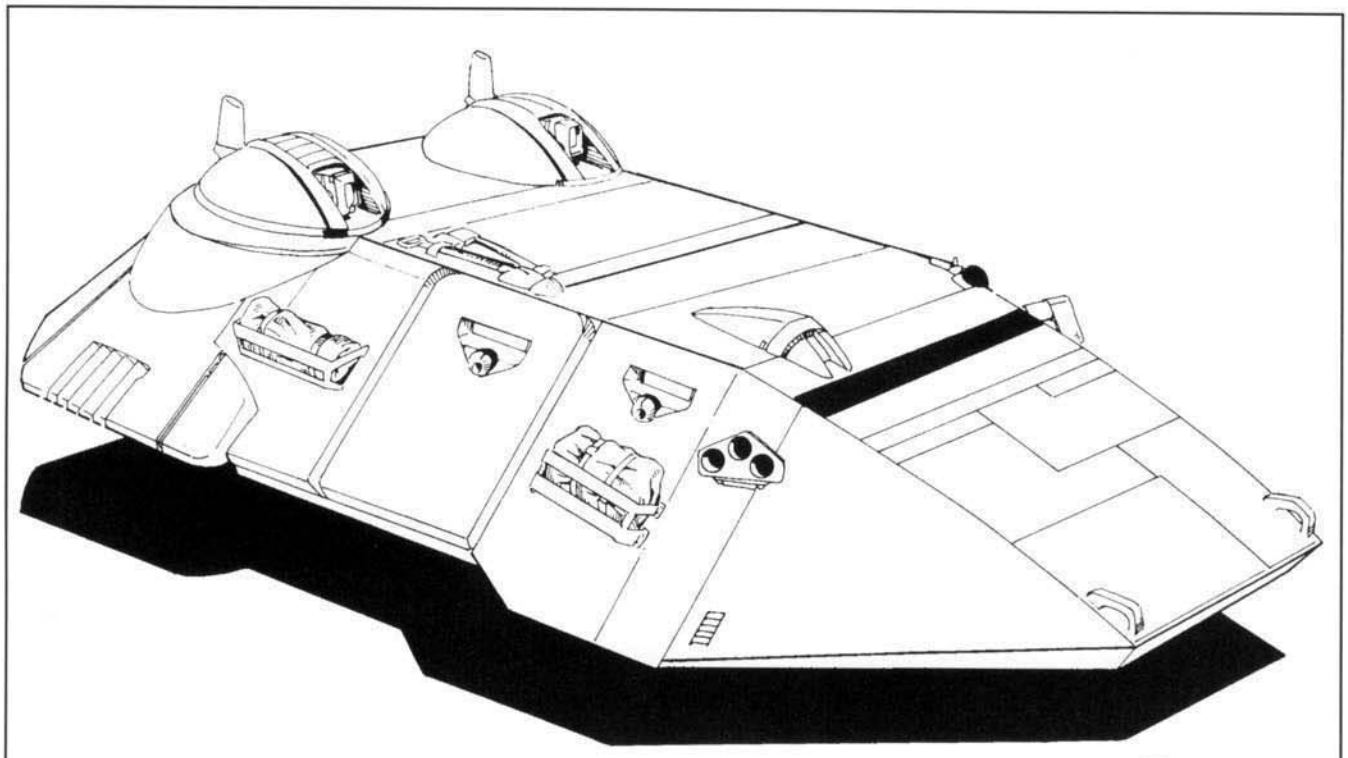


TAS Form 3.1v (Condensed)

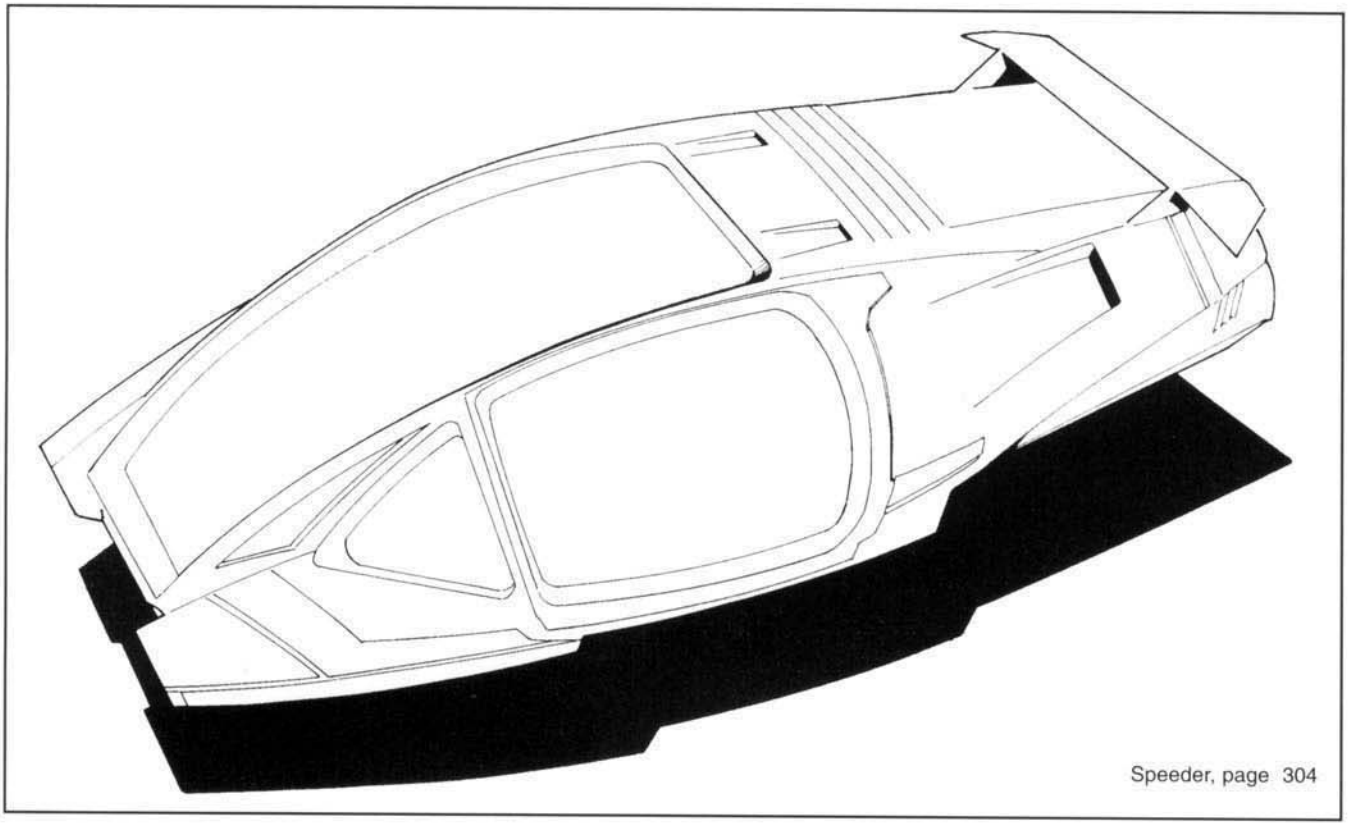
Vehicle Data (Commercial)

TL8 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
8000vl Chassis	+8000	8000	-
Airframe	-	24,000	-
Pressurized Interior	-400	10,000	-10
Climate Control	-80	4,000	-0.8
Drive Train, Grav	-424	MCr4.876	-106
Turbine Power Plant	-234	11,700	+117
Fuel	-4914	-	-
Controls	-1600	4000	-
Passengers Seats (1)	-110	100	-
Cargo/Luggage	-238	-	-
Totals	*+0*	*Cr4,938,700 (Cr3,950,960 with 20% standard design discount)*	



GCarrier, page 303



Speeder, page 304

GRAV BELT

Medium Grav Vehicle

TL12, Cr9232, 200vl. Personal anti-gravity transportation using a single null-gravity module and a personal harness. Performance is similar in speed to the air/raft, but with a four-week operational range.

GRAV BELT

Class: Grav Vehicle	**EP Output:** 1 (0.76 excess)	
Cost: Cr9232	**Agility:** 0	
Tech Level: 12	**Initiative:** +0	
Size: Medium (200vl)	**AC:** 10	
Streamlining: Standard	**AR:** 0	
Pressurized? No	**SI:** 5	
Climate Control? No	**Visual:**	
Drive Train: Grav		
Crew: 1		
Passengers: 0	**Sensors:**	
Cargo Space: 33.94vl		
Fuel: 33.6		
Range: 4 weeks	**Comm.:**	
Speeds:		
Acceleration = 12kph		
Offroad = n/a	Very Slow = 12kph	Slow = 30kph
Cruising = 60kph	Fast = 90kph	Maximum = 120kph
Other Equipment:		

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL12 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
200vl Chassis	+200	200	-
Drive Train, Grav	-0.96	11,040	-0.24
Adv Fuel Cell Power Plant	-1.5	100	+1
Fuel	-33.6	-	-
Controls	-20	100	-
Operator	-110	100	-
Cargo/Luggage	-33.94	-	-
Totals	*+0*	*Cr11,540 (Cr9232 with 20% standard design discount)*	

WATERCRAFT

SMALL STEAMSHIP

Colossal Watercraft

TL4, Cr337,800, 150,000vl. Vessels of this type vary widely; most are capable of 30 kph for up to a week of travel, and a maximum speed of 60kph. Fuel is some form of basic combustible. The ship can carry a crew of five, ten passengers, and approximately 61 metric tons of cargo.

SMALL STEAMSHIP

Class: Watercraft	**EP Output:** 460 (10 excess)	
Cost: Cr337,800	**Agility:** 0	
Tech Level: 4	**Initiative:** +0	
Size: Colossal (150,000vl)	**AC:** 2 (-8 size)	
Streamlining: Standard	**AR:** 0	
Pressurized? No	**SI:** 103	
Climate Control? No	**Visual:**	
Drive Train: Surface Water		
Crew: 5		
Passengers: 10	**Sensors:**	
Cargo Space: 60,930vl		
Fuel: 19,320vl		
Range: 1 week	**Comm.:**	
Speeds:		
Acceleration = 6kph		
Offroad = n/a	Very Slow = 6kph	Slow = 15kph
Cruising = 30kph	Fast = 45kph	Maximum = 60kph
Other Equipment:		

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL4 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
150,000vl Chassis	+150,000	150,000	-
Drive Train, Surface Water	-11,250	56,250	-450
Steam Power Plant	-11,500	11,500	+460
Fuel	-19,320	-	-
Controls	-30,000	75,000	-
Passenger Small Cabins (15)	-15,000	120,000	-
Galley Facilities (8)	-1600	8000	-
Fresher Facilities (2)	-400	1500	-
Cargo/Luggage	-60,930	-	-
Totals	*+0*	*Cr422,250 (Cr337,800 with 20% standard design discount)*	

HYDROFOIL

Gargantuan Watercraft

TL7, Cr197,200, 60,000vl. The hydrofoil can cruise at 50kph, with bursts of speed to 100kph. The ship's engines depend on local fuel sources, such as hydrocarbons or electric batteries; with a full tank of fuel, a hydrofoil can operate for a week at cruising speed. A crew of three operates the craft, which carries eight passengers and nearly 16 metric tons of cargo.

HYDROFOIL

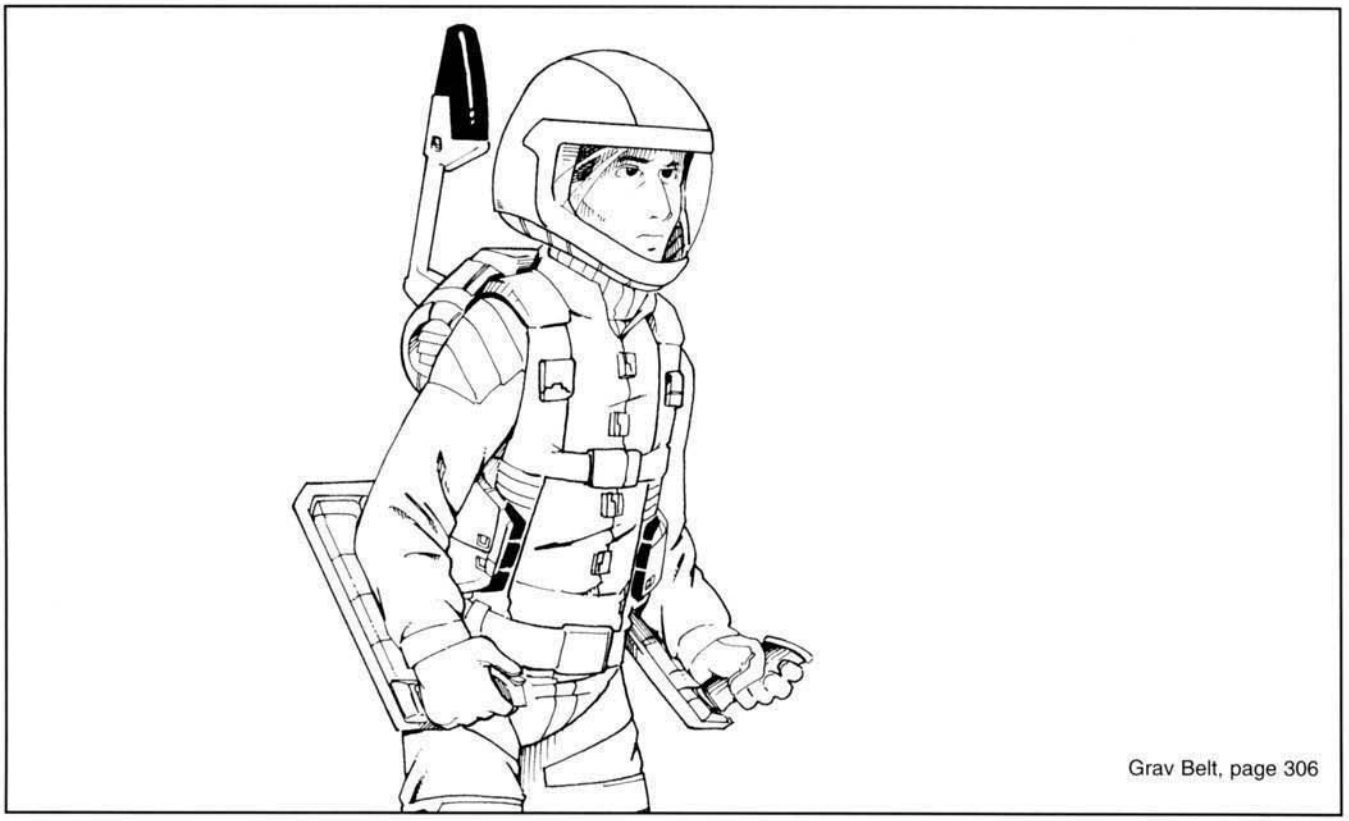
Class: Watercraft	**EP Output:** 310 (10 excess)	
Cost: Cr197,200	**Agility:** 0	
Tech Level: 7	**Initiative:** +0	
Size: Gargantuan (60,000vl)	**AC:** 6 (-4 size)	
Streamlining: Standard	**AR:** 0	
Pressurized? No	**SI:** 88	
Climate Control? No	**Visual:**	
Drive Train: Surface Water		
Crew: 3		
Passengers: 8	**Sensors:**	
Cargo Space: 15,860vl		
Fuel: 13,020vl		
Range: 1 week	**Comm.:**	
Speeds:		
Acceleration = 10kph		
Offroad = n/a	Very Slow = 10kph	Slow = 25kph
Cruising = 50kph	Fast = 75kph	Maximum = 100kph
Other Equipment:		

TAS Form 3.1v (Condensed)

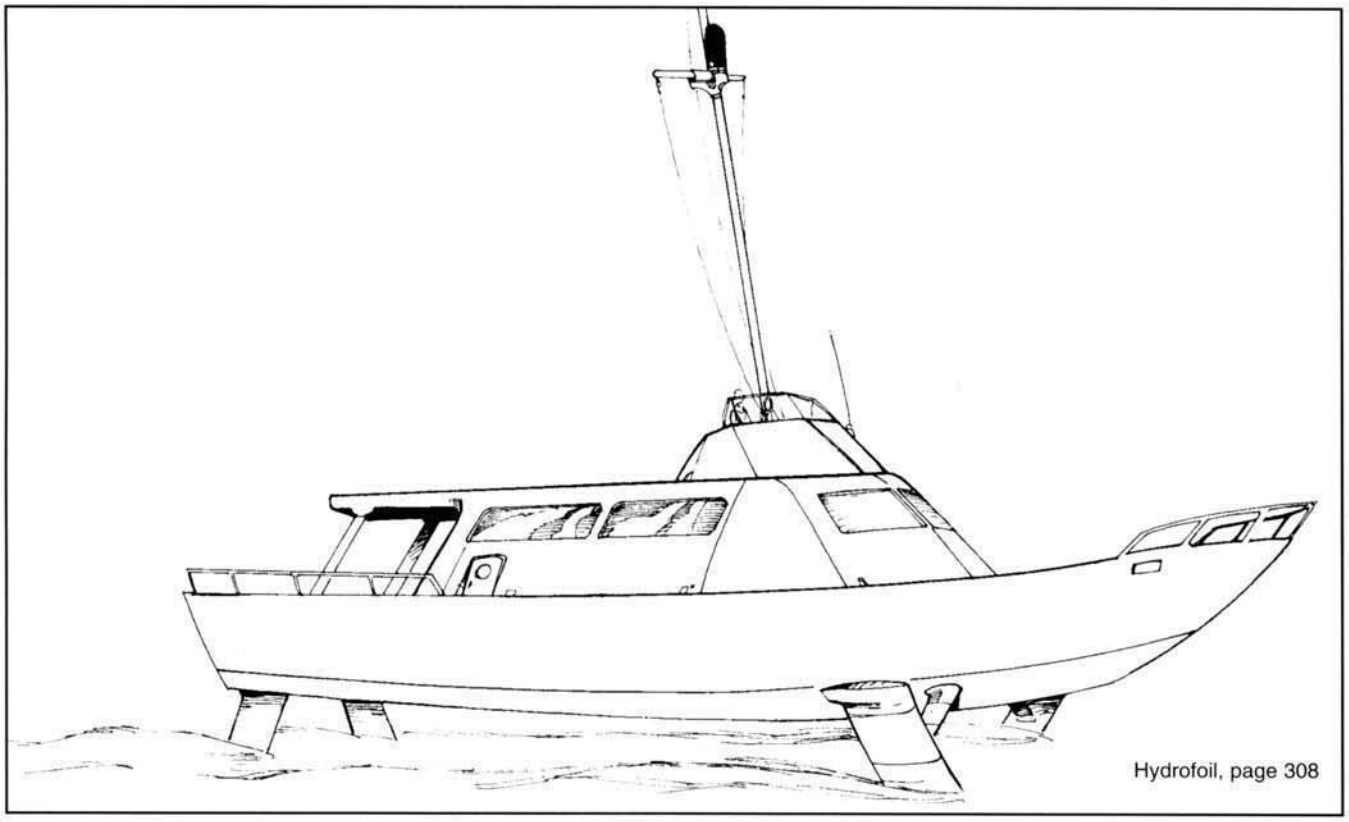
Vehicle Data (Commercial)

TL7 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
60,000vl Chassis	+60,000	60,000	-
Drive Train, Surface Water	-7500	37,500	-300
Turbines	-620	31,000	+310
Fuel	-13,020	-	-
Controls	-12,000	30,000	-
Passenger Small Cabins (11)	-11,000	88,000	-
Cargo/Luggage	-15,860	-	-
Totals	*+0*	*Cr246,500 (Cr197,200 with 20% standard design discount)*	



Grav Belt, page 306



Hydrofoil, page 308

SUBMERSIBLE

Colossal Watercraft

TL6, MCr1.875, 500,000vl. Underwater vessels intended to avoid surface weather conditions for safety and convenience. On worlds with large water percentages (especially level A) submersibles ply the routes between underwater domed cities. The submersible is capable of a maximum speed of 40kph on the surface in good weather, and about half that underwater. It has an average 9-day endurance (72 hours submerged), and depends on local energy sources for refueling or recharging. It has a crew of five and facilities for ten passengers and approximately 40 metric tons of cargo.

SUBMERSIBLE

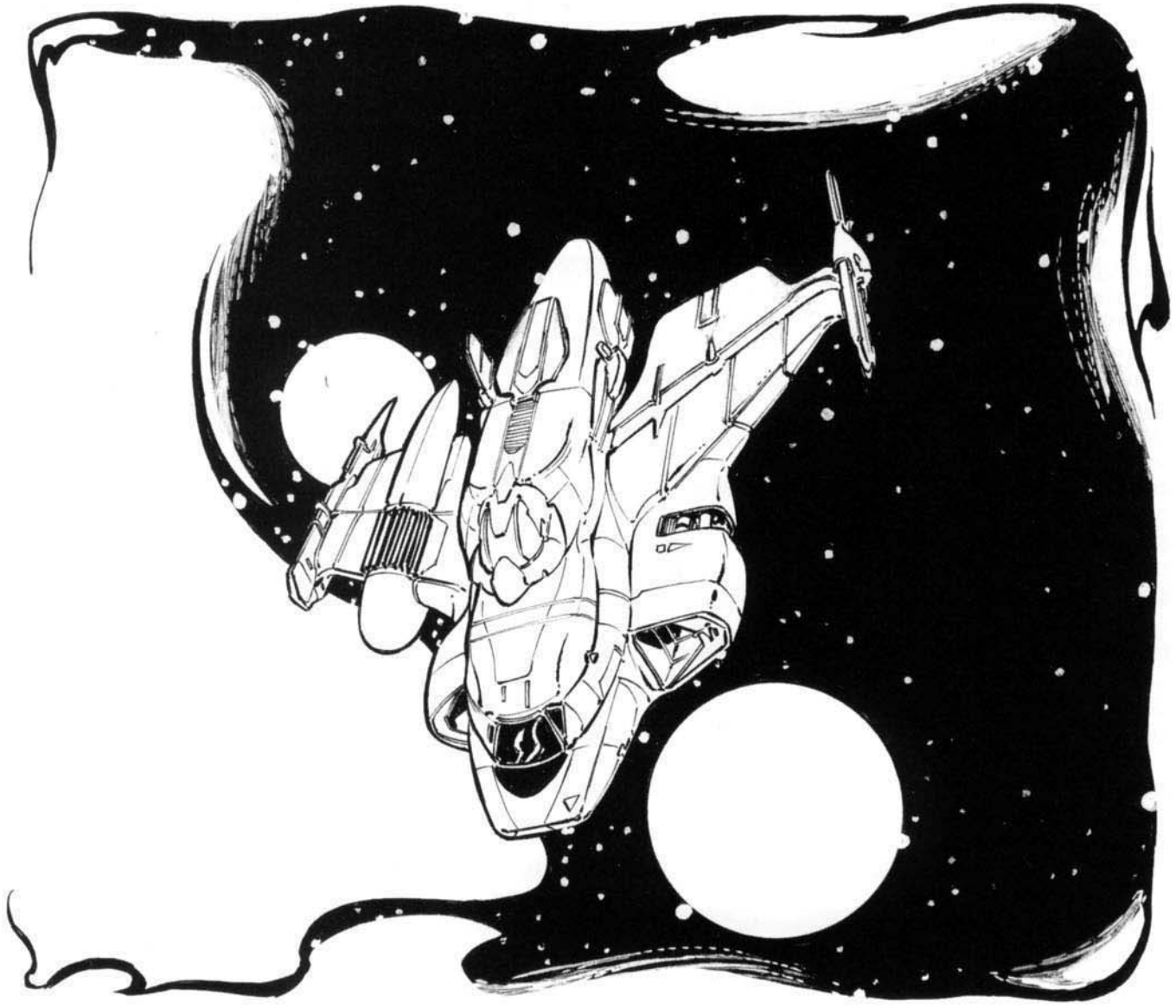
Class: Watercraft		**EP Output:** 2650 (25 excess) / 1650 (25 excess)
Cost:		**Agility:** 0
Tech Level: 6		**Initiative:** +0
Size: Colossal (500,000vl)		**AC:** 2 (-8 size)
Streamlining: No		**AR:** 0
Pressurized? Yes		**SI:** 160
Climate Control? No		**Visual:**
Drive Train: Water Surface/Subsurface		
Crew: 5		
Passengers: 10		**Sensors:**
Cargo Space: 40,430vl		
Fuel: 99,000vl		
Range: 216 hours / 72 hours		**Comm.:**
Speeds:		
Acceleration = 4kph		
Underwater = 20kph	Very Slow = 4kph	Slow = 10kph
Cruising = 20kph	Fast = 30kph	Maximum = 40kph
Other Equipment:		

TAS Form 3.1v (Condensed)

Vehicle Data (Commercial)

TL6 Design Specifications

Installed Components	*Size*	*Cost*	*EP*
500,000vl Chassis	+500,000	500,000	-
Pressurized Interior	-25,000	625,000	-625
Drive Train, Surface Water	-25,000	125,000	-1000
Drive Train, Subsurface Water	-20,000	250,000	-2000
Int Combustion Power Plant	-8250	82,500	+1650
Crude Batteries	-76,320	381,600	+2650
Fuel	-99,000	-	-
Controls	-189,000	250,000	-
Passengers Small Cabins (15)	-15,000	120,000	-
Galley Facilities (8)	-1600	8000	-
Fresher Facilities (2)	-400	1500	-
Cargo/Luggage	-40,430	-	-
Totals	*+0*	*Cr2,343,600 (Cr1,874,880 with 20% standard design discount)*	



SMALLCRAFT DESIGNS

SMALLCRAFT

Type	TL	Cost	Size	Acceleration	SI	AC
Launch (lifeboat)	9	MCr9.842	20 tons	1-G	77	11
Ship's Boat	9	MCr30.362	30 tons	6-G	80	11
Slow Boat	9	MCr25.682	30 tons	3-G	80	10
Pinnace	10	MCr45.522	40 tons	5-G	82	10
Slow Pinnace	9	MCr33.402	40 tons	2-G	82	10
Modular Cutter	10	MCr51.422	80 tons	4-G	85	10
	ATV Module	-	MCr1.8	30 tons	-	- -
	Fuel Module	-	MCr1	30 tons	-	- -
	Open Module	-	MCr2	30 tons	-	- -
Shuttle	10	MCr54.42	95 tons	3-G	96	10
Fighter	15	MCr27.3	15 tons	6-G	76	14

LAUNCH (LIFEBOAT)

Small Spacecraft

TL9, MCr9.842, 20 tons. The Launch is a small, slow vessel capable of fulfilling a wide range of roles from cargo and passenger transfer to lifeboat, search-and-rescue or starport utility work. Attempts to use a Launch as weapons platform is generally unsuccessful due to a lack of maneuverability. Typically a launch will be capable of 1G acceleration, has an operational duration of 4 weeks before needing to refuel, and can carry approximately 13 tons of cargo. It requires a crew of two, at least one of whom must have a Pilot skill rank of one or higher, and takes 5 months to build.

LAUNCH

Class: Smallcraft	**EP Output:** 0.4 (0.2 excess)
Tech Level: 9	**Agility:** 1 (+1 EP)
Size: Small (20 tons)	**Initiative:** +1 (+1 agility)
Streamlining: Streamlined	**AC:** 12 (+1 agility, +1 size)
Jump Range: None	**Repulsors:** None
Acceleration: 1-G	**Nuclear Dampers:** None
Fuel: 0.4 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 2	**AR:** 0
Staterooms: 0	**SI:** 77
Small Cabins: 1	**Main Computer:** Model/2
Bunks: 0	**Sensor Range:** Short (Model/2)
Couches: 2	**Comm. Range:** Short (Model/2)
Low Berths: 0	
Cargo Space: 9.5 tons	**Cost:** MCr9.842 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 200kph	Maximum = 375kph

Other Equipment: Fresher, missile magazine

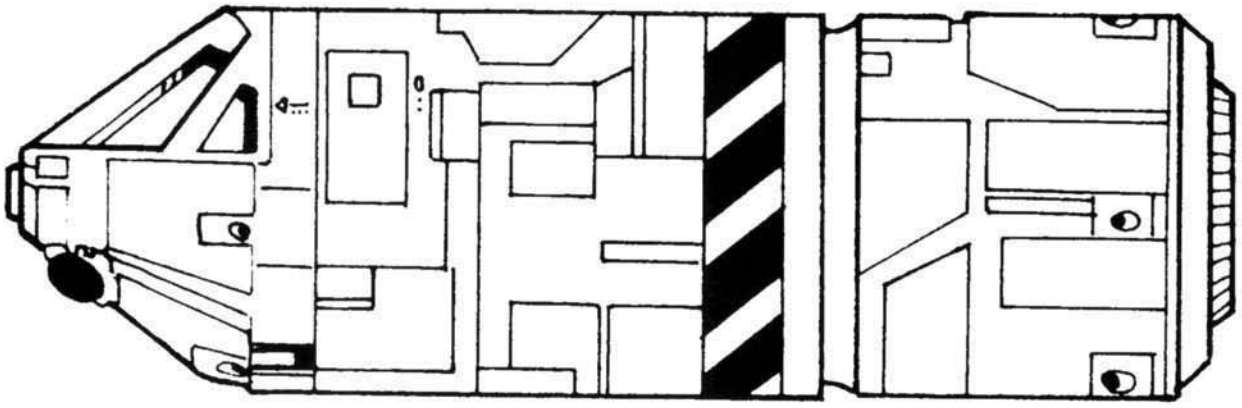
Triple Turret: empty

TAS Form 3.1 (Condensed)

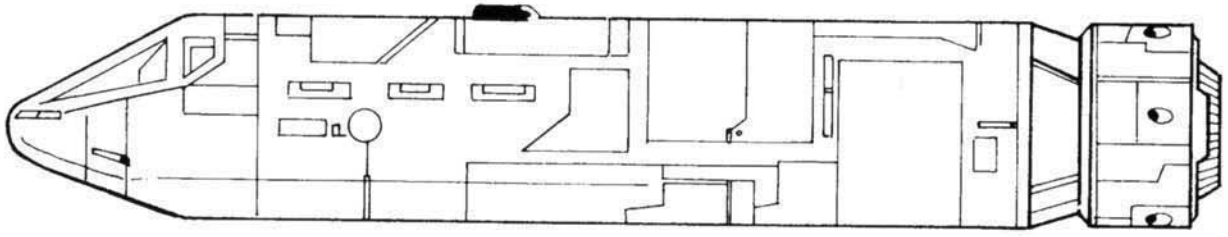
Ship's Data (Commercial)

TL9 Design Specifications

	Size	*Cost*	*EP*
20-ton streamlined cylinder hull		+20	MCr2.1 -
Bridge Controls	-4	MCr0.1	-
Model/2 Computer	-0.2	MCr6.2	-
Flight Avionics	-0.4	(MCr0.9)	-
Short Range Sensors	-0.6	(MCr1.2)	-
Short Range Communications		-0.4	(MCr1) -
1-G Acceleration	-0.4	MCr0.6	-0.2 EP
TL9 Fusion Power Plant	-0.6	MCr1.8	+0.4 EP
Fuel		-0.4	- -
2 Small Craft Couches	-1	MCr0.05	-
1 Small Cabin	-2	MCr0.25	-
Fresher	-0.5	MCr0.002	-
1 Hardpoint	-	MCr0.1	-
Triple Turret	-	MCr1	-
Missile Magazine	-	MCr0.1	-
Cargo	-9.5	-	-
Totals	*+0*	*MCr12.302 (MCr9.842 with 20% standard design discount)*	



Launch (Lifeboat), page 312



Ship's Boat, page 314

SHIP'S BOAT

Small Spacecraft

TL9, MCr30.362, 30 tons. Larger and much faster than the Launch, the Ship's Boat has little room for cargo and is highly expensive. They are mainly used as "prestige" passenger shuttles, for military personnel transfers between vessels, and as rescue craft. The vessel requires a crew of two, at least one of whom must have at least a Pilot skill rank of one or higher, and requires 5 months to build.

SHIP'S BOAT

Class: Smallcraft	**EP Output:** 4 (1.2 excess)
Tech Level: 9	**Agility:** 4 (+4 EP)
Size: Small (30 tons)	**Initiative:** +4 (+4 agility)
Streamlining: Streamlined	**AC:** 15 (+4 agility, +1 size)
Jump Range: None	**Repulsors:** None
Acceleration: 6-G	**Nuclear Dampers:** None
Fuel: 4 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 2	**AR:** 0
Staterooms: 0	**SI:** 80
Small Cabins: 1	**Main Computer:** Model/3
Bunks: 0	**Sensor Range:** Medium (Model/3)
Couches: 2	**Comm. Range:** Medium (Model/3)
Low Berths: 0	
Cargo Space: 3.2 tons	**Cost:** MCr30.362 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 200kph	Maximum = 375kph

Other Equipment: Fresher, missile magazine

Triple Turret: empty

TAS Form 3.1 (Condensed) **Ship's Data (Commercial)**

TL9 Design Specifications

	Size	*Cost*	*EP*
30-ton streamlined cylinder hull	+30	MCr3.15	-
Bridge Controls	-6	MCr0.15	-
Model/3 Computer	-0.3	MCr12.6	-1 EP
Flight Avionics	-0.4	(MCr0.9)	-
Medium Range Sensors	-0.9	(MCr1.8)	-
Medium Range Communications	-0.6	(MCr1.5)	-
6-G Acceleration	-5.1	MCr2.55	-1.8 EP
TL9 Fusion Power Plant	-6	MCr18	+4 EP
Fuel		-4	- -
2 Small Craft Couches	-1	MCr0.05	-
1 Small Cabin	-2	MCr0.25	-
Fresher	-0.5	MCr0.002	-
1 Hardpoint	-	MCr0.1	-
Triple Turret	-	MCr1	-
Missile Magazine	-	MCr0.1	-
Cargo	-3.2	-	
Totals	*+0*	*MCr37.952 (MCr30.362 with 20% standard design discount)*	

SLOW BOAT

Small Spacecraft

TL9, MCr25.682, 30 tons. The Slow Boat is more affordable than its faster cousin, and cargo space is better. These craft are often used by larger merchant ships. The vessel requires a crew of two, at least one of whom must have at least a Pilot skill rank of one or higher, and requires 5 months to build.

SLOW BOAT

Class: Smallcraft	**EP Output:** 3 (1.1 excess)
Tech Level: 9	**Agility:** 3 (+3 EP)
Size: Small (30 tons)	**Initiative:** +3 (+3 agility)
Streamlining: Streamlined	**AC:** 14 (+3 agility, +1 size)
Jump Range: None	**Repulsors:** None
Acceleration: 3-G	**Nuclear Dampers:** None
Fuel: 3 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 2	**AR:** 0
Staterooms: 0	**SI:** 80
Small Cabins: 1	**Main Computer:** Model/3
Bunks: 0	**Sensor Range:** Medium (Model/3)
Couches: 2	**Comm. Range:** Medium (Model/3)
Low Berths: 0	
Cargo Space: 8.4 tons	**Cost:** MCr25.682 (new)
Atmospheric Speeds	NoE = 275kph
Cruising = 200kph	Maximum = 375kph
Other Equipment: Fresher, missile magazine	

Triple Turret: empty

Ship's Data (Commercial)

TAS Form 3.1 (Condensed)

TL9 Design Specifications

	Size	*Cost*	*EP*
30-ton streamlined cylinder hull	+30	MCr3.15	-
Bridge Controls	-6	MCr0.15	-
Model/3 Computer	-0.3	MCr12.6	-1 EP
Flight Avionics	-0.4	(MCr0.9)	-
Medium Range Sensors	-0.9	(MCr1.8)	-
Medium Range Communications	-0.6	(MCr1.5)	-
3-G Acceleration	-2.4	MCr1.2	-0.9 EP
TL9 Fusion Power Plant	-4.5	MCr13.5	+3 EP
Fuel		-3	- -
2 Small Craft Couches	-1	MCr0.05	-
1 Small Cabin	-2	MCr0.25	-
Fresher	0.5	MCr0.002	-
1 Hardpoint	-	MCr0.1	-
Triple Turret	-	MCr1	-
Missile Magazine	-	MCr0.1	-
Cargo	8.4	-	-
Totals	*+0*	*MCr 32.102 (MCr 25.682 with 20% standard design discount)*	

PINNACE

Small Spacecraft

TL10, MCr45.522, 40 tons. A larger craft designed for high performance in atmosphere or in space, the Pinnace is fairly uncommon among small craft due to its high cost. Requires a crew of two.

PINNACE

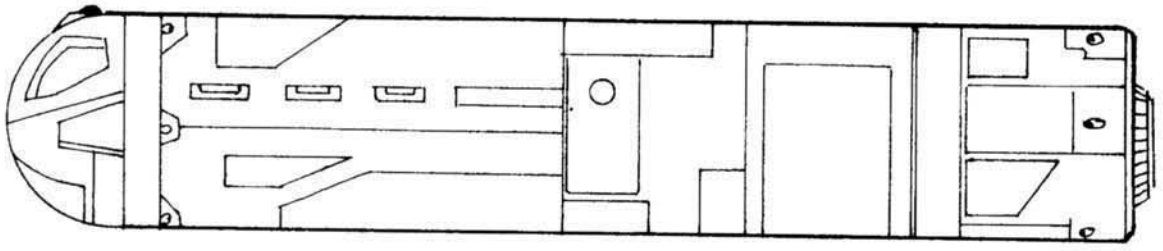
Class: Smallcraft	**EP Output:** 4 (1.2 excess)
Tech Level: 10	**Agility:** 4 (+4 EP)
Size: Small (40 tons)	**Initiative:** +4 (+4 agility)
Streamlining: Streamlined	**AC:** 15 (+4 agility, +1 size)
Jump Range: None	**Repulsors:** None
Acceleration: 5-G	**Nuclear Dampers:** None
Fuel: 6 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 2	**AR:** 0
Staterooms: 0	**SI:** 82
Small Cabins: 1	**Main Computer:** Model/4
Bunks: 0	**Sensor Range:** Long (Model/4)
Couches: 2	**Comm. Range:** Long (Model/4)
Low Berths: 0	
Cargo Space: 5.1 tons	**Cost:** MCr45.522 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 200kph	Maximum = 375kph
Other Equipment: Fresher, missile magazine	

Triple Turret: empty

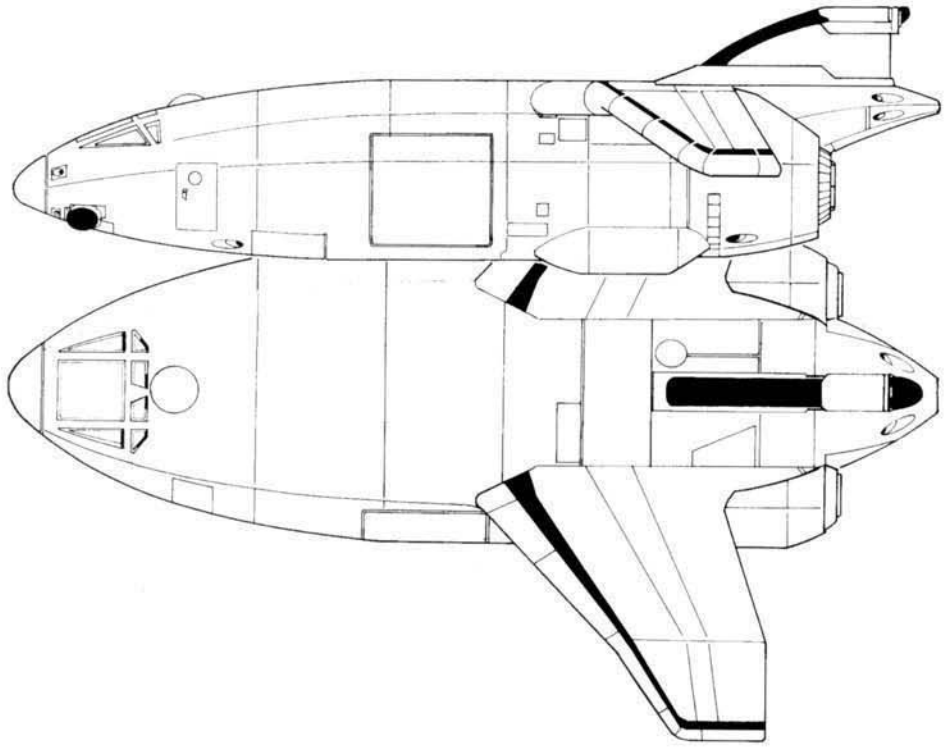
TAS Form 3.1 (Condensed) **Ship's Data (Commercial)**

TL10 Design Specifications

	Size	*Cost*	*EP*
40-ton streamlined cylinder hull	+40	MCr4.2	-
Bridge Controls	-8	MCr0.2	-
Model/4 Computer	-0.4	MCr21.2	-2 EP
Flight Avionics	-0.4	(MCr0.9)	-
Long Range Sensors	-1.2	(MCr2.4)	-
Medium Range Communications	-0.8	(MCr2)	-
5-G Acceleration	-5.6	MCr2.8	-2 EP
TL9 Fusion Power Plant	-9	MCr27	+6 EP
Fuel		-6	- -
2 Small Craft Couches	-1	MCr0.05	-
1 Small Cabin	-2	MCr0.25	-
Fresher	-0.5	MCr0.002	-
1 Hardpoint	-	MCr0.1	-
Triple Turret	-	MCr1	-
Missile Magazine	-	MCr0.1	-
Cargo	5.1	-	-
Totals	*+0*	*MCr 56.902 (MCr 45.522 with 20% standard design discount)*	



Slow Boat, page 315



Pinnace, page 316

SLOW PINNACE

Small Spacecraft

TL9, MCr26.722, 40 tons. The Slow Pinnace carries far more cargo than its faster cousin, and at a lower price. Performance in atmosphere is still good, and with the extra cargo capacity of a Slow Boat in a hull only 10 tons larger, the Slow Pinnace sees some use as a cargo lighter for merchant ships that cannot enter atmosphere. Requires a crew of two.

SLOW PINNACE

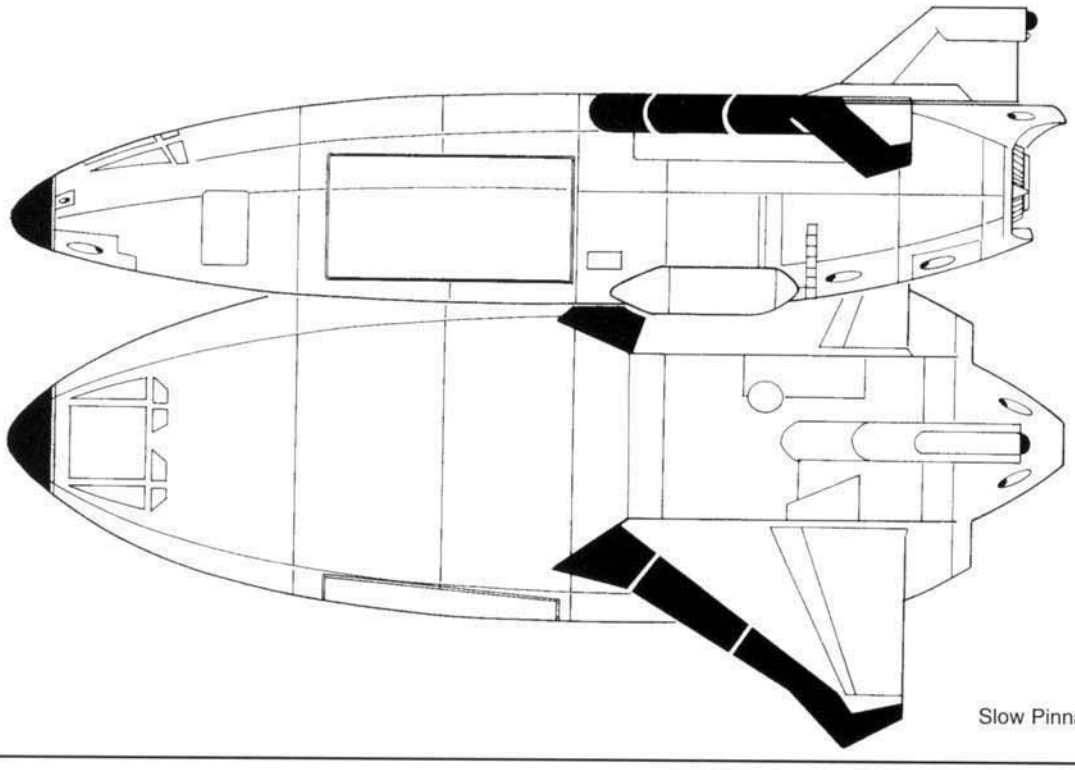
Class: Smallcraft	**EP Output:** 3 (1.2 excess)
Tech Level: 9	**Agility:** 3 (+3 EP)
Size: Small (40 tons)	**Initiative:** +3 (+3 agility)
Streamlining: Streamlined	**AC:** 14 (+3 agility, +1 size)
Jump Range: None	**Repulsors:** None
Acceleration: 2-G	**Nuclear Dampers:** None
Fuel: 3 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 2	**AR:** 0
Staterooms: 0	**SI:** 82
Small Cabins: 1	**Main Computer:** Model/3
Bunks: 0	**Sensor Range:** Medium (Model/3)
Couches: 2	**Comm. Range:** Medium (Model/3)
Low Berths: 0	
Cargo Space: 16.8 tons	**Cost:** MCr30.362 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 200kph	Maximum = 375kph
Other Equipment: Fresher, missile magazine	

Triple Turret: empty

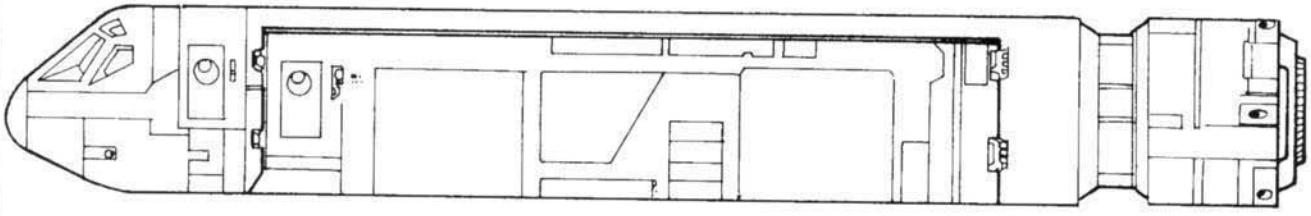
TAS Form 3.1 (Condensed) **Ship's Data (Commercial)**

TL9 Design Specifications

	Cost	*Size*	*EP*
40-ton streamlined cylinder hull	+40	MCr4.2	-
Bridge Controls	-8	MCr0.2	-
Model/3 Computer	-0.3	MCr12.6	-1 EP
Flight Avionics	-0.4	(MCr0.9)	-
Medium Range Sensors	-0.9	(MCr1.8)	-
Medium Range Communications	-0.6	(MCr1.5)	-
2-G Acceleration	-2	MCr1.4	-0.8 EP
TL9 Fusion Power Plant	-4.5	MCr13.5	+3 EP
Fuel		-3	- -
2 Small Craft Couches	-1	MCr0.05	-
1 Small Cabin	-2	MCr0.25	-
Fresher	-0.5	MCr0.002	-
1 Hardpoint	-	MCr0.1	-
Triple Turret	-	MCr1	-
Missile Magazine	-	MCr0.1	-
Cargo	16.8	-	-
Totals		*+0*	*MCr 33.402 (MCr 26.722 with 20% standard design discount)*



Slow Pinnace, page 318



Modular Cutter, page 320

MODULAR CUTTER

Small Spacecraft

TL10, MCr12.14, 50 tons. The Modular Cutter is a highly versatile design used in many Port Authority, mercantile and military applications. The 30-ton module bay can carry a range of standard and custom modules (purchased separately) for cargo transfer, passenger or more specialist applications. Requires a crew of two, but has space for a third crewmember or passenger.

MODULAR CUTTER

Class: Smallcraft	**EP Output:** 1 (no excess)
Tech Level: 10	**Agility:** 0
Size: Small (50 tons)	**Initiative:** +0
Streamlining: Streamlined	**AC:** 11 (+1 size)
Jump Range: None	**Repulsors:** None
Acceleration: 2-G	**Nuclear Dampers:** None
Fuel: 1 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 2	**AR:** 0
Staterooms: 0	**SI:** 92
Small Cabins: 1	**Main Computer:** Model/1
Bunks: 0	**Sensor Range:** Close (Model/1)
Couches: 3	**Comm. Range:** Close (Model/1)
Low Berths: 0	
Cargo Space: 0.4 tons	**Cost:** MCr12.14 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 200kph	Maximum = 375kph

Other Equipment:

Triple Turret: empty

TAS Form 3.1 (Condensed) **Ship's Data (Commercial)**

TL10 Design Specifications

	Size	*Cost*	*EP*
50-ton streamlined cylinder hull	+50	MCr5.25	-
Bridge Controls	-10	MCr0.25	-
Model/1 Computer	-0.1	MCr2	-
Flight Avionics	-0.4	(MCr0.9)	-
Close Range Sensors	-0.3	(MCr0.6)	-
Close Range Communications	-0.2	(MCr0.5)	-
2-G Acceleration	-2.5	MCr1.75	-1 EP
TL9 Fusion Power Plant	-1.5	MCr4.5	+1 EP
Fuel		-1	- -
3 Small Craft Couches	-1.5	MCr0.075	-
1 Small Cabin	-2	MCr0.25	-
1 Hardpoint	-	MCr0.1	-
Triple Turret	-	MCr1	-
Cargo	0.4	-	-
Module Options			
30 ton ATV Module (w/ATV)	-30	MCr1.8	-
30 ton Fuel Module	-30	MCr1	-
30 ton Open Module	-30	MCr2	-
Totals	*+0*	*MCR 15.175 (MCr 12.14 with 20% standard design discount)*	

SHUTTLE

Small Spacecraft

TL10, MCr54.42, 95 tons. The Shuttle is a bulk cargo or passenger transfer craft. Reasonably fast, shuttles can undertake almost any task required of them and can be customized to meet an even wider range of needs. Requires a crew of two. Takes 7 months to build.

SHUTTLE

Class: Smallcraft
Tech Level: 9
Size: Small (95 tons)
Streamlining: Streamlined
Jump Range: None
Acceleration: 3-G
Fuel: 7 tons
Duration: 4 weeks
Crew: 2
Staterooms: 0
Small Cabins: 1
Bunks: 0
Couches: 2
Low Berths: 0
Cargo Space: 44.6 tons
Atmospheric Speeds:
Cruising = 200kph
Other Equipment: Fresher, missile magazine

EP Output: 7 (2.15 excess)
Agility: 2 (+2 EP)
Initiative: +2 (+2 agility)
AC: 13 (+2 agility, +1 size)
Repulsors: None
Nuclear Dampers: None
Meson Screens: None
Black Globes: None
AR: 0
SI: 96
Main Computer: Model/4
Sensor Range: Long (Model/4)
Comm. Range: Long (Model/4)

Cost: MCr54.42 (new)
Maximum = 375kph

Triple Turret: empty

TAS Form 3.1 (Condensed)

Ship's Data (Commercial)

TL10 Design Specifications

	Size	*Cost*	*EP*
95-ton streamlined wedge hull	+95	MCr9.5475	-
Bridge Controls	-19	MCr0.475	-
Model/4 Computer	-0.4	MCr21.2	-2 EP
Flight Avionics	-0.4	(MCr0.9)	-
Long Range Sensors	-1.2	(MCr2.4)	-
Medium Range Communications	-0.8	(MCr2)	-
3-G Acceleration	-7.6	MCr3.8	-2.85 EP
TL9 Fusion Power Plant	-10.5	MCr31.5	+7 EP
Fuel		-7	- -
2 Small Craft Couches	-1	MCr0.05	-
1 Small Cabin	-2	MCr0.25	-
Fresher	-0.5	MCr0.002	-
1 Hardpoint	-	MCr0.1	-
Triple Turret	-	MCr1	-
Missile Magazine	-	MCr0.1	-
Cargo	-44.6	-	-
Totals	*+0*	*MCR 68.025 (MCr 54.42 with 20% standard design discount)*	

FIGHTER

Small Spacecraft

TL10, MCr27.3, 15 tons. Fighters come in a range of sizes, from 15 or 20-ton light models up to 50-ton strike fighters. The 15-ton light fighter is the commonest design in use. Extremely fast and maneuverable, fighters are however very fragile and are primarily useful for screening and patrol work, and for policing merchant traffic. Even en masse, fighters are little threat to a major warship, but to an unruly Free Trader or a small commerce raider they may be an effective deterrent.

FIGHTER

Class: Smallcraft	**EP Output:** 1.9 (1 excess)
Tech Level: 9	**Agility:** 6 (+6 EP)
Size: Small (15 tons)	**Initiative:** +6 (+6 agility)
Streamlining: Streamlined	**AC:** 17 (+6 agility, +1 size)
Jump Range: None	**Repulsors:** None
Acceleration: 6-G	**Nuclear Dampers:** None
Fuel: 1.9 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 1	**AR:** 0
Staterooms: 0	**SI:** 77
Small Cabins: 0	**Main Computer:** Model/1
Bunks: 0	**Sensor Range:** Close (Model/1)
Couches: 1	**Comm. Range:** Close (Model/1)
Low Berths: 0	
Cargo Space: 2.2 tons	**Cost:** MCr27.3 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 200kph	Maximum = 375kph

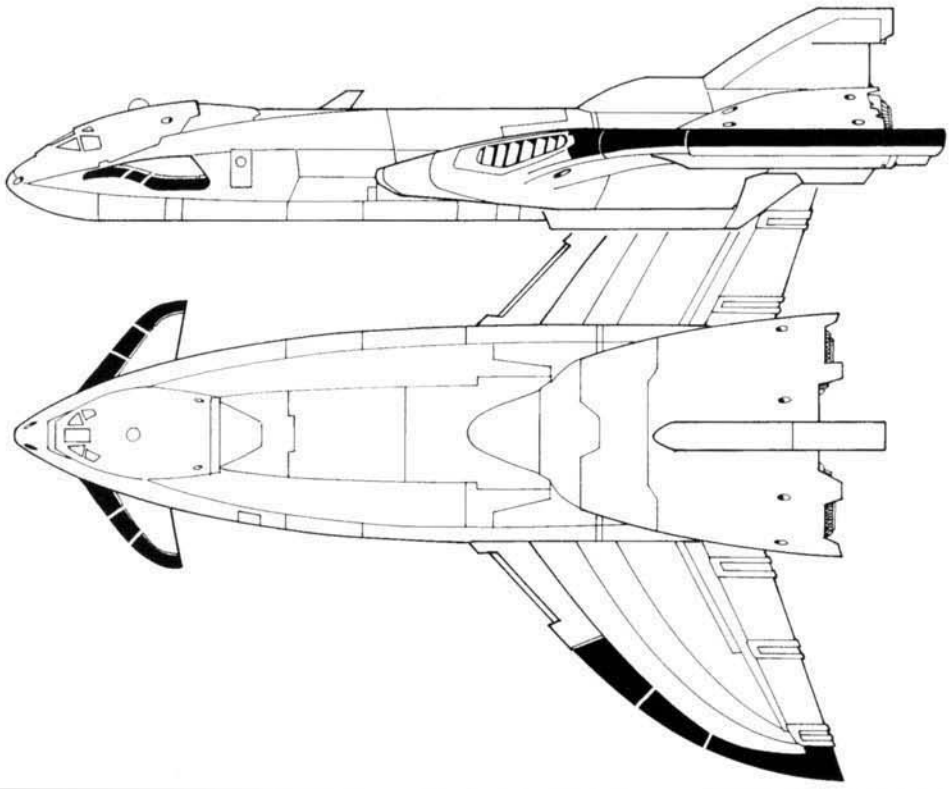
Other Equipment: None

Triple Turret: empty

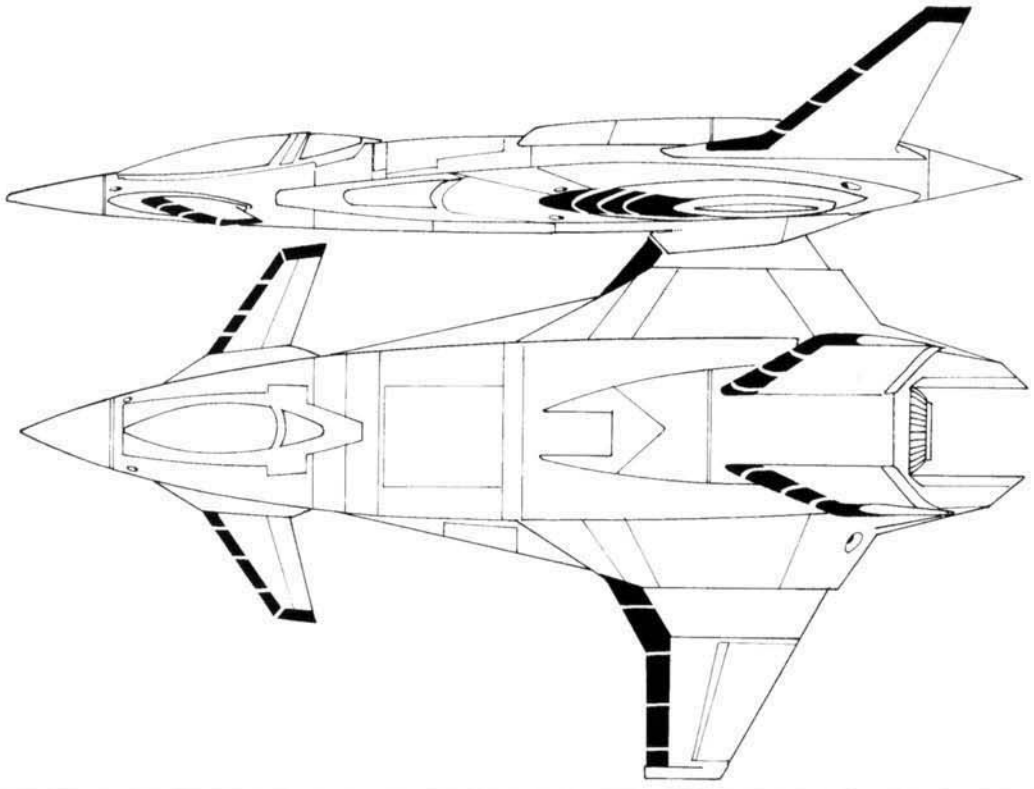
TAS Form 3.1 (Condensed) **Ship's Data (Commercial)**

TL9 Design Specifications

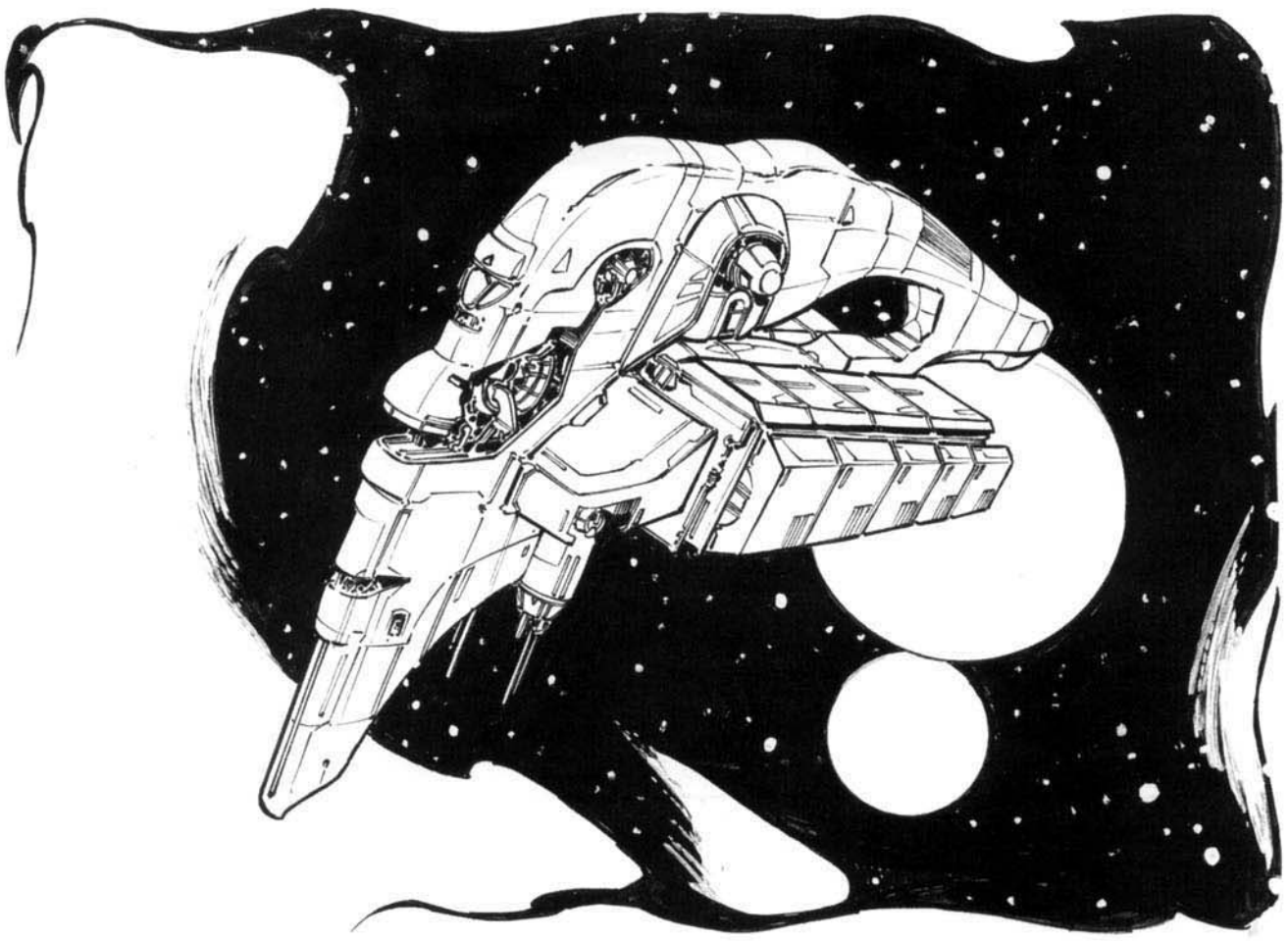
	Size	*Cost*	*EP*
15-ton streamlined wedge hull	+15	MCr1.875	-
Bridge Controls	-4	MCr0.1	-
Model/1 Computer	-0.1	MCr21.2	-
Flight Avionics	-0.4	(MCr0.9)	-
Close Range Sensors	-0.3	(MCr0.6)	-
Close Range Communications	-0.2	(MCr0.5)	-
6-G Acceleration	-2.55	MCr1.275	-0.9 EP
TL9 Fusion Power Plant	-2.85	MCr8.55	+1.9 EP
Fuel		-1.9	- -
1 Small Craft Couches	-0.5	MCr0.025	-
1 Hardpoint	-	MCr0.1	-
Triple Turret	-	MCr1	-
Cargo	-2.2	-	-
Totals	*+0*	*MCr 34.125 (MCr 27.3 with 20% standard design discount)*	



Shuttle, page 321



Fighter, page 322



STARSHIP DESIGNS

The following are all starship designs common in Charted Space. Crew requirements are minimal, and for maximum efficiency extra crew should be carried. Typically these personnel include extra engineers, a backup pilot (or a dedicated pilot to avoid the strain and distraction of having to pilot and astrogate a starship). Larger ships may have specialist command personnel, small craft pilots, technicians, cargo handlers, additional stewards etc, and any vessel mounting weapons will need gunners to operate them.

COMMON STARSHIPS AND SPACECRAFT

Ship	*TL*	*Cost*	*Size*	*Acceleration*	*Jump*	*Cargo*
Scout/Courier	11	MCr42.258	100 tons	2-G	2	20
Seeker	11	*	100 tons	1-G	2	35
Far Trader	11	MCr67.384	200 tons	2-G	2	66
Free Trader	9	MCr50.64	200 tons	1-G	1	96
Safari Ship	11	MCr73.532	200 tons	1-G	2	50
System Defense Boat	14	MCr202.36	200 tons	6-G	-	18.6
Yacht	9	MCr74.306	200 tons	1-G	1	47
Corsair	11	*	400 tons	3-G	2	163.9
Laboratory Ship	11	MCr203.038	400 tons	1-G	2	32.4
Patrol Cruiser	12	MCr226.24	400 tons	4-G	3	25.8
Subsidized Merchant	9	MCr96.874	400 tons	1-G	1	236.5
Subsidized Liner	12	MCr234.674	600 tons	1-G	3	202.8
Mercenary Cruiser	12	MCr409.395	800 tons	3-G	3	205.2

SCOUT/COURIER (TYPE S)

Medium-Size Starship

The Type S Scout/Courier is the most commonly seen ship in Charted Space. Small, cheap, and reasonably economical to operate, these ships have become a workhorse for both the government and military fleets; some are encountered in commercial use. Most Scout/Couriers are actually former Scout Service vessels either purchased as surplus from the government or are assigned for the private use of former Scouts currently on Detached Duty. In return for use of the ship the Scouts (and the ship itself) are subject to recall at any time for temporary or indefinite duty, as the Scout service requires.

The ship itself is built using the smallest available hull for a starship, 100-tons. The vessel carries a Maneuver drive capable of up to 2-G acceleration and a Jump-2 drive. The power plant provides just enough energy to power the maneuver drives or the Jump drive. If laser or energy weapons are installed, a larger power plant will be needed. Most ex-Scout vessels have had their powerful computer and sensor arrays removed and replaced with a standard Model/1bis computer. 4 staterooms are available for crew and passengers. Small cargoes may also be carried in the ship's compact 25-ton cargo hold. The vessel also carries a small vehicle bay, usually containing an air/raft.

The Scout/Courier requires a crew of one to operate; the pilot who must assume the duties of pilot and astrogator, and also oversees the highly automated drive section. A second crewmember is desirable. The Type S costs MCr42.258 new, and takes 5 months to build.

SCOUT/COURIER

Class: Starship, type S	**EP Output:** 4 (2 excess)
Tech Level: 11	**Agility:** 2 (+2 EP)
Size: Medium (100 tons)	**Initiative:** +2 (+2 agility)
Streamlining: Streamlined	**AC:** 12 (+2 agility)
Jump Range: 1 x Jump-2	**Repulsors:** 0
Acceleration: 2-G	**Nuclear Dampers:** 0
Fuel: 24 tons	**Meson Screens:** 0
Duration: 4 weeks	**Black Globes:** 0
Crew: 1	**AR:** 0
Staterooms: 4	**SI:** 100
Small Cabins: 0	**Main Computer:** Model/1 (5 CPU)
Bunks: 0	**Sensor Range:** Close (Model/1)
Couches: 0	**Comm. Range:** Close (Model/1)
Low Berths: 0	
Cargo Space: 20 tons	**Cost:** MCr42.258 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 825kph	Maximum = 1100kph
Other Equipment: Air/raft, fuel scoops.	

Double Turret: empty

Ship's Data (Commercial)

TAS Form 3.1 (Condensed)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
100-ton Hull	+100	MCr12	-
Bridge	-20	MCr0.1	-
Computer	-0.1	MCr4	-
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.3	(MCr0.6)	-
Communications	-0.2	(MCr.0.5)	-
Jump Drive 2	-3	MCr12	-2
Jump Fuel	-20	-	-
Maneuver Drive 2	-5	MCr3.5	-2
TL9 Power Plant	-6	MCr18	+4
Power Plant Fuel	-4	-	-
Fuel Scoops	-	MCr0.1	-
1 Hard Point	-	MCr0.1	-
Double Turret	-	MCr0.75	-
Air/Raft	-5	MCr0.273	-
Staterooms (4)	-16	MCr2	-
Cargo	-20	-	-
Totals	*+0*	*MCr52.823 (MCr42.258 with 20% standard design discount)*	

SEEKER (TYPE J)

Medium-Size Starship

The Type J Seeker is adapted from the standard Scout/Courier design to create a vessel suitable for lone prospectors or small teams. Ore sampling equipment is fitted, and the air-raft is usually replaced with a pressurized buggy for ground expeditions. The Seeker requires a crew of one to operate, the pilot who may assume the duties of both pilot and Astrogator. If built new, the ship would cost MCr34.178 and takes 9 months to build, but most are highly modified Scout/Couriers. Seekers do not fetch very high sale prices; around MCr20 depending on the state of the craft.

SEEKER

Class: Starship, type J	**EP Output:** 2
Tech Level: 11	**Agility:** 0
Size: Medium (100 tons)	**Initiative:** +0
Streamlining: Streamlined	**AC:** 10
Jump Range: 1 x Jump-2	**Repulsors:** None
Acceleration: 1-G	**Nuclear Dampers:** None
Fuel: 22 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 1	**AR:** 0
Staterooms: 2	**SI:** 100
Small Cabins: 0	**Main Computer:** Model/1bis (5 CPU)
Bunks: 0	**Sensor Range:** Close (Model/1)
Couches: 0	**Comm. Range:** Close (Model/1)
Low Berths: 0	
Cargo Space: 35 tons	**Cost:** see description
Atmospheric Speeds:	NoE = 275kph
Cruising = 825kph	Maximum = 1100kph
Other Equipment: Air/raft.	

Double Turret: Single Mining Laser; Attack Bonus +1 (+1 USP), Damage: 1d6, Range Increment: 15,000km.

TAS Form 3.1 (Condensed) **Ship's Data (Commercial)**

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
100-ton Hull	+100	MCr12	-
Bridge	-20	MCr0.1	-
Computer	-0.1	MCr4	-
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.3	(MCr0.6)	-
Communications	-0.2	(MCr.0.5)	-
Jump Drive 2	-3	MCr12	-2
Jump Fuel	-20	-	-
Maneuver Drive 1	-2	MCr3	-1
TL9 Power Plant	-3	MCr9	+2
Power Plant Fuel	-2	-	-
1 Hard Point	-	MCr0.1	-
Double Turret	-	MCr0.75	-
Mining Laser	-1	MCr0.5	-0.5
Air/Raft	-5	MCr0.273	-
Staterooms (2)	-8	MCr1	-
Cargo	-35	-	-
Totals	*+0*	*MCr42.723 (MCr34.178 with 20% standard design discount)*	

FAR TRADER (TYPE A2)

Medium-Size Starship

The Jump-2 Far Trader sacrifices some cargo space for engines and fuel, meaning that it cannot really compete on a main. However, A2s can be encountered almost anywhere. They are particularly common in backwater regions where larger vessels are uneconomical. On the frontier, many Far Traders are armed. The Far Trader requires a crew of four: the pilot, astrogator and engineer to operate the ship along with a medic/steward to attend to the passengers. The ship cost MCr67.384 new, and takes 9 months to build.

FAR TRADER

Class: Starship, type A2	**EP Output:** 4
Tech Level: 11	**Agility:** 0
Size: Medium (200 tons)	**Initiative:** +0
Streamlining: Streamlined	**AC:** 10
Jump Range: 1 x Jump-2	**Repulsors:** None
Acceleration: 2-G	**Nuclear Dampers:** None
Fuel: 44 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 4	**AR:** 0
Staterooms: 10	**SI:** 115
Small Cabins: 0	**Main Computer:** Model/1bis (5 CPU)
Bunks: 0	**Sensor Range:** Close (Model/1)
Couches: 0	**Comm. Range:** Close (Model/1)
Low Berths: 4	
Cargo Space: 66 tons	**Cost:** MCr67.384 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 825kph	Maximum = 1100kph
Other Equipment: Air/raft	

Double Turret: Empty.
Double Turret: Empty.

TAS Form 3.1 (Condensed)

Ship's Data (Commercial)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
200-ton Hull	+200	MCr24	-
Bridge	-20	MCr0.5	-
Computer	-0.1	MCr4	-
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.3	(MCr0.6)	-
Communications	-0.2	(MCr.0.5)	-
Jump Drive 2	-6	MCr24	-4
Jump Fuel	-40	-	-
Maneuver Drive 2	-10	MCr7	-4
TL9 Power Plant	-6	MCr18	+4
Power Plant Fuel	-4	-	-
2 Hard Points	-	MCr0.2	-
2 Double Turrets	-	MCr1.5	-
Staterooms (10)	-40	MCr5	-
Low Berths (4)	-2	MCr0.2	-
Air/Raft	-5	MCr0.273	-
Cargo	-66	-	-
Totals	*+0*	*MCr84.673 (67.384)*	

FREE TRADER (TYPE A)

Medium-Size Starship

Jump-1 Free Traders, of Type A and other designs, are very common starships. They ply the Jump-1 mains making a living from speculative trade and picking up the odd small shipment after the Corporate freighters have passed through. Many Free Traders are heavily modified as a result of their advancing age and non-standard refits. On the frontier, most vessels will be armed with at least a single laser. The Free Trader requires a crew of four: pilot, astrogator and engineer to operate the ship along with a medic/steward to attend to the passengers. The ship cost MCr50.64 new, and takes 9 months to build.

FREE TRADER

Class: Starship, type A	**EP Output:** 2
Tech Level: 9	**Agility:** 0
Size: Medium (200 tons)	**Initiative:** +0
Streamlining: Streamlined	**AC:** 10
Jump Range: 1 x Jump-1	**Repulsors:** None
Acceleration: 1-G	**Nuclear Dampers:** None
Fuel: 22 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 4	**AR:** 0
Staterooms: 10	**SI:** 115
Small Cabins: 0	**Main Computer:** Model/1 (5 CPU)
Bunks: 0	**Sensor Range:** Close (Model/1)
Couches: 0	**Comm. Range:** Close (Model/1)
Low Berths: 20	
Cargo Space: 96 tons	**Cost:** MCr50.64 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 825kph	Maximum = 1100kph

Other Equipment: None.

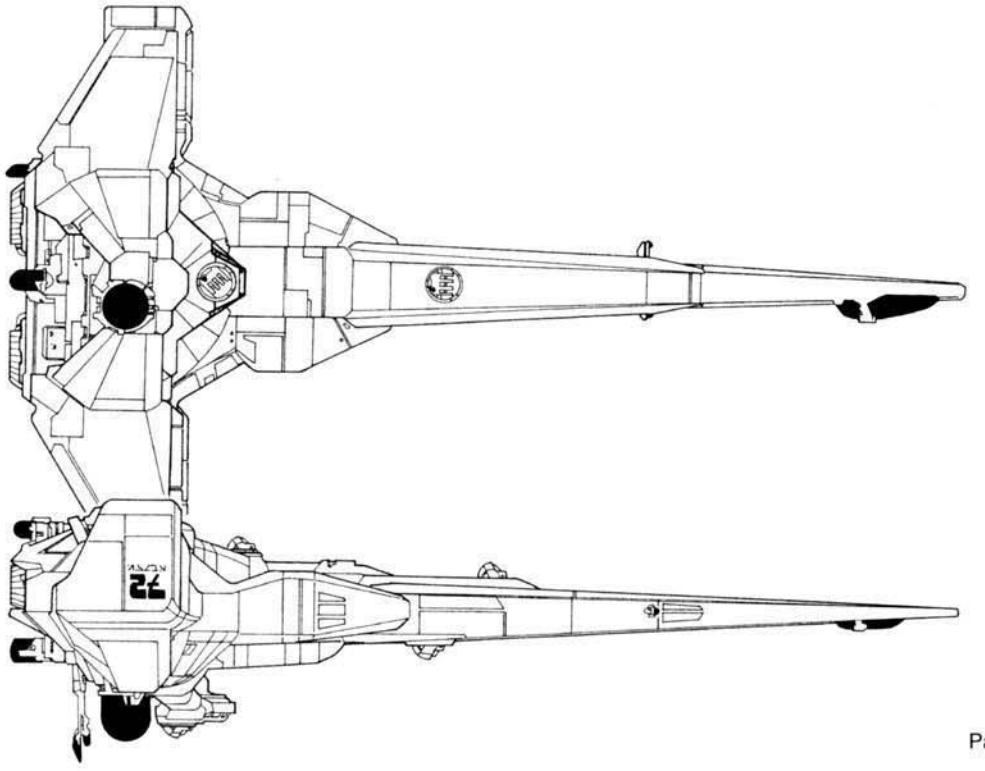
No turrets or weapons installed.

TAS Form 3.1 (Condensed)

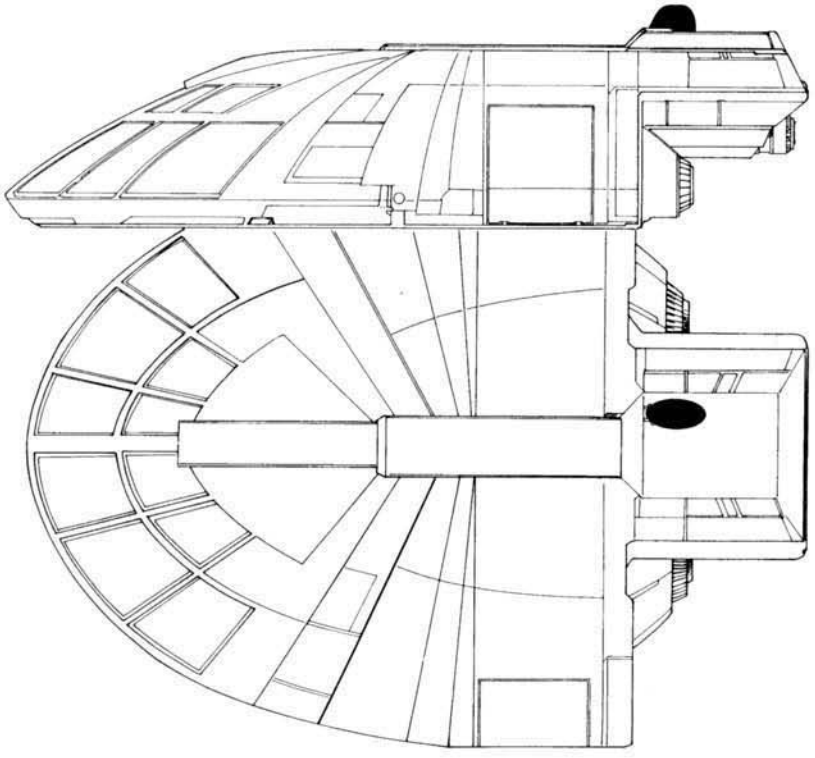
Ship's Data (Commercial)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
200-ton Hull	+200	MCr24	-
Bridge	-20	MCr0.1	-
Computer	-0.1	MCr2	-
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.3	(MCr0.6)	-
Communications	-0.2	(MCr.0.5)	-
Jump Drive 1	-4	MCr16	-2
Jump Fuel	-20	-	-
Maneuver Drive 1	-4	MCr6	-2
TL9 Power Plant	-3	MCr9	+2
Power Plant Fuel	-2	-	-
2 Hard Points	-	MCr0.2	-
Staterooms (10)	-40	MCr5	-
Low Berths (20)	-10	MCr1	-
Cargo	-96	-	-
Totals	*+0*	*MCr63.3 (MCr50.64 with 20% standard design discount)*	



Patrol Cruiser, page 336



Safari Ship, page 330

SAFARI SHIP (TYPE K)

Medium-Size Starship

The Safari Ship is somewhat less common than other small vessels. Its most common function is as a "poor person's yacht"; a small personal transport with a modest cargo capacity. However, this is not its designed function. Safari ships are intended to be used as a mobile base from which to conduct private exploration, surveying, hunting (of a photographic or lethal sort) and safari missions. Accommodation is fairly luxurious, reflecting the fact that many owners hire themselves and their ship to parties of wealthy people seeking a nice, safe adventure in the wilds. Cargo space can be configured to include pens for captured wildlife, and separate climate control exists for the cargo bay to keep catches alive. The Safari Ship requires a crew of three: pilot/astrogator and engineer to operate the ship along with a medic/steward to attend to the passengers. The ship costs MCr73.532 when new and takes 9 months to build.

SAFARI SHIP

Class: Starship, type K	**EP Output:** 4 (+2 excess)
Tech Level: 11	**Agility:** +1 (+1 EP)
Size: Medium (200 tons)	**Initiative:** +1 (+1 agility)
Streamlining: Streamlined	**AC:** 11 (+1 agility)
Jump Range: 1 x Jump-2	**Repulsors:** None
Acceleration: 1-G	**Nuclear Dampers:** None
Fuel: 44 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 3	**AR:** 0
Staterooms: 11	**SI:** 115
Small Cabins: 0	**Main Computer:** Model/1bis (5 CPU)
Bunks: 0	**Sensor Range:** Close (Model/1)
Couches: 0	**Comm. Range:** Close (Model/1)
Low Berths: 0	
Cargo Space: 50 tons	**Cost:** MCr73.532 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 825kph	Maximum = 1100kph
Other Equipment: Air/raft, 20-ton launch	

No turrets or weapons installed.

Ship's Data (Commercial)

TAS Form 3.1 (Condensed)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
200-ton Hull	+200	MCr24	-
Bridge	-20	MCr0.1	-
Computer	-0.1	MCr4	-
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.3	(MCr0.6)	-
Communications	-0.2	(MCr.0.5)	-
Jump Drive 2	-6	MCr24	-4
Jump Fuel	-40	-	-
Maneuver Drive 1	-4	MCr6	-2
TL9 Power Plant	-6	MCr18	+4
Power Plant Fuel	-4	-	-
2 Hard Points	-	MCr0.2	-
Staterooms (11)	-44	MCr5.5	-
Air/Raft	-5	MCr0.273	
20-ton Launch	-20	MCr9.842	
Cargo	-50	-	-
Totals	*+0*	*MC91.915 (MCr73.532 with 20% standard design discount)*	

SYSTEM DEFENSE BOAT (TYPE SDB)

Medium-Size Spaceship

A system defense boat, or SDB, is a ship that is used exclusively for planetary and star system defense, trading off the lack of jump drives for heavy armor, faster acceleration, and heavier weaponry in its place. There is no real 'standard' design for SDBs, as they are often of local manufacture or may be former starships pressed into local defense forces after having their jump drives removed. Most such conversions have additional armament and upgrades installed. Most SDBs are streamlined allowing them to also be used for orbital and air support for local ground troops.

If the need arises to move an SDB to another star system, it will usually be loaded onto a bulk freighter and shipped as large cargo, but this is very slow and inefficient and is not wise if the SDB is expected to go into action immediately upon arrival. In cases where rapid deployment at the destination is needed, Jump Pods can be built and strapped to the SDB, providing it with temporary jump capability. Upon arrival, the pods can be quickly and easily jettisoned, allowing the ship to move into action immediately. The pod would contain Jump drives large enough to Jump both the SDB and the pod itself, along with the requisite fuel needed to make the Jump.

A generic TL14 SDB like the one detailed here would cost MCr202.36 new, and take 11 months to build. It requires a crew of 6: Captain, Pilot, Engineer, 2 gunners and a missile technician who doubles as medic.

SYSTEM DEFENSE BOAT

Class: Spacecraft, type SDB	**EP Output:** 36 (12 excess)
Tech Level: 14	**Agility:** 6 (+6 EP)
Size: Medium (200 tons)	**Initiative:** +6 (+6 agility)
Streamlining: Airframe	**AC:** 30 (+6 agility, +14 armor)
Jump Range: None	**Repulsors:** None
Acceleration: 6-G	**Nuclear Dampers:** None
Fuel: 36 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 6	**AR:** 14
Staterooms: 4	**SI:** 115
Small Cabins: 0	**Main Computer:** Model/8 (2080 CPU)
Bunks: 0	**Sensor Range:** System-wide (Mod/8)
Couches: 0	**Comm. Range:** System-wide (Mod/8)
Low Berths: 0	
Cargo Space: 18.6 tons	**Cost:** MCr202.36 (new)
Atmospheric Speeds:	NoE = 1475kph
Cruising = 4425kph	Maximum = 5900kph

Other Equipment: Missile Magazines (x3), 60 Missiles.

Triple Turret: Missile Racks (x3), Attack Bonus +2 (+2 USP), Damage 2d6.
Triple Turret: Beam Lasers (x3), Attack Bonus +3 (+3 USP), Damage 3d8.

TAS Form 3.1 (Condensed)
Ship's Data (Commercial)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
200-ton Hull	+200	MCr24	-
Airframe	-10	MCr2.4	-
Armor (AR14)	-15	MCr1.8	-
Bridge	-20	MCr0.1	-
Computer	-0.8	MCr89.6	-9
Flight Avionics	-1.2	(MCr2.7)	-
Sensors	-1.6	(MCr4)	-
Communications	-1.8	(MCr4.5)	-
Maneuver Drive 6	-34	MCr17	-12
TL13 Power Plant	-36	MCr108	+36
Power Plant Fuel	-36	-	-
2 Hard Points	-	MCr0.2	-
Triple Turret	-	MCr1	-
Missile Rack (x3)	-3	MCr2.25	-
Triple Turret	-	MCr1	-
Missile Magazine (x3)	-3	MCr0.3	-
60 Missiles	-	MCr0.3	-
Beam Laser (x3)	-3	MCr3	-3
Staterooms (4)	-16	MCr2	-
Cargo	-18.6	-	-
Totals	*+0*	*MCr252.95 (MCr202.36 with 20% standard design discount)*	

YACHT (TYPE Y)

Medium-Size Starship

A Yacht is not a commercially viable vessel. It serves as personal transport for a rich individual, and sometimes as their home. As status symbols, many yachts are finely decorated and contain expensive furnishings, paintings and so on. Many are armed. The Yacht requires a crew of three to operate, the pilot (who doubles as astrogator), an engineer and a medic/steward to attend to the passengers. The ship cost MCr74.306 new, and takes 11 months to build.

YACHT

Class: Starship, type Y	**EP Output:** 2
Tech Level: 9	**Agility:** 0
Size: Medium (200 tons)	**Initiative:** +0
Streamlining: Streamlined	**AC:** 10
Jump Range: 1 x Jump-1	**Repulsors:** None
Acceleration: 1-G	**Nuclear Dampers:** None
Fuel: 22 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 3	**AR:** 0
Staterooms: 14	**SI:** 115
Small Cabins: 0	**Main Computer:** Model/1 (5 CPU)
Bunks: 0	**Sensor Range:** Close (Model/1)
Couches: 0	**Comm. Range:** Close (Model/1)
Low Berths: 0	
Cargo Space: 47 tons	**Cost:** MCr74.306 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 825kph	Maximum = 1100kph

Other Equipment: Air/raft, tracked ATV, 30 ton ship's boat.

No turrets or weapons installed.

TAS Form 3.1 (Condensed)

Ship's Data (Commercial)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
200-ton Hull	+200	MCr22	-
Bridge	-20	MCr0.1	-
Computer	-0.1	MCr2	-
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.3	(MCr0.6)	-
Communications	-0.2	(MCr.0.5)	-
Jump Drive 1	-4	MCr16	-2
Jump Fuel	-20	-	-
Maneuver Drive 1	-4	MCr6	-2
TL9 Power Plant	-3	MCr9	+2
Power Plant Fuel	-2	-	-
1 Hard Points	-	MCr0.1	-
Staterooms (14)	-56	MCr7	-
30-ton Ship's Boat	-30	MCr30.362	-
ATV (Tracked)	-8	MCr0.047	-
Air/Raft	-5	MCr0.273	-
Cargo	-47	-	-
Totals	*+0*	*MCr92.882 (MCr74.306 with 20% standard design discount)*	

CORSAIR (TYPE P)

Medium-Size Starship

A corsair has one purpose - to attack merchant ships and take their cargo. Though the ship has good cargo capacity, it is not viable in normal commerce. Some Corsairs are constructed for use by mercenary units, as transport and support. Without a merc license it is almost impossible to find (legal) funding for a Corsair. The vessel is fast and well armed but not quite up to military standards - a warship of the same tonnage would defeat it in a straight fight. Of course, pirates never fight fair... The Corsair requires on a crew of six to operate, the pilot, an astrogator, 3 engineers and a medic. The ship cost MCr154.84 new, and takes 14 months to build.

CORSAIR

Class: Starship, type P	**EP Output:** 15
Tech Level: 11	**Agility:** 0
Size: Medium (400 tons)	**Initiative:** +0
Streamlining: Partial	**AC:** 10
Jump Range: 1 x Jump-2	**Repulsors:** None
Acceleration: 3-G	**Nuclear Dampers:** None
Fuel: 95 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 6	**AR:** 0
Staterooms: 10	**SI:** 145
Small Cabins: 0	**Main Computer:** Model/2 (20 CPU)
Bunks: 0	**Sensor Range:** Short (Model/2)
Couches: 0	**Comm. Range:** Short (Model/2)
Low Berths: 20	
Cargo Space: 163.9 tons	**Cost:** see description
Atmospheric Speeds:	NoE = 75kph
Cruising = 200kph	Maximum = 300kph

Other Equipment: Missile Magazine, 20 Missiles.

Triple Turret: Beam Lasers (x1), Attack Bonus +1 (+1 USP), Damage 1d8.
Triple Turret: Beam Lasers (x1), Attack Bonus +1 (+1 USP), Damage 1d8.
Triple Turret: Beam Lasers (x1), Attack Bonus +1 (+1 USP), Damage 1d8.
Triple Turret: Missile Racks (x3), Attack Bonus +2 (+2 USP), Damage 2d6.

TAS Form 3.1 (Condensed)

Ship's Data (Commercial)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
400-ton Hull	+400	MCr40	-
Bridge	-20	MCr0.1	-
Computer	-0.2	MCr6.2	-
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.6	(MCr1.2)	-
Communications	-0.4	(MCr1)	-
Jump Drive 2	-12	MCr48	-8
Jump Fuel	-80	-	-
Maneuver Drive 3	-32	MCr16	-12
TL9 Power Plant	-22.5	MCr67.5	+15
Power Plant Fuel	-15	-	-
4 Hard Points	-	MCr0.4	-
4 Triple Turrets	-	MCr4	-
3 Missile Racks	-3	MCr2.25	-
1 Missile Magazine	-1	MCr0.1	-
20 Missiles	(-1)	MCr0.1	-
3 Beam Lasers	-3	MCr3	-3
Staterooms (10)	-40	MCr5	-
Low Berths (20)	-10	MCr1	-
Cargo	-159.9	-	-
Totals	*+0*	*MCr194.55 (MCr155.64 with 20% standard design discount)*	

LABORATORY SHIP (TYPE L)

Medium-Size Starship

Various types of laboratory ship exist; most are small, like the 400-ton design detailed here. The sole purpose of this vessel is scientific research; it cannot make its way in commerce, nor is it viable in combat. Lab ships are sometimes built to particular requirements, but are usually configurable to a user's immediate needs. The lab ship requires a crew of five; a pilot, astrogator, two engineers and a medic/steward to look after the research staff. There are 15 staterooms available for scientists, technicians and assistants, though some of these areas are usually turned into additional lab spaces. General lab equipment is assumed to be included with the ship's build cost, but very specialized equipment will have to be purchased separately.

The ship costs MCr 203,038 new, and takes 11 months to build.

LABORATORY SHIP

Class: Starship, type L	**EP Output:** 8 (4 excess)
Tech Level: 11	**Agility:** 1 (+1 EP)
Size: Medium (400 tons)	**Initiative:** +1 (+1 agility)
Streamlining: Partial	**AC:** 11 (+1 agility)
Jump Range: 1 x Jump-2	**Repulsors:** None
Acceleration: 1-G	**Nuclear Dampers:** None
Fuel: 88 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 5	**AR:** 0
Staterooms: 20	**SI:** 145
Small Cabins: 0	**Main Computer:** Model/2 (20 CPU)
Bunks: 0	**Sensor Range:** Short (Model/2)
Couches: 0	**Comm. Range:** Short (Model/2)
Low Berths: 0	
Cargo Space: 32.4 tons	**Cost:** MCr203.038 (new)
Atmospheric Speeds:	NoE = 75kph
Cruising = 200kph	Maximum = 300kph

Other Equipment: Air/raft, 40 ton pinnace, 12 laboratories.

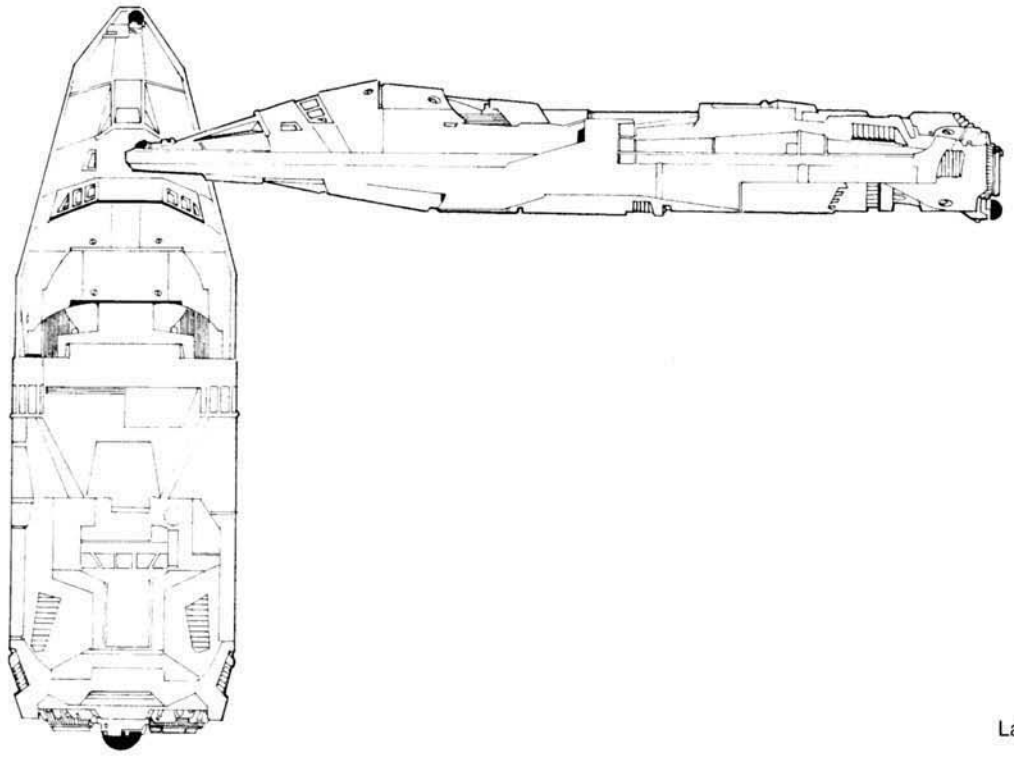
No turrets or weapons installed.

Ship's Data (Commercial)

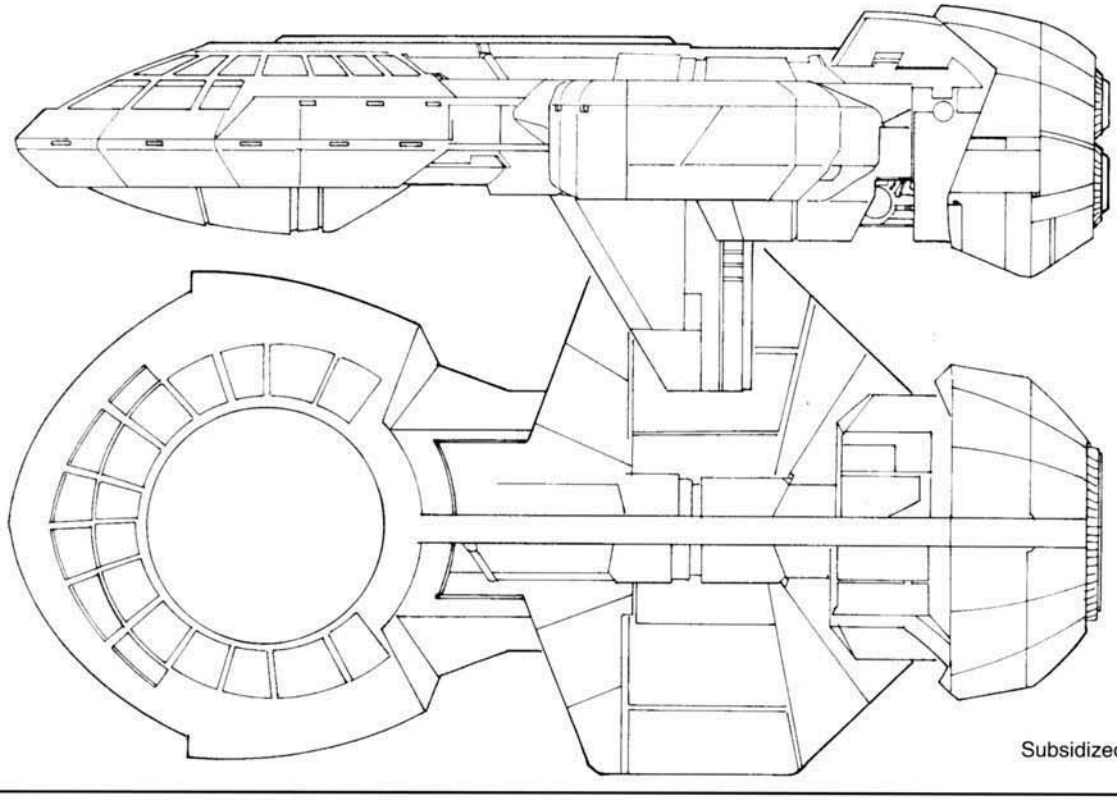
TAS Form 3.1 (Condensed)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
400-ton Hull	+400	MCr40	-
Bridge	-20	MCr0.1	-
Computer	-0.2	MCr6.2	-
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.6	(MCr1.2)	-
Communications	-0.4	(MCr1)	-
Jump Drive 2	-12	MCr48	-8
Jump Fuel	-80	-	-
Maneuver Drive 1	-8	MCr12	-4
TL9 Power Plant	-12	MCr36	+8
Power Plant Fuel	-8	-	-
4 Hard Points	-	MCr0.4	-
Staterooms (20)	-80	MCr5	-
40-ton Pinnace	-40	MCr45.552	-
Air/Raft	-10	MCr0.546	-
12 Laboratories	-96	MCr60	-
Cargo	-32.4	-	-
Totals	*+0*	*MCr253.798 (MCr203.038 with 20%standard design discount)*	



Lab Ship, page 334



Subsidized Liner, page 337

PATROL CRUISER (TYPE T)

Medium-Size Starship

The Patrol Cruiser is a very common escort and patrol ship encountered throughout Charted Space. Many are owned by mercenaries or private escort firms, but most are in Navy hands. The ship requires a crew of 12: Captain, pilot, astrogator, three engineers, four gunners, a medic and a missile technician. Eight troops are usually also carried for boarding and customs duty. Although there are 20 stateroom-equivalents aboard, only four are single-occupancy (these are used by the captain, astrogator, chief engineer and commander of troops. The rest of the crew share staterooms in pairs, with all the troops barracked in a triple-sized "sardine can" stateroom. The other 9 stateroom-equivalents are used as an armory, sickbay, wardroom and common areas for the overcrowded crew. The ship costs MCr226.24 new and takes 14 months to build.

PATROL CRUISER

Class: Starship, type P	**EP Output:** 26 (4 excess)
Tech Level: 12	**Agility:** 1 (+1 EP)
Size: Medium (400 tons)	**Initiative:** +1 (+1 agility)
Streamlining: Partial	**AC:** 11 (+1 agility)
Jump Range: 1 x Jump-3	**Repulsors:** None
Acceleration: 4-G	**Nuclear Dampers:** None
Fuel: 140 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew:	**AR:** 0
Staterooms: 20	**SI:** 145
Small Cabins: 0	**Main Computer:** Model/3 (300 CPU)
Bunks: 0	**Sensor Range:** Medium (Model/3)
Couches: 0	**Comm. Range:** Medium (Model/3)
Low Berths: 20	
Cargo Space: 25.8 tons	**Cost:** MCr226.24 (new)
Atmospheric Speeds:	NoE = 75kph
Cruising = 200kph	Maximum = 300kph

Other Equipment: Missile Magazines (6), 120 Missiles.

Triple Turret: Missile Rack (x3), Attack Bonus +2 (+2 USP), Damage 2d6.
Triple Turret: Missile Rack (x3), Attack Bonus +2 (+2 USP), Damage 2d6.
Triple Turret: Beam Laser (x3), Attack Bonus +3 (+3 USP), Damage 3d8.
Triple Turret: Beam Laser (x3), Attack Bonus +3 (+3 USP), Damage 3d8.

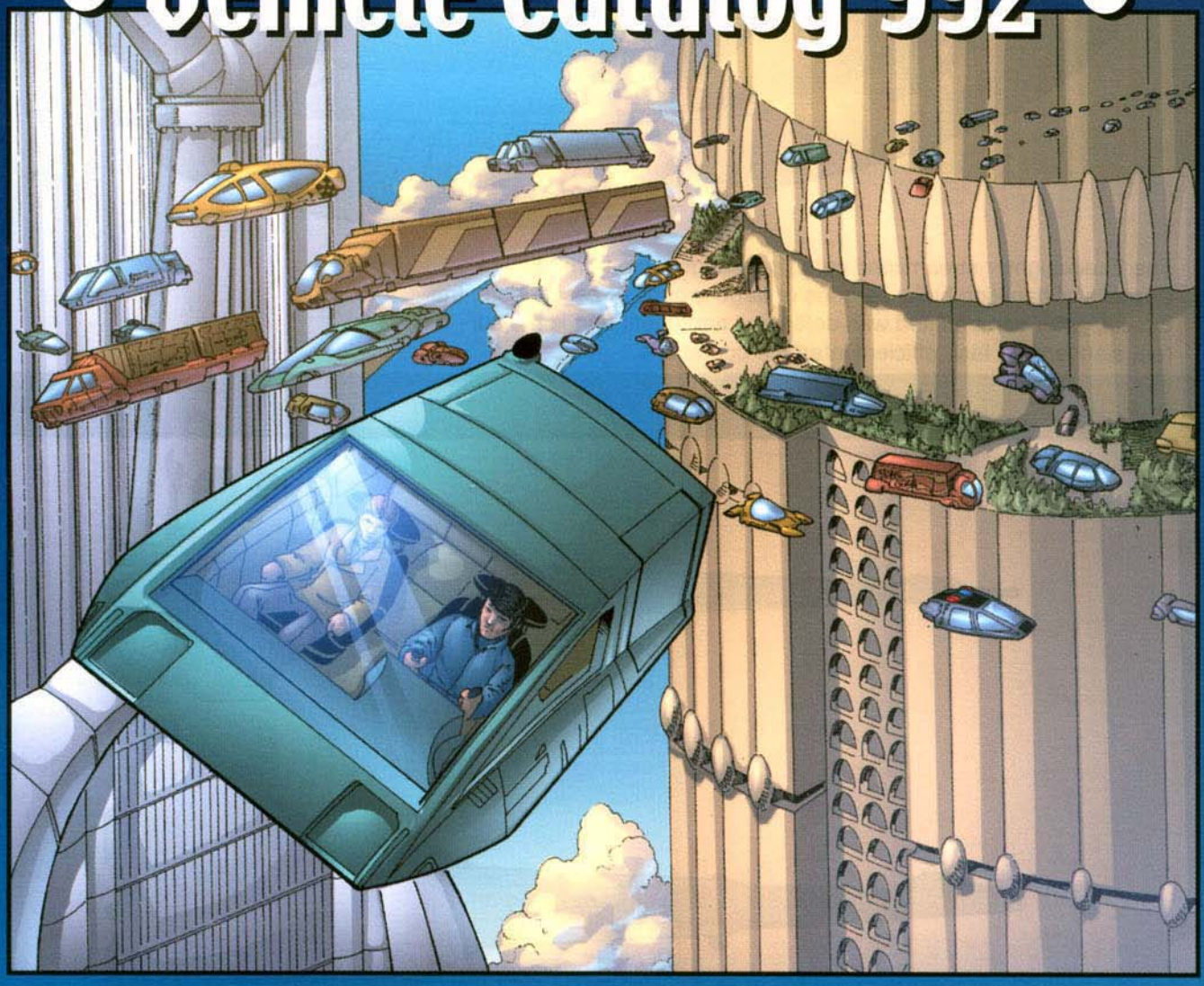
TAS Form 3.1 (Condensed) **Ship's Data (Commercial)**

Design Specifications

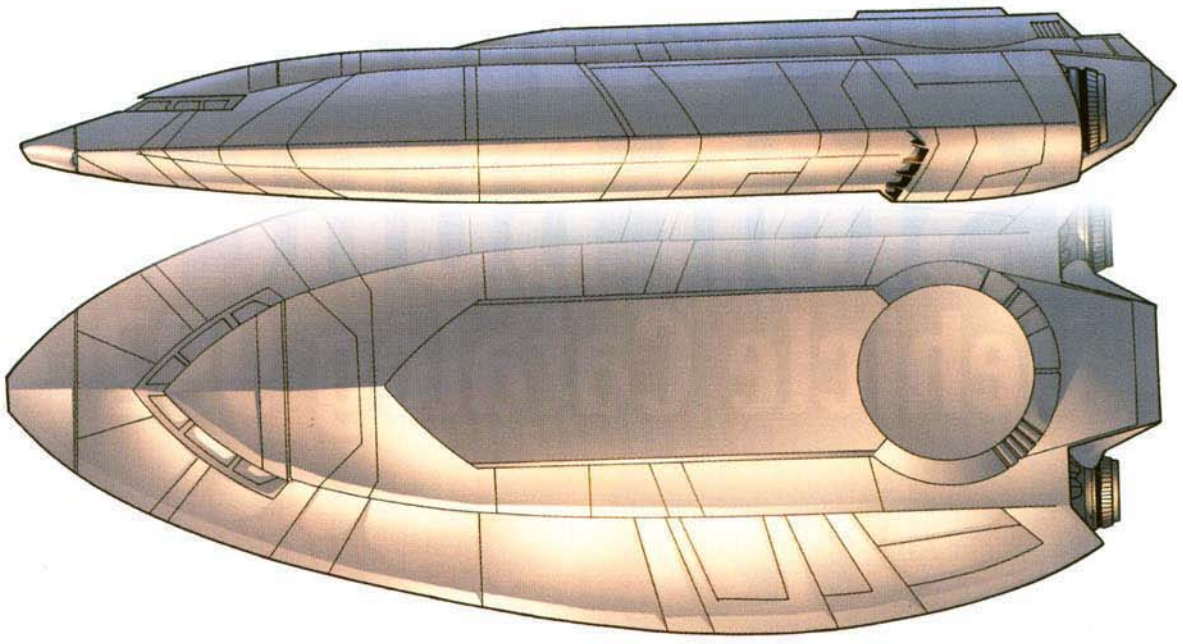
Installed Components	*Tonnage*	*Cost*	*EP*	*Notes*
400-ton Hull	+400	MCr40	-	14 month build time, Cylinder configuration
Bridge	-20	MCr0.1	-	
Computer	-0.3	MCr12.6	-1	Model/3, -1 energy points
Flight Avionics	-0.4	(MCr0.9)	-	Model/1
Sensors	-0.9	(MCr1.8)	-	Model/3
Communications	-0.6	(MCr1.5)	-	Model/3
Jump Drive 3	-16	MCr64	-12	
Jump Fuel	-120	-	-	Enough fuel for a single jump-3
Maneuver Drive 4	-44	MCr22	-16	
TL9 Power Plant	-39	MCr117	+26	
Power Plant Fuel	-25	-	-	Permits 4 weeks of operation
4 Hard Points	-	MCr0.4		
4 Triple Turrets	-	MCr4		
6 Beam Lasers	-6	MCr6	-6	
6 Missile Racks	-6	MCr4.5	-	
6 Missile Magazines	-6	MCr0.6	-	Hold 20 missiles each
120 Missiles	(-6)	MCr0.6	-	
Staterooms (20)	-80	MCr10		
Low Berths (20)	-10	MCr1		
Cargo	-25.8	-		
Totals	*+0*	*MCr282.8 (MCr226.24 with 20% standard design discount)*		

YIAN CAARDEE DESIGN BUREAU

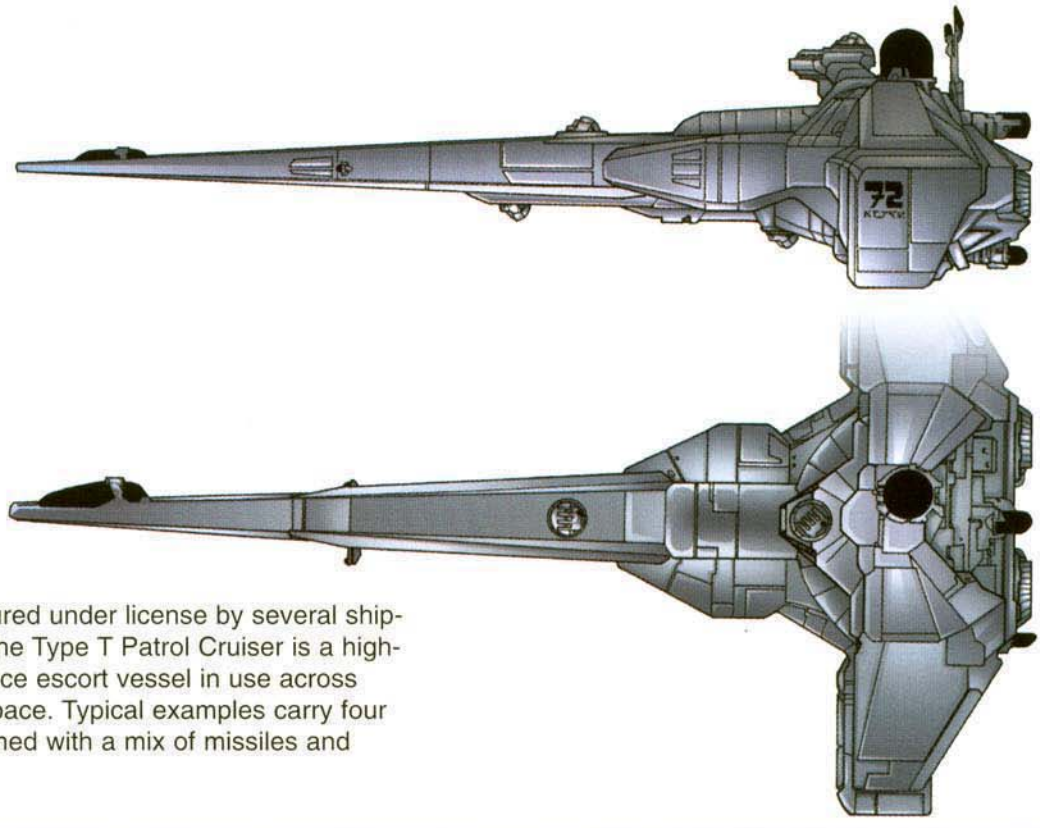
• Vehicle Catalog 992 •



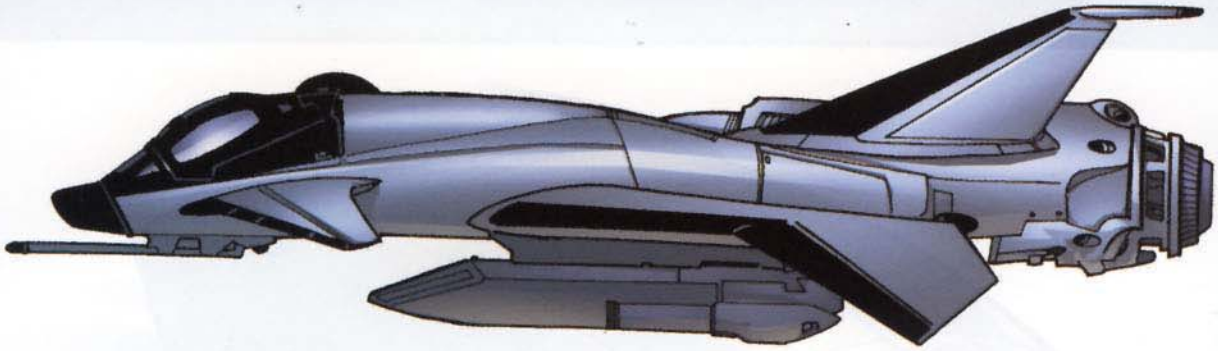
THIS YEAR'S EXECUTIVE offering from Ling Standard Products is the MX-2202. A fully enclosed, 2-seat pressurized air/raft, the MX-2202 can reach orbit unassisted and is significantly quicker on the urban transit cycle thanks to high acceleration and minimal-tolerance autopilot software. Set to be a firm favorite among young executives, the MX-2202 includes a pressurized luggage compartment and LSP's patented "Smart Upholstery" fit. That means the seats change shape to fit the user, and not the other way around!



The ExecuLighter streamlined cargo/passenger ship from LSP. Capable of handling bulky cargoes or large groups of passengers, the ExecuLighter can be fitted with defensive armament and is the current standard for fast, efficient interface operations.

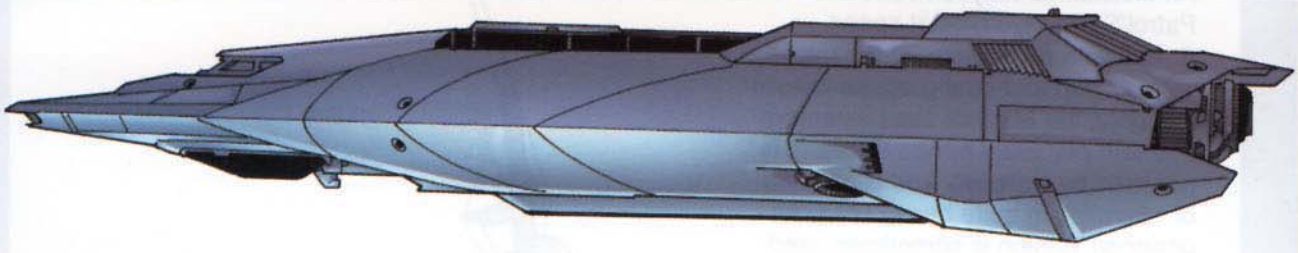


Manufactured under license by several shipbuilders, the Type T Patrol Cruiser is a high-performance escort vessel in use across charted space. Typical examples carry four turrets armed with a mix of missiles and lasers.

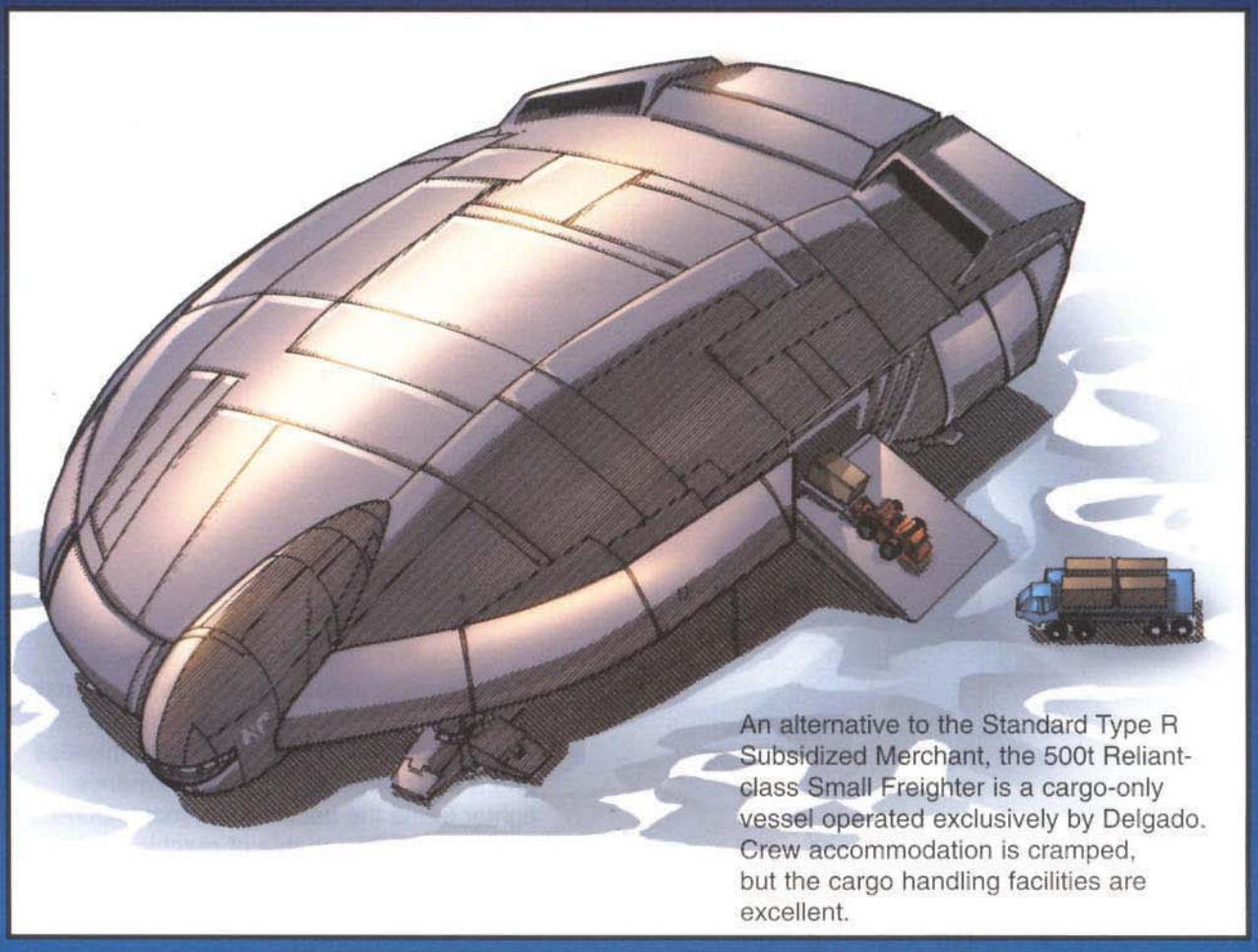




The Starraker aerospace interceptor is manufactured at TL 9 under license from Instellarms. Armed with aerospace missiles and a laser pack, this high-performance fighter forms the backbone of many COACC squadrons. It is capable of reaching low orbit, but is primarily an atmospheric combat vehicle.



The 400t Valiant Defender class System Defense Boat is a staple of many system defense squadrons. Capable of entering atmosphere, the Valiant Defender can hide underwater or in deep space before sweeping in to attack intruders with its heavy laser armament.



An alternative to the Standard Type R Subsidized Merchant, the 500t Reliant-class Small Freighter is a cargo-only vessel operated exclusively by Delgado. Crew accommodation is cramped, but the cargo handling facilities are excellent.

An Instellarms Maysek-class Patrol/Strike Hydrofoil at speed. Armed with a rapid-fire 75mm hyper-velocity gun and dual-purpose missile launcher, the Maysek sees extensive use with planetary armed forces. It is powered by waterjets and is capable of operating in quite heavy seas. An unarmed version is sometimes used by rescue services.



SUBSIDIZED MERCHANT (TYPE R)

Medium-Size Starship

The "Subbie" is built on the "cargo van" principle. Designed as little more than a cargo bay with engines, Subbies are very common on Jump-1 trade routes. Most ply a fixed route subsidized by the worlds on it, ensuring regular mail and freighting services. Many Subbies are armed and configured to carry mail. The Subsidized Merchant requires on a crew of five to operate; the pilot, engineer, and an astrogator along with a medic and steward to attend to the passengers. Since the vessel is larger and carries more passengers than the Type A or A2, the steward has a full-time job. The medic often assists or doubles as an assistant to relieve the load on the chief engineer. The ship cost MCr96.874 new, and takes 14 months to build.

SUBSIDIZED MERCHANT

Class: Starship, type R	**EP Output:** 4
Tech Level: 9	**Agility:** 0
Size: Medium (400 tons)	**Initiative:** +0
Streamlining: Partial	**AC:** 10
Jump Range: 1 x Jump-1	**Repulsors:** None
Acceleration: 1-G	**Nuclear Dampers:** None
Fuel: 44 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 5	**AR:** 0
Staterooms: 13	**SI:** 145
Small Cabins: 0	**Main Computer:** Model/1 (5 CPU)
Bunks: 0	**Sensor Range:** Close (Model/1)
Couches: 0	**Comm. Range:** Close (Model/1)
Low Berths: 9	
Cargo Space: 263.5 tons	**Cost:** MCr96.874 (new)
Atmospheric Speeds:	NoE = 75kph
Cruising = 200kph	Maximum = 300kph
Other Equipment: 20 ton launch.	

No turrets or weapons installed.

Ship's Data (Commercial)

TAS Form 3.1 (Condensed)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
400-ton Hull	+400	MCr40	-
Bridge	-20	MCr0.1	-
Computer	-0.1	MCr2	-
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.3	(MCr0.6)	-
Communications	-0.2	(MCr.0.5)	-
Jump Drive 1	-8	MCr32	-4
Jump Fuel	-40	-	-
Maneuver Drive 1	-8	MCr12	-4
TL9 Power Plant	-6	MCr18	+4
Power Plant Fuel	-4	-	-
2 Hard Points	-	MCr0.2	-
Staterooms (13)	-52	MCr6.5	-
Low Berths (9)	-4.5	MCr0.45	-
20-ton Launch	-20	MCr9.842	-
Cargo	-236.5	-	-
Totals	*+0*	*MCr121.092 (MCr96.874 with 20%standard design discount)*	

SUBSIDIZED LINER (TYPE M)

Medium-Size Starship

The Subsidized Liner is almost always tied to a fixed route. Liners carry cargo as well as passengers. Three hardpoints are fitted for turrets, but except out on the frontiers or in troubled regions, liners usually carry no armament. The Subsidized Liner requires a crew of eight: the pilot and astrogator along with 2 engineers, a medic, and 3 stewards to attend to the passengers. The ship cost MCr293.342 new, and takes 22 months to build.

SUBSIDIZED LINER

Class: Starship, type M	**EP Output:** 18 (12 excess)
Tech Level: 12	**Agility:** 2 (+2 EP)
Size: Medium (600 tons)	**Initiative:** +2 (+2 agility)
Streamlining: Streamlined	**AC:** 12 (+2 agility)
Jump Range: 1 x Jump-3	**Repulsors:** None
Acceleration: 1-G	**Nuclear Dampers:** None
Fuel: 198 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 8	**AR:** 0
Staterooms: 21	**SI:** 175
Small Cabins: 0	**Main Computer:** Model/3 (300 CPU)
Bunks: 0	**Sensor Range:** Medium (Model/3)
Couches: 0	**Comm. Range:** Medium (Model/3)
Low Berths: 20	
Cargo Space: 202.8 tons	**Cost:** MCr234.674 (new)
Atmospheric Speeds:	NoE = 275kph
Cruising = 825kph	Maximum = 1100kph
Other Equipment: 20 ton launch.	

No turrets or weapons installed.

TAS Form 3.1 (Condensed)

Ship's Data (Commercial)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
600-ton Hull	+600	MCr64	-
Bridge	-20	MCr0.1	-
Computer	-0.3	MCr12.6	-1
Flight Avionics	-0.4	(MCr0.9)	-
Sensors	-0.9	(MCr1.8)	-
Communications	-0.6	(MCr1.5)	-
Jump Drive 3	-24	MCr96	-18
Jump Fuel	-180	-	-
Maneuver Drive 1	-12	MCr18	-6
TL9 Power Plant	-27	MCr81	+18
Power Plant Fuel	-18	-	-
3 Hard Points	-	MCr0.3	-
Staterooms (21)	-84	MCr10.5	-
Low Berths (20)	-10	MCr1	-
20-ton Launch	-20	MCr9.842	-
Cargo	-202.8	-	-
Totals	*+0*	*MCr293.342 (234.674)*	

MERCENARY CRUISER (TYPE MC)

Medium-Size Starship

Designed to fit the needs of mobile merc units, the Mercenary Cruiser can carry a platoon of ground troops or act as an escort-vessel-for-hire. The ship has a good Jump range and high acceleration for a non-Naval vessel. Almost all Mercenary Cruisers carry at least one weapons turret (up to 8 can be shipped) and most will have boat pilots for the cutters. This will raise the crew requirement beyond the minimum listed here. The Mercenary Cruiser requires a crew of eight: the pilot, astrogator, 5 engineers and a medic. The ship cost MCr409.395 new, and takes 25 months to build.

MERCENARY CRUISER

Class: Starship, type MC	**EP Output:** 30
Tech Level: 12	**Agility:** 0
Size: Medium (800 tons)	**Initiative:** +0
Streamlining: Partial	**AC:** 10
Jump Range: 1 x Jump-3	**Repulsors:** None
Acceleration: 3-G	**Nuclear Dampers:** None
Fuel: 270 tons	**Meson Screens:** None
Duration: 4 weeks	**Black Globes:** None
Crew: 8	**AR:** 0
Staterooms: 25	**SI:** 205
Small Cabins: 0	**Main Computer:** Model/5 (1000 CPU)
Bunks: 0	**Sensor Range:** Very Long (Mod/5)
Couches: 0	**Comm. Range:** Very Long (Mod/5)
Low Berths: 0	
Cargo Space: 205.2 tons	**Cost:** MCr409.395 (new)
Atmospheric Speeds:	NoE = 75kph
Cruising = 200kph	Maximum = 300kph

Other Equipment: Modular Cutter (x2).

Triple Turret: Empty.
Triple Turret: Empty.
Triple Turret: Empty.
Triple Turret: Empty.
Triple Turret: Empty.
Triple Turret: Empty.
Triple Turret: Empty.
Triple Turret: Empty.

TAS Form 3.1 (Condensed)

Ship's Data (Commercial)

Design Specifications

Installed Components	*Tonnage*	*Cost*	*EP*
800-ton Hull	+800	MCr56	-
Bridge	-20	MCr0.1	-
Computer	-0.5	MCr36.5	-3
Flight Avionics	-0.8	(MCr1.8)	-
Sensors	-1.5	(MCr3)	-
Communications	-1	(MCr2.5)	-
Jump Drive 3	-32	MCr128	-24
Jump Fuel	-240	-	-
Maneuver Drive 3	-64	MCr32	-24
TL9 Power Plant	-45	MCr135	+30
Power Plant Fuel	-30	-	-
8 Hard Points	-	MCr0.8	-
8 Triple Turrets	-	MCr8	-
Staterooms (25)	-100	MCr12.5	-
Modular Cutter (2)	-60	MCr102.844	-
Cargo	-205.2	-	-
Totals	*+0*	*MCr511.744 (MCr409.395 with 20% standard design discount)*	

TRAVELLING

Travellers travel. They move between worlds as well as on the surface. The distances such travel covers may be planetary, interplanetary or interstellar in scale.

INTERPLANETARY TRAVEL

Worlds orbiting the same star are accessible by interplanetary travel, on ships operated by local entrepreneurs, or with a variety of small craft. Many stellar systems have only one major world and a few minor outposts. In such systems interplanetary travel is infrequent compared to interstellar flight. In some systems there may be several important worlds; vessels in such systems may use Jump drives to cross the vast distances between planets if this is quicker than traveling there using sublight drives, but the majority of traffic will be small craft and large non-starships.

Interplanetary travel takes time. The travel formulae given in the sidebar can be used to determine time required (if distance and acceleration are known), acceleration required (if distance and time are known), and distance traveled (if time and acceleration are known). All of the formulae use the MKS (meters, kilograms, seconds) unit system, and assume that the ship is undertaking a journey from rest, that it accelerates continuously to the midpoint of the trip, and then decelerates to rest again. In addition, several travel times and travel distances have been calculated out for ready reference.

TRAVEL FORMULAS

For those interested in exact times and distances, the following formulas are provided. The variables used are Time (T) in seconds, Distance (D) in meters, and Acceleration (A) in meters per second squared (1G equals 9.81 meters per second squared, taken as 10 meters per second squared for convenience.).

Time Required: Two times the square root of Distance divided by Acceleration.

$2 \times (D/A)^2$

Distance Traveled: Acceleration times the Time Traveled squared divided by 4.

$(A \times (T^2))/4$

Acceleration Required: Four times Distance divided by the Time Traveled squared.

$4 \times (D / (T^2))$

INTERSTELLAR TRAVEL

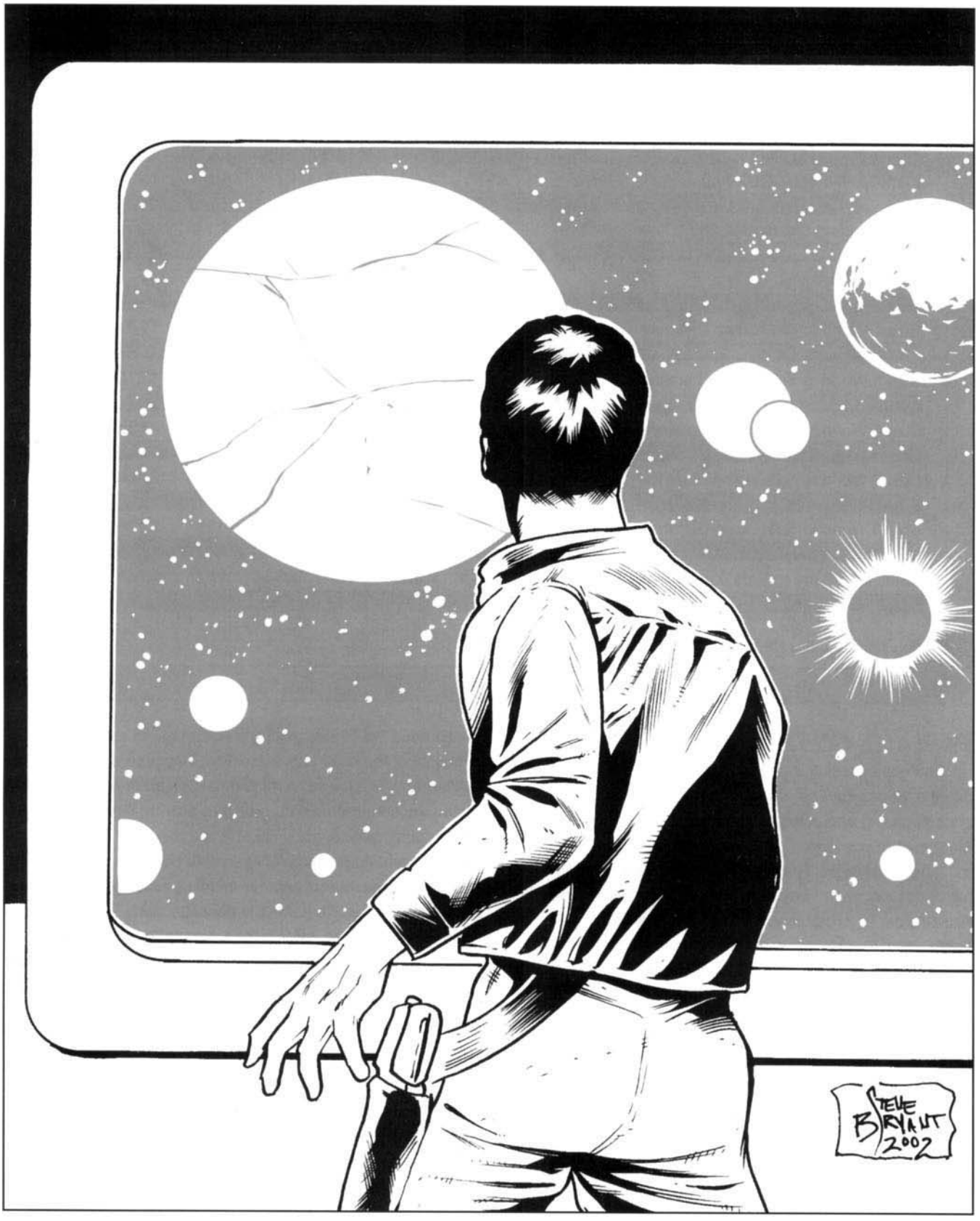
Worlds orbiting different stars are reached by interstellar travel, which makes use of the Jump drive. Once a starship moves to a safe distance from a world, it may activate its Jump drive. Jumping from closer in than 100 diameters is highly dangerous, becoming more or less suicidal at 10 diameters. Transit time to 100 diameters from a size 8 world takes 6.29 hours at 1G.

Jump drives are rated according to the number of parsecs that can be traveled in one week. This is normally 1-6; Jump numbers greater than 6 have not accomplished anything other than dangerous Misjumps. A ship can Jump a distance less than its Jump number (e.g. a ship rated for Jump 4 could Jump 3 Parsecs if desired. Fractional Jumps are entirely possible. Such Jumps use up fuel as if they covered the next full parsec (e.g. a ship might Jump half a parsec, and would use up fuel as if it Jumped 1 parsec). Any Jump takes about one week, regardless of the distance traveled.

Jump physics is not properly understood in the Traveller universe. Unusual effects do occur, creating an element of risk. However, Jump is so useful that the risk is deemed worth it.

Commercial starships usually make two jumps per month. They spend one week in Jump, followed by one week in the star system, travelling from the jump point to the local world, refueling, marketing cargo, finding passengers, leaving the starport and proceeding to a Jump point again. The week in the system usually provides some time for crew recreation and wandering around the planet.

Non-commercial ships usually follow the same schedule of one week in Jump and one week in a system. If haste is called for, a ship may refuel at a gas giant immediately, and re-Jump right away. This allows the ship to make one Jump per week, but makes no provision for cargo, passengers, or local stops.


STEVE BRYANT
2002

TYPICAL TRAVEL TIMES

Acceleration Rate Typical Distances	1-G	2-G	3-G	4-G	5-G	6-G
Planet to Orbit (10,000km)	33.33m	23.57m	19.25m	16.67m	14.91m	13.61m
Planet to Moon (400,000km)	3.51h	2.48h	2.03h	1.76h	1.57h	1.43h
Inner System Orbits (45,000,000km, orbits 0-5)	1.55d	1.10d	21.52h	18.63h	16.67h	15.21h
Outer System Orbits (600,000,000km, orbits 6-12)	5.67d	4.01d	3.27d	2.84d	2.54d	2.31d
Extreme Orbits (1,000,000,000km, orbits 13+)	7.32d	5.18d	4.23d	3.66d	3.27d	2.99d
Size 0 World to Safe Jump Distance	1.76h	1.24h	1.01h	52.70m	47.14m	43.03m
Size 1 World to Safe Jump Distance	2.22h	1.57h	1.28h	1.11h	59.63m	54.43m
Size 2 World to Safe Jump Distance	3.14h	2.22h	1.81h	1.57h	1.41h	1.28h
Size 3 World to Safe Jump Distance	3.85h	2.72h	2.22h	1.92h	1.72h	1.57h
Size 4 World to Safe Jump Distance	4.44h	3.14h	2.57h	2.22h	1.99h	1.81h
Size 5 World to Safe Jump Distance	4.97h	3.51h	2.87h	2.48h	2.22h	2.03h
Size 6 World to Safe Jump Distance	5.44h	3.85h	3.14h	2.72h	2.43h	2.22h
Size 7 World to Safe Jump Distance	5.88h	4.16h	3.39h	2.94h	2.63h	2.40h
Size 8 World to Safe Jump Distance	6.29h	4.44h	3.63h	3.14h	2.81h	2.57h
Size 9 World to Safe Jump Distance	6.67h	4.71h	3.85h	3.33h	2.98h	2.72h
Size A World to Safe Jump Distance	7.03h	4.97h	4.06h	3.51h	3.14h	2.87h
Small Gas Giant to Safe Jump Distance	11.11h	7.86h	6.42h	5.56h	4.97h	4.54h
Large Gas Giant to Safe Jump Distance	16.67h	11.79h	9.62h	8.33h	7.45h	6.80h

m = Minutes, h = Hours, d = Days

PASSAGE COSTS

Interstellar travel is priced on the basis of accommodations; prices cover a trip from starport to starport, encompassing one Jump, regardless of length. There are four types of passage:

High Passage: The best method of travel is called high passage, which involves first class accommodations and cuisine. High passengers have the services of the ship's steward, entertainment and complete attention to their comfort. There is a baggage allowance of up to 1,000 kilograms. High passage costs Cr10,000 and provides food and lodging for 1 person for a distance of 1 jump. Double occupancy is allowed at a discounted rate of Cr16,000 (Cr8000 per passenger).

Middle Passage: In order for starships to fill their staterooms with passengers, middle passage is offered on a standby basis, in the event that not enough high passages are sold. While middle passengers occupy staterooms normally similar to those occupied by high passengers, they do not receive the service or entertainment accorded the higher paying passengers. In addition, the quality of the cuisine is rather low. Baggage totaling 100 kilograms is allowed. A middle passenger may be 'bumped' and the stateroom taken by a late arriving high passenger; the middle passenger's ticket is returned, but no other compensation is made. (The middle could then buy a high passage and 'bump' another middle passenger, if the extra cost seemed worth it. Middle passage costs Cr8,000 and provides food and lodging for 1 person for a distance of 1 jump. Double occupancy is allowed at a discounted rate of Cr13,000 (Cr6500 per passenger).

Working Passage: A starship captain with a crew shortage may hire an individual to fill the vacant position, paying not money but passage in return. Working passage may not continue for more than three jumps, or the individual is considered to have been hired for standard salary. In order to be hired for working passage, the individual must have some expertise in the position for which he is hired (jack-of-all-trades may be substituted). Baggage totaling 1,000 kilograms is allowed.

Low Passage: Transportation while in cold sleep (suspended animation) is possible at relatively low cost to the passenger. The passenger is placed in a low passage berth before the ship takes off, and travels the entire journey in a state of suspended animation. He does not age, and requires very little life support. Unfortunately, the low passage system involves some intrinsic dangers to the passenger, and he runs some risk of not surviving the voyage. Therefore a qualified medic should always be in attendance when reviving passengers from low berths. If a medic is present, the medic must make a T/Medical skill check (DC10) for each passenger to safely revive them from cold sleep. If the check is failed or if a medic is not present, the passenger must make a Fort check (DC6), when he is revived after the ship has landed. Modifiers: Attending medic, +1 per skill rank. Failure to achieve the throw to revive results in death for the passenger. Refunds or civil liability if a low passenger fails to survive the trip are not allowed. Low passage costs Cr1,000 and includes a baggage allowance of 10 kilograms.

LESSER KNOWN ASPECTS OF SPACE TRAVEL

As interstellar travel has developed, the field has developed its own dangers and customs. The following are just a few.

The Low Lottery: It is customary for the captain to contribute Cr10 out of each low passage towards a lottery. Each low passenger randomly guesses the number of low passengers who will survive the trip. If the winner does not survive, the captain receives the money. The ship's steward administers the lottery.

The Travellers' Aid Society: Individuals who have decided that they wish to pursue a life of travel and adventure may elect to join the Travellers' Aid Society (TAS), in order to take advantage of its facilities and passage dividends. Non-members can use some TAS facilities for a higher fee.

Hijacking: Starships are an attractive target for hijackers and other criminals. Starship crews maintain a constant level of alert, and the ship's computer can run an anti-hijacking program that denies access to control areas to potential hijackers. Passengers are required to check all weapons (except blades and daggers) into the ship's locker; they are returned at the end of the voyage. Nevertheless, there is a chance of an attempted hijacking, for ransom, or to steal the multi-million credit vessel. Make a Basic check (DC20) to indicate a hijacking attempt (this throw does not apply if all passengers are player-characters). When an attempt occurs, randomly determine the number of hijackers, their identities, characteristics, and weapons, and implement their attempt at some point during the voyage. They will gain complete control of the ship only after defeating all other individuals on the ship. If the anti-hijacking program is functioning, the hijackers will be able to enter the bridge (gaining access to the controls) only by making a successful T/Computer skill check (DC20).

Skipping: Most starships are purchased on credit, and the monthly payments required against the multi-million credit debt are staggering. The owner or captain may decide to steal the ship himself instead of remaining under that load. Passengers have no way of determining if a specific ship is in such a status. Make a Basic check (DC20) to determine that a commercial ship is of this type. Ships that have skipped are subject to repossession attempts if detected by the authorities. Such attempts may range from the formal service of papers through legal injunctions to armed boarding parties. On each world landing, a K/Interstellar Law skill check (DC20) to avoid a repossession attempt; apply a Modifier of +1 per 5 parsecs distance from the ship's world of registry, to a maximum of +9. If the ship has called on the same world twice within the last two months, apply a Modifier of -2.

Piracy: A starship may be attacked by pirates while entering or leaving a system. Similar encounters may involve customs agents or military vessels, including blockades. The ship encounter table later in this book indicates the procedure.

Jump Variance: Calculating a Jump is a complex business, and since Jump dynamics are not completely understood, some of the "laws" involved are in fact rules of thumb. Astrogators attempt to arrive as close as possible to the 100-diameter Jump limit, with residual momentum towards an orbital position (not the planet itself, just in case...). However, an apparently perfectly-good set of Jump coordinates may bring the ship out almost a day late or early, and anywhere out to 400 diameters or more.

A "perfect Jump", hitting the 100-diameter limit exactly, with just the right vector, at exactly 168 hours from Jump entry, is the goal of every Astrogator. Achieving it would be something of a fluke, and most Astrogators never get within 5% of all three factors (duration, exit point and vector) at the same time. This means that vessels tend to emerge from Jump rather unpredictably, creating opportunities for

disaster, piracy etc, or simply requiring a long sublight haul to the target world.

The typical Astrogator can get within 110 diameters about 30% of the time, and within 125 diameters 90% of the time. The other 10% of Jumps can be quite wildly off, though as a rule better (higher skill level) Astrogators make less and smaller errors than less experienced ones. Other factors affecting the accuracy of a Jump include the condition and design of the drives and local gravity conditions (cluttered systems make for greater Jump variance). Familiarity with the system helps the Astrogator "feel" which of the many sets of possible Jump parameters (all of which seem perfectly valid) is the best.

Two vessels jumping within minutes of one another with very similar parameters can emerge a day apart. This is thought to be something to do with "shifts in the Jumpspace dynamic" - i.e. scientists are still baffled. Emergence can by synchronized by vessels sharing a common set of parameters and entering Jump at the same time; a maneuver used by the Navy and termed a "Squadron Jump".

SALVAGE RIGHTS

Salvage is the reward given to persons who voluntarily recover a derelict ship or cargo, or assist a ship or recover its cargo from impending or actual peril or loss. To file a salvage claim, the vessel and/or its cargo must be brought to the nearest class C or better starport, whether repaired and piloted in, or towed in.

Derelict: A derelict is any ship, vehicle, equipment, cargo, or other property, which has been abandoned and deserted at sea or in space by those who were in charge of it without any hope of recovering it.

Peril or Loss: A ship is considered to be at risk or peril of loss if under pirate attack, in danger of being stranded without hope of self-repair, or other situation that might cause the death or disability or crew and passengers.

Government Owned: Items originally owned by a government are immediately returned to the government, and the normal salvage rules do not apply, although most governments will pay a 'recovery' fee for such items, based on 1d6% of the original value. If the salvager has the Barter feat and makes a successful Charisma or Social Standing skill check (DC15), add 1d4% to the recovery fee.

GETTING PAID

Once a claim has been filed with the proper authorities, they will attempt to locate and contact the original (or current) owners, who have 10 years to file a claim of ownership (with proper documentation of course). Perishable goods, or goods that may significantly lose their value during the 10 year period are immediately sold at auction, the proceeds from which will be held in trust. In addition, any items that would cost more to repair than to replace will be sold for scrap at a price equal to 1d10% of the original value of the item(s).

If a claimant does not come forward within the first year, and the items(s) were not already sold at auction, the salvage claim holder may take custodial control of the item(s) in question, subject to the following limitations.

- The item(s) may not be sold or otherwise transferred into the custody/ownership of anyone other than the salvage claim holder and his or her designated heirs.
- Reasonable care must be given to ensure that the remaining value of the item(s) do not deteriorate in quality from the state they were when custody was awarded.
- Repairs and improvements to damaged equipment and vessels may be conducted, the independently evaluated and depreciated value of which may be added to the claim against the original owners should they ever come forward or be found.

If a claimant does not come forward within five years, the custodial agent may elect to sell the item(s) for best price. One-half must be paid to the appropriate authorities in the form of taxes and fees, with one quarter being awarded to the salvage claim holder, and the remaining one quarter being held in trust for the original owners. Any proceeds in trust from goods sold at the time of the original salvage claim are similarly divided, with any and all interest being kept by the authorities.

If a claimant does not come forward within the ten year limit, the remaining funds in trust are awarded to the salvage claim holder.

If a claimant is found, regardless of whether they come forward or not, the salvage claim holder will be awarded a judicial judgment against the owner in an amount equal to 25% of the original or improved value of the item(s). It will be up to the salvage claim holder to see that the judicial judgment is enforced and paid.

STARSHIPS AND SPACECRAFT

Starships (and non-starship spacecraft) are enormously expensive devices requiring the constant attention of a trained crew. They are far beyond the means of ordinary people. Even the smallest starships represent important

assets to their owners. Ships are built to last. With refits and frequent maintenance, a ship can remain in service for fifty or more years. During this time the vessel will probably be modified, upgraded and refitted. It may suffer accident or combat damage or even be scrapped then rebuilt with components very different from those it started out with.

Thus starships gradually lose their value (and some of their reliability) as time passes. As economic climates change, vessels are put to work in new roles or are sold on to new owners. This is how the majority of starfaring vessels in private hands got there, and by the time they do get there, they are not always in the best of condition.

Within most interstellar governments, of course, there is a minimum standard of spaceworthiness. Inspections are carried out randomly at the better ports (Class A to C) and by naval or customs vessels. However, a free trader tramping around the backwater ports may not be inspected for years. By the time it is... suffice to say that this is what the term "coffin ship" was coined for.

Let us take for example the Free Trader *Breakeven,* operating in Ley Sector under Captain Alexi Petrovitch. 60 years ago this was a shiny new Ling Standard Products Subsidized Merchant, ordered from the Yahei yards in Core sector as one of a batch of six. The vessels were to be a part of an ambitious expansion program by Feeder Routes LIC, a moderate sized shipping line serving the smaller ports near the core of Charted Space.

After twenty years in service (and three overhauls) the vessel was sold on. Feeder Routes was now operating bigger ships and the subbies (Subsidized Merchants) were considered uneconomical. One of three bought by the Arech Trade Consortium, the subbie served another ten years on a regular route in the Lishun sector. After suffering collision damage, and in need of an overhaul anyway, the ship was again sold on, becoming the third vessel in the trade fleet of the fledgling Ley Lines LIC. At this time a pair of turrets were added, since Ley sector is not as safe as the Core.

When Ley LIC went bust, the ship was bought by Logistics, Inc, a mercenary outfit specializing in providing supply and transport assets for other merc units. Three years and combat damage later, the ship was sold on...

And since that time she has been converted to a lab ship, then a crude patrol vessel carrying a couple of fighters for a cash-strapped planetary government seeking to do something about piracy, then back to a trader. She has passed from hand to hand for years. Worn systems have been replaced with whatever was available; jury-rigged systems have become part of her standard equipment.

These days, *Breakeven* is basically spaceworthy. Her CG lifters are a little erratic, her electronics fit has several incompatibility problems and there is an intermittent glitch in the internal monitor program. Maintenance is a nightmare due to non-standard systems and endless running repairs. Her maneuver drive runs at a good 8-11% under rated capacity. But she can fly, and can carry cargo - sometimes even at a profit. Her crew are fiercely proud of her (resulting in fights with other crews from time to time.) True, the captain sweats through every Spaceworthiness inspection, but Breakeven is HIS ship and he's lucky to have her. When he's not banging on a panel with a wrench out of sheer frustration he can sometimes even remember that.

This is the kind of ship that player-characters will have, unless they have government backing. A ship with character. A ship with its own little quirks. But a ship that works.

Mostly.

STARSHIP OPERATIONS

There are certain requirements for a starfaring vessel to operate over any length of time. Many are enforced by interstellar laws, most of which stem from the desire of starship crews to survive their voyages.

STARSHIP CREW

Starships require a broad range of skills to operate them, and a clear chain of command to deal with problems. On small ships, most crewmembers have several jobs but given the complex nature of starship operations, some degree of specialism is a requirement. The main jobs aboard ship are as follows:

MASTER/CAPTAIN

All non-small-craft (i.e. anything that is not a port utility vessel or a subordinate craft carried aboard a starship) requires a commanding officer, who is usually termed the Master or Captain of the vessel, whatever his or her actual rank may be. Even Scout vessels, whose crews have no formal rank, must designate someone as Master. Exactly who is in charge can vary from day to day.

The Master is personally responsible for the safety of the ship and everyone aboard, plus everyone who might be affected by the actions of the ship and her crew. The Master must be a qualified bridge officer (i.e. he must have at least one of the following skills: Pilot, Astrogator, Sensors). Most ship's Masters have extensive experience as a junior officer and know how to do many of the jobs

aboard ship. Most also have skills like Law and Leader. Ship Tactics and similar military skills may be useful to an armed ship, and trading skills are desirable for merchant skippers.

EXECUTIVE OFFICER/FIRST OFFICER/MATE

The second-in-command of a ship has several possible titles. On large ships, the First Officer has no other job, but on small vessels he or she will usually be a bridge officer with responsibility for one area of operations such as Sensors or Astrogation.

BRIDGE CREW

The bridge crew may or may not be officers. They are usually specialists who carry out the tasks involved in flying the ship. Many of the bridge jobs can be doubled up; e.g. the Astrogator may also handle communications and sensors.

PILOT

All ships must have a pilot, who guides the vessel. Computer assistance takes much of the labor out of this task, but a pilot is necessary in case of emergency. Pilots often plot the ship's course through normal space if there is no dedicated Astrogator aboard. Any ship should have at least one backup pilot (usually someone who normally does a different job) and for passenger ships this is a legal requirement.

ASTROGATOR

The Astrogator plots the ship's course through Jumpspace. Despite the assistance of computers, there is still a lot of "feel" involved in Jump plotting and a good Astrogator is a valuable asset. The Astrogator will usually handle real-space course plotting as well. An Astrogator is not needed aboard a non-Jump capable vessel, though some larger ones carry a normal-space Astrogator.

COMMUNICATIONS

Comms can be handled from any bridge position, so only large ships carry a dedicated comms officer. Anyone can operate the communications system under normal conditions, but under stress or in an unusual situation, someone with Communications skill is needed.

SENSORS

Sensor operations are often doubled up with the Pilot's job, but in tricky conditions someone (who has Sensors skill) should be monitoring sensor data. The Astrogator often does this during normal-space flights

CHIEF ENGINEER/ENGINEERING OFFICER

The Chief Engineer is the only other member of a crew usually required by law. In theory, the Master and Chief Engineer could legally attempt to run a ship with no other crew. In practice, this is only possible on very small ships. The Chief Engineer is responsible for Jump and Maneuver drives, Powerplant and all technical matters. He usually also has responsibility for general maintenance. T/Engineering skill is a necessity, but Technical: Electronics, Gravitics, Mechanical and Computer skills are also useful.

ASSISTANT ENGINEER/DRIVE HAND

Larger ships usually carry one or more subordinate engineers. Most will have T/Engineering skill, but some will be specialists in Technical: Electronics, Gravitics etc. JoT can sometimes be substituted by personnel working as general "drive hands" under the supervision of a qualified engineer.

PURSER

Commercial ships usually have a Purser, who is in charge of accounts and financial matters. This job is often doubled up aboard small ships, say with that of Medical Officer, Chief Steward or an Assistant Engineer. Admin or Liaison skill is necessary to hold this post.

MEDICAL OFFICER

All spacecraft must have some form of medical assistance available to the crew. On small ships this may be a member of the crew with a basic skill in First Aid, but in order to obtain a license to carry passengers, a ship must have a properly trained medical officer. This can be a medic, paramedic or a doctor (depending upon level of T/Medical skill). The "doctor" need not be fully qualified, but must have undertaken accredited training at some point. Many medical students take time out to earn a little cash and experience as a Free Trader medic before finishing their studies.

SECURITY OFFICER & SECURITY GUARDS

Only large liners carry a security officer and personnel. Armed and unarmed combat skills are necessary, plus skills like liaison or intimidation. Many Guards are also stewards, gunners, technicians or cargo handlers.

STEWARD

Any ship that carries passengers requires stewards, who look after the passengers, cook, and sometimes pro-

CREW SALARIES

Crew Position	Monthly Salary	Required Skills and/or Feats (Desirable Skills and/or Feats)
Master/Captain:	Varies	Any Bridge Skill (Bridge Skills, Leader, P/Admin, Ship Tactics, K/Interstellar Law)
First Officer:	Varies	Any Bridge Skill (Bridge Skills, Leader, P/Admin, JoT, Ship Tactics)
Bridge Crew:	Varies	Varies (T/Sensors, T/Communications)
Pilot:	Cr6000	Pilot (T/Sensors)
Astrogator:	Cr5000	T/Astrogation (T/Sensors, T/Communications)
Communications Operator:	Cr3000	Technical: Communications (T/Sensors)
Sensors Operator:	Cr3000	Sensors (T/Communications)
Chief Engineer:	Cr4000	T/Engineering (Technical: Computer, Electronics, Gravitics, Mechanical)
Assistant Engineer	Cr3000	T/Engineering (Technical: Computer, Electronics, Gravitics, Mechanical)
Drive Hand:	Cr2000	None (JoT, Technical: Electronics, Engineering, Gravitics)
Purser:	Cr3000	Admin (K/Interstellar Law, Liaison, Steward feat)
Medical Officer:	Cr2000	First Aid or T/Medical
Security:	Cr2000	Combat Skills, (Intimidation, Tactics)
Steward:	Cr3000	None (Steward feat, Liaison, Gather Information)
Cargo Handler:	Cr1000	None (T/Robotics)
Gunnery:	Cr1000	Gunnery, T/Sensors
Technician:	Cr2000	Technical: Computer, Electronics, Gravitics, Mechanical
Boat Pilot:	Cr2000	Ship's Boat or Pilot
Deck Hand:	Cr1000	None (JoT)

vide entertainment. The Steward feat is useful but not absolutely necessary. Liaison or Gather Information skills can help, too. Almost anyone can be hired as a steward, so long as they are patient and friendly with strangers.

CARGO HANDLER

On small ships, everyone mucks in and helps with cargo stowage. Larger vessel carry specialists trained in handling hazardous cargoes or operating cargo robots (T/Robotics skill). The majority of cargo handling is grunt work, so anyone can be hired for this post.

GUNNERY OFFICER & GUNNERS

Armed ships require gunners, of whom the most senior is usually termed the Gunnery Officer. Gunner and Sensors skills are necessary. Some personal combat or technical skills are considered a bonus.

TECHNICIAN

Many ships employ one or more technicians with skills like Technical: Computer or Electronics, etc, to help with maintenance. On small ships, such a crewmember may also be required to fill in as an assistant engineer, gunner, steward etc. even though he has no training.

BOAT PILOT

Ships with one or more subordinate craft often carry a Boat Pilot, who usually has other duties as well. Ship's Boat or Pilot skill is necessary to be hired as a Boat Pilot

DECK HAND

Many ships have one or more deck hands, who often have no shipboard skills (but may possess JoT skill). Deck Hands carry out basic shipboard tasks such as cleaning and simple maintenance under the direction of a skilled crewmember. Sometimes a deck hand is hired because they're handy to have around in case of trouble (weapon or unarmed combat skills), or as a favor to a friend. Often the hand will be trained in some shipboard skill and may eventually become a full crewmember. Proper skill accreditation requires that the trained-up crewmember takes a recognized test at a licensed institution, but out on the frontiers many captains accept someone who can prove he can do the job, regardless of his paper qualifications, and

especially if he can offer some other skills such as Gather Information, Vehicle or Combat skills.

OWNER-ABOARD

Sometimes the owner of a ship travels aboard her, but is not part of the crew. No skills are needed for this position, though ownership of a starship is obviously a requirement. The Owner-Aboard can make general policy decisions, but the ship's Master has legal responsibility for the ship and her crew. In a crisis, even the owner is subordinate to the Captain he or she appointed.

COMBINED POSITIONS

Some crew positions may be combined on smaller vessels. The salary for such positions is 75% of the combined salaries from both positions. Common examples are Pilot/Astrogator and Medic/Steward.

GETTING HIRED

The following table shows the base skills required to get hired for a job aboard a starship. Leadership, Tactics etc are handy for those seeking officer posts, but the operational requirement is for shipboard skills first and foremost. JoT and other general skills can help a character show that he or she is handy to have around. Skills in Italics are desirable but not necessary.

BASIC OPERATIONAL COSTS

In addition to crew salaries there are a number of other costs involved in the operation of a starship.

Fuel: Refined fuel may be purchased at any class A or B starport for Cr500 per ton delivered at the starport. If fuel must be ferried out to a ship, add Cr 100 per ton to the cost. Refined fuel may also be obtained by running unrefined fuel through a Fuel Purification System installed onboard a ship. Refined fuel decreases the chance of a problem occurring with a ship's power plant, maneuver drive, and jump-drive.

Unrefined fuel is available for Cr100 per ton from any class A, B, or C starport delivered at the starport. If fuel must be ferried out to a ship, add Cr 100 per ton to the cost. Unrefined fuel is also available for free from the following sources:

Water: On worlds with a hydrographic rating of 1 or higher, a ship may land near an open body of water or ice and pump fuel into their fuel tanks for free. Using water as fuel in this manner is considered to be running unrefined fuel. Note that many worlds may not allow ships to land and fuel for free, preferring to control the availability of fuel from the starport only thus earning the revenue from the operation.

Gas Giants: Streamlined ships equipped with fuel scoops may dive into the upper atmosphere of a gas giant and fill their tanks with unrefined hydrogen. Larger ships may use streamlined fuel shuttles to ferry fuel loads back to the main ship as needed to refill the tanks. There are no fees associated with 'skimming' a gas giant for fuel, but these are also often the favorite point of attack for pirates. Fuel skimmed from a gas giant is considered to be unrefined.

Life Support: Life support includes the air supplies and filtration system, food and water stores, waste handling system, and other consumable supplies needed to keep the passengers and crew comfortable and healthy while aboard a ship in flight. Most ships simply replenish their life-support systems at the end of each jump while in the starport, but it is possible to purchase and store such supplies in bulk to avoid having to constantly pay the standard recharge fees. The higher cost of life support for high passengers and crew officers reflects the higher quality of food stores set aside for these personnel.

The basic life-support systems (waste reclamation, oxygen supply, CO2 scrubbers, etc) are factored as part (1/2-ton) of each stateroom aboard a ship. For each stan-

BASIC OPERATIONAL COSTS

Per High Passenger or Crew Officer	Cr1000 per week
Per Middle Passenger or Crew	Cr750 per week
Per Low Passenger	Cr50 per week
1 ton of Life Support supplies will last 20 passengers/crew 1 month.	Cr54,000 (10% discount included)
1 ton of Luxury Life Support supplies will last 20 passengers/crew 1 month	Cr72,000 (10% discount included)

dard (4-ton) stateroom aboard a ship, 2 crewmembers or passengers may be carried aboard without overburdening the life-support system. For each standard (2-ton) small stateroom aboard a ship, 1 crewmember or passengers may be carried aboard without overburdening the life-support system. Every two extra crew or passengers the life-support system is required to support reduces its effectiveness in halved with the following consequences to those aboard.

1/2 Effectiveness: The air aboard becomes quite rank, stuffy, and uncomfortable. Paying passengers will likely complain (loudly) at their inconvenience, demand partial (or full) refunds, report the captain to the local starport, etc. Crew members will likely grumble if subjected to such conditions for much longer than a week, and will eventually seek other employment if the problems persist much past the next planetfall or two.

1/4 Effectiveness: The air aboard has high carbon-dioxide levels and smells very bad, to the point that it is almost nauseating to breathe. Anyone attempting to do much more than rest will lose 1 point of stamina for each round of exertion.

1/8 Effectiveness: The air is barely breathable, requiring anyone without an oxygen supply to make a Fortitude save (DC15) every hour or fall unconscious. Once unconscious the victim will begin to lose 1 point of Lifeblood every round until dead or given access to an oxygen supply.

ROUTINE AND ANNUAL MAINTENANCE

A well-maintained ship costs far less to operate than one that forgoes routine maintenance in the hopes of saving a few bucks. A ship should perform an annual maintenance overhaul at minimum to keep it in good working order, and performing regular routine maintenance each month will further reduce the chance of malfunction and the eventual cost of the annual overhaul itself. An annual maintenance overhaul will cost 0.01% (1/1000th) of the original (new) cost of the ship. An annual overhaul requires the services of a class C or better starport and will take about 2 weeks to complete.

For each month of routine maintenance performed on a ship by the crew, reduce the cost of the annual overhaul by 5%, up to a maximum of a 50% reduction in cost. Because of this, a ship may skip performing routine maintenance up to twice in one year without failing behind and losing the annual maintenance cost reduction. Routine maintenance cost 0.0025% of the original (new) price of the ship per month. One full day per month is all that is needed to perform routine maintenance. Even factoring in the cost of routine maintenance, a ship saves 20% on average on the cost of the annual maintenance.

Annual Maintenance: A T/Engineering skill check (DC15) must be made to ensure the swift completion of the job and that it passes inspection and certification. Under normal circumstances, annual maintenance will usually take about 2 weeks. Each failed skill check will increase this time by 1 week.

If the maintenance is being performed at a class B starport, add +2 to the skill check, if a class A starport add +4 to the skill check roll. If hiring an outside crew to perform the maintenance, the normal costs apply but add Cr14,000 to the total for labor costs.

Routine Maintenance: Make a T/Engineering skill check (DC10) each month to insure the proper maintenance of the ship's equipment over the past four weeks. If the maintenance is being performed at a class B starport, add +1 to the skill check, if a class A starport add +2 to the skill check roll.

Installing a New Maneuver Drive, Power Plant, or Jump Drive: An T/Engineering check must be made when installing these types of systems, to ensure they have been installed properly. Use the table below to determine the appropriate DC. A successful checks indicates the system has been installed and tested with no problems found. Installations will typically take 2 hours per Rating of the system.

Installations	*DC*	*Modifiers*
Maneuver Drive	10	+1 DC per Rating
Power Plant	15	+1 DC per Rating
Jump Drive	20	+1 DC per Rating

Other Modifiers	*Adjustment*
Rush job (half the time required)	+10 DC
Class A Starport	+4 to skill check roll
Class B Starport	+2 to skill check roll
Sufficient Engineering or Vehicle Shops	+1 to skill check roll
Per 5% crew loss	-1 to skill check roll

ENTERING/LEAVING PORT

All but the most primitive installations operate some kind of traffic control to avoid the risk of collision among vessels using the port. Incoming ships are allocated a berth and an approach route, and are expected to await their turn and proceed in at a regulation speed. Some

STARPORT FEES

Starport Classification

Service Provided	*A*	*B*	*C*	*D*	*E or X*
Landing Rights	Cr100	Cr50	Cr20	Cr10	-

Provides one-time docking and departure clearance at the starport. No berthing or other facilities are provided. Ship may remain in port no more than 24 hours.

Landing and Berthing (6 days)	Cr500	Cr250	Cr100	Cr50	-
Berthing per day after 6	Cr500	Cr250	Cr100	C50	-

Provides one-time docking and departure clearance, and up to 6 days berthing within the starport itself. Berthing includes power, life-support, and data hook-ups for the ship, along with access to maintenance facilities. If the starport is an orbital starport, add Cr500 to the listed costs for the increase in life-support costs.

Orbital Berthing (6 days)	Cr100	Cr50	Cr20	Cr10	-
Orbital Berthing per day after 6	Cr100	Cr50	Cr20	Cr10	-

Provides an orbital 'parking slot' that a ship may remain in during its stay. No power, life-support, or data hookup are provide, but the ship may leave and return to its parking slot as often as needed during its stay.

Cargo Handling per ton	Cr40	Cr30	Cr20	Cr10	-
Security Cargo Handling per ton	Cr50	Cr40	Cr30	Cr20	-
Hazardous Cargo Handling per ton	Cr70	Cr60	Cr50	Cr40	-

Most small ship's crews handle cargo loading and unloading for themselves to save these costs, but for those ships that require or desire the use of cargo handlers provided by the starport are available.

Cargo Shuttle Service per ton	Cr30	Cr20	Cr10	Cr5	-
Security Cargo Shuttle Service per ton	Cr40	Cr30	Cr20	Cr10	-
Hazardous Cargo Shuttle Service per ton	Cr60	Cr50	Cr40	Cr30	-

Ships in an orbital berth may require the use of a cargo shuttle to move their cargo from the ship to the starport if they have no vehicles of their own capable of doing so. Ships at an orbital starport may also have need of the services to deliver cargo from the orbital starport to a destination planetside. Cargos requiring armed security or hazardous material cargos will cost more to ship in this manner than standard cargos.

Passenger Shuttle Service	Cr100	Cr75	Cr50	Cr25	-

Passengers requiring transportation to or from a ship to the local starport or planetside may hire the services of a passenger shuttle. The price listed is for a single passenger and up to 200kg of baggage.

Warehousing per week per ton	Cr15	Cr10	Cr5	-	-
Security/Refrigerated Warehousing per week per ton	Cr25	Cr15	Cr10	-	-
Hazardous Warehousing per week per ton	Cr50	Cr25	Cr15	-	-

Warehousing is available a most starports if there is a need to store goods and cargo for periods of a week or longer. Security, Refrigerated, and Hazardous warehousing are each more costly than standard warehousing.

CARGO

Standardized Cargo Container Modules

Cargo Capacity	*H x W x L*	*Shape*	*Cost*
1/2 ton	3 x 1.5 x 1.5	Square	Cr6,000
1 ton	3 x 1.5 x 3	Rectangle	Cr10,000
2 tons	3 x 3 x 3	Square	Cr18,000
2 tons	3 x 1.5 x 6	Square	Cr18,000
4 tons	3 x 3 x 6	Rectangle	Cr32,000
4 tons	3 x 1.5 x 12	Rectangle	Cr32,000
8 tons	3 x 6 x 6	Square	Cr58,000
8 tons	3 x 3 x 12	Rectangle	Cr58,000

Specialized Containers

Type	*Cost Modifier*
Temperature/Humidity Controlled	+20%
Security Container	+10%
Liquid or Gas Storage Tank	x2
Controlled Environment	x3
Habitat	x5

ports use auto-guidance signals transmitted to the ship, or even put a "harbor pilot" on board. The latter is very rare.

Vessels with special arrangements or which have declared an emergency may be granted a priority docking clearance. A special approach/departure lane is kept open for such vessels, and violating it carries severe penalties.

Incoming vessels may be boarded and searched for contraband while in space or in dock. The Navy, local customs enforcement agents, the port authority or (rarely) local police personnel may carry out such a search. The thoroughness of a search depends upon circumstances. Some vessels, such as Megacorporate freighters, have special exemption-from-search arrangements. Not all such deals are legal.

Upon entering port, a vessel is usually connected to local data feeds and power lines, to allow its reactor to be taken offline. Passenger disembarkation and cargo offloading then takes place.

All vessels are required to file a flight plan when leaving port, though there is no guarantee that the plan filed will be the one followed.

Starport Fees and Services: Within civilized regions of space, most starports charge pretty much a standardized set of rates depending on the classification of the starport itself. The larger and busier class A and B starports are general more expensive to deal with, while the more common class C starport and the class D starport have more reasonable rates. Most class E and X starports do not have any set fees established, as there are no services to offer.

CARGO CONTAINERS

Cargo containers are used to transport the majority of bulk cargo shipments by the larger shipping lines. They are not as commonly used among smaller lines and free traders as these often carry odd shipments and smaller consignments. It is only possible to take advantage of the standardization that cargo containers offer when carrying larger and more regular freight.

These modularized containers are standardized among most cooperating species. Any or all six Container sides may be (fairly) easily removed or installed as needed allowing for a multitude of configurations and uses. The top can be removed to serve as an open-topped container, the top and 4 sides can be removed and it used as a flat pallet, even the covering panels can be removed leaving nothing but the framework structure when needed. Of course in its standard configuration with all six sides installed and locked, the modular cargo can be easily secured and officially sealed against tampering if required to ensure the integrity of the cargo within.

When not needed, these modular containers may be broken down and stored, taking up only one-quarter (1/4) of their rated capacity. For example four 1-ton modular containers can be stored in the space of 1 ton, or four 8-ton modular containers in the space of 8 tons.

There are of course some types of cargo that are not suited for shipment in a standard cargo container and require a specialized container. Unlike their modular counterparts, these containers are not multifunctional and are designed and built for a single purpose.

Reefer Containers: These types of sealed containers allow the interior temperature and humidity levels to be set and maintained and any level ranging from 0-100% humidity and from -50°C to 90°C. Reefers are powered by an

internal battery supply good for two weeks before requiring a recharge (a 1 EP power source for 24 hours).

Security Containers: These sealed containers are built from heavy-duty materials to resist forced entry, and equipped with various security features to expose tampering and prevent theft and entry. They contain their own power supply capable of supporting the container's security features for up to 4 weeks. Security containers require a 4 EP power source for 24 hours to recharge.

Liquid or Gas Tank: These specially designed storage tanks are designed and equipped to ship most any type of liquid or gaseous cargo as safely and efficiently as possible.

Controlled Environment: Some cargos require an even more controlled environment that can be provided by a reefer container, such as an exotic or dangerous atmosphere (e.g. in the case of some alien botanical and biological life forms). These containers are capable of providing their own power and exotic life support for up to 2 weeks. CE containers require an 8 EP power source for 24 hours to recharge.

Habitat: These containers may be used as cramped but serviceable emergency quarters, offices, etc., as needed. The habitat unit can support one man per ton for up to 2 weeks on its own independent life support and power supply system. Habitat containers require an 8 EP power source for 24 hours to recharge.

OPERATING THE SHIP

Standard procedures exist to govern how a starship goes about its business and handles emergency situations. Under normal circumstances, a ship will not deviate from these procedures. A captain whose vessel ignores standard operating procedure will usually have to explain himself to a patrol vessel or the local port authority.

SUBLIGHT MANEUVER

All ship operations, including interstellar flights, involve some sublight maneuvering. Vessels normally run with active sensors on and transponders active (i.e. constantly transmitting) in friendly space. At the discretion of the captain, a vessel may go "silent" and run on passive sensors only. Her transponder does not transmit, and will answer interrogatives from other ships only at the crew's command, though some vessels (Navy ships, for example) can override this and command an automatic response from the silent vessel. Silent running is normally used where there is a threat of an attack.

Ships making short interplanetary flights usually accelerate halfway there, then reverse thrust and decelerate the rest of the way. Coasting at a constant velocity is slower, though it does greatly reduce the ship's emissions.

JUMP DRIVES AND JUMP SPACE

Interstellar flights require the use of Jump drive. Jump is also often used for long-distance flights within a solar system, where the real-space transit time would be greater than the 1-week Jump time. To enter Jump, a vessel needs a working and properly fuelled Jump drive, a suitable set of course vectors, and a properly aligned hull Jump Grid.

The Jump grid allows the Jump field to properly form around the ship and protect it from Jumpspace. A damaged or misaligned grid can cause a ship to Misjump, or to suffer Jump Intrusions while in Jumpspace. In the worst-case scenario, a ship with a damaged drive or a distorted grid may be destroyed at entry or breakout.

A Jump Plot is also required. A Jump Plot can be created by a computer, and Plots are available in the form of "course tapes" purchased from major ports and for common destinations. However, the nature of Jump makes electronic systems less than reliable when creating a plot.

Astrogation is not an exact science. A computer will throw up dozens of apparently suitable jump solutions. All of them will of course work, but minor variations in the plot will cause large variance in flight time and emergence point. A good Astrogator develops a "feel" for his calculations that borders upon black magic. He or she can somehow predict the variance in the system to shave a few minutes off average Jump time and to give a close emergence.

All normal jumps take an average of 168 hours +/- 10% (147 + 6d6 hours), or about one week, and are subject to random variations in the point of emergence. If variation creates an emergence point that is too close to a planet or other large body, a catastrophe can occur. The older a plot is, the more variance there is in the actual Jump performance. Thus course tapes tend to err on the side of caution, and give emergence points a long way out from the destination world.

Another important reason for having a good Astrogator is conservation of momentum. A ship entering Jump has the same momentum in the same direction as it emerges. A good Astrogator can ensure an emergence that uses this momentum; the ship arrives headed inward towards the target on a safe vector, and not too fast that it cannot decelerate in time.

MISJUMPS

d100	*Misjump Effect*
Minor Misjump	
01-20	Crew and passengers suffer Jump Sickness (-2 to all checks) for 1d6 hours after emergence from Jump space.
21-40	Ship arrives 1d6+1 x 100 diameters from the destination.
41-55	Ship arrives late or early (1d6: 1-3 late; 4-6 early) by 1d4 days.
61-70	Jump drive is damaged (reduce rating by 1).
Serious Misjump	
71-75	Crew and passengers suffer Jump sickness (-4 to all checks) for 4d6 hours after emergence from Jump space.
76-80	Ship arrives late or early (1d6: 1-3 late; 4-6 early) by 1d6 days.
81-85	Jump drive suffers major damage (reduce rating to 0).
86-90	Ship Misjumps 4d6 parsecs in a random (1d6) direction.
Catastrophic Misjump	
91-92	Ship is destroyed on entry into Jump space.
93-94	Ship is destroyed on emergence from Jump space.
95-96	Ship never emerges from Jump space.
97-00	Other catastrophic effect (Referee's discretion)

Jumpspace can have other effects on a ship. An unstable Jump field can result in Jump Sickness or insanity in personnel within the ship, or can allow Jumpspace Intrusions into the ship itself. This causes structural damage, and tends to spread. Anyone who has seen a J-Space Intrusion and lived is very lucky indeed. Direct contact with Jumpspace is deadly to living beings. Thus working outside the hull while in Jump is a desperate undertaking. There is a bubble (typically about 2 meters deep) of safe space around the hull, but anything moving outside this area suffers what appears to be disintegration. J-Space is deeply unsettling to look at, too, and for this reason all viewports are covered while in Jump.

A ship in Jump is cut off from the rest of the universe. It cannot communicate, change course, or otherwise affect the "real" universe.

No-one really understands what Jumpspace actually is. It is there, it is useful, and its hazards are mostly well documented. However, hard data is hard to come by. Some researchers suggest that Jump Space is a kind of "non-place" which may not even exist when a ship is not present in it. Of these, a few go so far as to say that Jump Space is as big as the ship within it, and that all ships that have ever entered Jump are always present in the Jump bubble, for all time (in so far as time exists in Jumpspace). Others argue that this is rubbish, and that each ship creates a pocket universe for itself which it prevents from collapsing with the Jump Drive. After a time, the decay of this pocket universe spits the ship back out into real space at a point determined by the precise configuration of the Jump drive at entry. Another faction of scientists loudly declares that both other camps are wrong, and indeed idiots to boot. But they haven't got a better theory to offer.

What is known is that J-space is hostile to anything that enters it. Without a properly configured Jump Drive in constant operation, vessels will be destroyed. Other facts, speculation and wild tales include:

Key:
KF: "Known Fact" - which may turn out someday to be incorrect, or at least only partially true
SP: Speculation based upon at least some observed evidence
WT: Wild Tale
??: Veracity unknown

o Ships cannot change course in Jump (KF)
o It is impossible to Jump more than 6 Parsecs, except by accident (KF)
o Communications gear receives only interference in Jump Space (KF)
o Looking at Jump Space can cause mental instability (KF)
o Jump has something to do with Psionics (??)
o There are things living in J-space (WT)
o The government is close to cracking the J-6 barrier (??)
o The government is trying to crack the J-6 barrier (SP)
o Radio signals have been received in Jump Space (WT)
o Lost ships wander forever in Jump Space (WT)
o The Ancients made Jump space (WT)
o Jump Drives do not always function as expected, even when properly tuned (SP)
o Some regions exhibit a higher tendency for Misjump than others (SP)
o Droyne Jump Drives never Misjump (WT)
o Unidentified vessels have been sighted at points that suggest they were exceeding Jump 6 to get there (??)
o There is a cult that worships Jump space as "the face of God". (KF)

Clearly, much research needs to be done into the nature of Jump space and its effects. In the meantime, it is there and it works. People use it and try not to worry about how much remains unknown.

The Procedure for entering Jump is as follows:

1. Jump Plot is generated.
2. Powerplant brought to Jump Readiness
3. Jump Plot is fed to the navigational computer
4. Jump Drive is brought to Readiness
5. Jump Drive begins to fast-burn its Jump Fuel, developing high levels of power
6. Jump Grid is charged
7. Astrogator or Captain gives final Jump command
8. Jump Field is formed
9. Vessel enters Jumpspace

A vessel can abort safely at stages 1-4. Stage 5 is slightly risky and results in about 10% of Jump fuel being wasted. Abort is possible at Stage 6 or 7 with moderate risk. A crash-bleed of energy from the Jump Grid is possible at Stage 8, but this is extremely risky and wastes 50-80% of the jump fuel.

Vessels burn about 80% of their Jump fuel to create the entry into Jumpspace, most of which is used after the "hole" is formed, to keep it open as the ship enters. This fuel is used up at an immense rate in a powerful but inefficient process. The remainder of the fuel keeps the Jumpfield generator running, protecting the vessel and her crew. A little is left over after the Jump, giving a margin for error, but if this fuel runs out (say due to a tank leak or long jump time) then the Jumpfield will eventually fail. No living person knows what happens at this point, which indicates that it must be something bad.

If all goes well, the ship will enter Jumpspace and remain there for about 1 week protected by the Jump Field. Experienced personnel can usually tell when a ship is about to Emerge from jump, and the Jump plot should give an indication of how long the ship will be in Jumpspace. However, variance can cause a ship to precipitate early out of Jump. Emergence outside the +/- 10% envelope usually indicates a Misjump.

Misjumps: The chance of a Misjump each time a ship engages its Jump drive is normally very small; make a basic check (DC21) to see if a Misjump occurs. If the ship is using unrefined fuel add +2 to the roll. If the ship is within 100 planetary diameters of a world add +5 to the roll, add +15 if with 10 planetary diameters of a world. If a ship is using drop tanks to fuel a jump, add +2 to the roll. A failed Astrogation check when plotting a course through Jump space will also cause a Misjump (see T/Astrogation skill pg. 92).

Misjumps vary from relatively minor to catastrophic. If a Misjump does occur, roll on the Misjump table, pg. 353.

FUEL SKIMMING

Fuel skimming is a common practice among those who do not wish to pay for their fuel. Ordinary water can be "cracked" for hydrogen fuel by a ship's processing gear. This water can be obtained by melting ice or taking up water using hoses. Some ships can immerse themselves and open special vents to the fuel-processing tanks.

Alternatively, hydrogen can be skimmed from a gas giant. This involves diving at speed into the upper atmosphere, thus forcing gas into the ship's scoops. This gas is processed; hydrogen is stripped out, and the remainder is dumped. Fuel skimming is a lengthy and risky process, and the diversion required is so time-consuming that most merchant captains just accept the expense of purchasing fuel.

EMERGENCY

All vessels are required to respond to a GK (Distress) signal unless this would expose them to unacceptable risk. Lesser emergencies can be declared using normal communications procedures.

Lesser emergencies are those where the vessel may soon need outside assistance but can probably deal with the situation using its own resources. Examples include a vessel with a minor and controllable fire aboard, sickness among passengers or crew, or a combat-damaged ship attempting to make port under her own power. Interstellar law requires that such emergencies be declared, and that any nearby vessels stand ready to assist at need.

A GK signal is only broadcast when a vessel is in dire peril and needs outside assistance. Any captain who ignores such a signal will have to answer to a court of inquiry, though his reasons may be good ones.

DROP TANKS, BLADDERS & FUELLING STATIONS

The nature of Jump drives makes fuelling stations, where a vessel is fed fuel for its Jump drives through hoses, impracticable. Fuel is mostly needed after the Jump "hole" is created. The Jumpfield would sever pipes before the ship entered Jumpspace proper. This would cause the collapse of the Jumpfield and destruction of the ship. Even if it did manage to enter J-space, the ship would have no fuel to maintain its field, resulting in a catastrophic loss of the vessel. No experiment with fuelling stations has ever succeeded.

Ships can extend their range by two methods, however. Collapsible bladders can be installed in cargo hold areas, to contain fuel which is then pumped into the main tanks for a second Jump once the normal fuel load has been consumed. Drop tanks are another option. The tanks can either

be used as part of the ship's main fuel system, or can be used to fire the J-drive up then blasted free with explosive couplings. This is hazardous, as it can cause interference in the forming Jump-field, but it is acceptable in some military situations. The ship's internal tankage then fuels the J-drive as normal, and the loss of the tanks may actually lower displacement enough that additional Jump range is gained.

TRADE AND COMMERCE

Starships generate revenue by carrying passengers, cargo, mail and charters. Goods taken on in orbit are delivered when placed in orbit around the destination. Goods taken on a planetary surface are delivered when off-loaded on the surface of the destination. This custom applies to cargo, passengers, and mail.

BULK CARGOS

Merchants may inquire at a starport once per week about the number, sizes, and destinations of cargos awaiting transportation. The Referee should determine all worlds accessible to the starship (depending on jump number), and roll for each such world on the Bulk Cargo table. Note that except for Priority shipments, all bulk cargos pay per Jump, regardless of the distance of the Jump itself.

Example: A Jump-1 capable cargo ship charges the same rate as a Jump-3 capable ship, but the Jump-3 ship can carry a cargo to a world 3 parsecs away in only a single Jump. It will take the Jump-1 ship three separate Jumps, and three separate payments to get to the same destination. The Jump-3 ship is not only faster, but also much cheaper for the owner of the cargo. Of course, if the cargo only needs to get to a system 1 parsec away, both the Jump-1 and the Jump-3 ship will get it there in the same amount of time for the same price.

Priority: These cargos pay well, and improve with the distance carried but are very time sensitive and usually must be delivered within 14 days of their acceptance. If delivered on time, a priority cargo will pay Cr1000 for every 1 parsec in distance it was carried between the port of origin and its delivery destination.

Hazardous: Carrying these types of cargos pays well, but carries more than a little risk. For each week such a cargo is carried on board a ship, the Referee should make a check (DC5) to see if any 'mishap' with the cargo is avoided. The exact nature of such a mishap is left up to the creativity of the Referee, but the specifics of the cargo being carried lead to more than a few ideas. Hazardous cargos pay a flat Cr10,000 per ton per Jump

Security: Only an armed ship will usually be contracted to carry a security cargo. These are typically high value or sensitive materials that tend to attract the attention of pirates and other undesirable types interested in acquiring such goods for themselves. The Referee should make a check (DC7) once each week while a ship has a security cargo aboard to see if such an encounter is avoided. Security cargos pay Cr5000 per ton per Jump.

Major, Minor, and Incidental: These are typical run-of-the-mill bulk cargos (grains, metals, ores, consumer electronics, etc.) offered in specific, non-negotiable lot sizes. They may not be broken up into smaller lots. If the size of a lot is too large to be carried on board a ship (i.e. 200-tons of grain and a 100-ton ship), it may not be accepted. For major cargos, multiply the result from the Bulk Cargo table by x10 to determine the exact size of the lot in tons; for minor cargos, multiply by x5; for incidental cargos simply use the result itself in tons. Payment for these types of cargo is a flat Cr1000 per ton, regardless of the distance between the point of origin and the destination.

PASSENGERS

After a starship has accepted cargo for a specific destination, each week passengers will present themselves for transport to that destination. The passenger table is used to determine the number of passengers desiring passage to the announced world based on the origin world's population, and on the destination world's population, and travel zone status. Roll the number of dice specified (3D-1D, for example, indicates that three dice are rolled, and from that total, the result of another one die roll is subtracted). Apply any indicated modifiers.

Passengers will pay the standard fare for the class of transportation they choose: Cr10,000 for high passage, Cr8,000 for middle passage, and Cr1 ,000 for low passage. Passage is always sold on the basis of transport to the announced destination, rather than on the basis of jump distance.

Some passengers (2d4 x 10%) are willing to or request to travel under double occupancy, sharing a stateroom with another passenger (not crew) for a slightly reduced rate. Subtract -2 from the roll (min. 0) when checking for high passage double occupancy. Staterooms booked for double occupancy pay at the double occupancy rate: Cr16,000 for high passage (Cr8000 for each passenger), and Cr13,000 for middle passage (Cr6500 for each passenger). There is no double occupancy rate for low passage.

BULK CARGO

World Pop Digit	Priority*	Hazardous*	Security*	Major (x10)	Minor (x5)	Incidental
0	-	-	-	-	-	-
1	-	-	-	1d6-4	1d6-4	-
2	-	-	-	1d6-2	1d6-1	-
3	-	-	-	1d6-1	1d6	-
4	-	-	-	1d6	1d6+1	-
5	1d6-4	-	1d6-4	1d6+1	1d6+2	-
6	1d6-3	1d6-4	1d6-3	1d6+2	1d6+3	1d6-3
7	1d6-2	1d6-3	1d6-2	1d6+3	1d6+4	1d6-3
8	1d6-1	1d6-2	1d6-1	1d6+4	1d6+5	1d6-2
9	1d6	1d6-1	1d6	1d6+5	1d6+6	1d6-2
A	1d6+3	1d6	1d6+1	1d6+6	1d6+7	1d6
	Cr1000 per ton per Jump Distance	Cr10,000 per ton	Cr5,000 per ton	Cr1000 per ton	Cr1000 per ton	Cr1000 per ton

* Has special requirements

Modifiers (Based on Destination World)	
Liaison skill rank of 5 or better	+2
Population UWP of 4 or less	-4
Population UWP of 8 or better	+1
Red Zone	No cargo except Priority, Security, and Hazardous
Amber Zone	No Major cargo
Technology Level	Add or subtract the difference between the TL of the originating world and the TL of the destination world.

The Referee should roll to determine the number of priority, hazardous, security, major, minor, and incidental cargos available on the world of origin; modifiers take into account the world of destination. After rolling for the number of cargos, roll one die for each cargo to determine its size. Multiply the die roll for major cargos by 10, minor cargos by 5, and incidental cargos by 1 to determine the number of tons in each.

For example, if a ship is on a population 6 world, going to a population 3 world with a tech level 3 less than the current world, the Referee rolls one die for major cargos. He rolls a 4 (+2 from the table, -4 for the low population of the destination, +3 for the tech level difference), giving 5 major cargos. He then rolls one die for each cargo and multiplies each result by 10 to determine their individual tonnages. Each cargo is a distinct shipment and cannot be subdivided, but the ship may accept or reject specific cargos based on the best fit within the cargo hold. All cargos are carried at Cr1,000 per ton. Starship owners may purchase goods locally and ship them at their own expense, speculating that they can later sell them at a profit (see Speculative Trading, pg. 358).

PASSENGERS

World Pop Digit	High Passengers	Middle Passengers	Low Passengers
0	-	-	-
1	-	1d6-1	2d6-6
2	1d6-1d6	1d6	2d6
3	2d6-2d6	2d6-1d6	2d6
4	2d6-1d6	2d6-1d6	3d6-1d6
5	2d6-1d6	3d6-2d6	3d6-1d6
6	3d6-2d6	3d6-2d6	3d6
7	3d6-2d6	3d6-1d6	3d6
8	3d6-1d6	3d6-1d6	4d6
9	3d6-1d6	3d6	5d6
A	3d6	4d6	6d6
	Cr10,000 per psngr Cr16,000 Double Occ.	Cr8000 per psngr Cr13,000 Double Occ.	Cr1000 per psngr

Modifiers:

Skills (only one may be used)	
Recruiting skill rank of 5+	+2
P/Administration skill rank of 5+	+1
K/Interstellar Law skill rank of 10+	+1
Based on Destination World	
Population 4 or less	-3
Population 8 or better	+3
Red Zone	-12, no middle or low passengers
Amber Zone	-6
Technology Level	Add or subtract the difference between the TL of the originating world and the TL of the destination world.

Differences in starship Jump drive capacity have no specific effect on passage and bulk cargo prices. A Jump-3 starship charges the same price as a Jump-1 starship. The difference is that a jump-3 ship can reach a destination in one jump, while the jump-1 ship would take three separate jumps (through two intermediate destinations, and requiring three separate payments) to reach it. Higher Jump numbers also may make otherwise inaccessible destinations within reach. But for two ships of differing Jump numbers going to the same destination in one Jump, each would charge the same cargo or passage price.

Mail and Incidentals: Subsidized merchants may receive mail delivery contracts, usually as an adjunct to their established routes. Five tons of ship cargo capacity must be committed to postal duty on a full time basis, the ship must be armed, and a gunner must be a part of the crew. The starship is paid Cr25,000 (Cr5,000 per ton of postal cargo area) for each trip made, regardless of the actual mail tonnage carried. Such tonnage will not exceed 5 tons per trip.

Other ships may be approached to deliver private messages, at times through the ship's owner or captain, and at times clandestinely through a crew member. Private

CARRIER FEES

Non-Starships

Per hour (12 hour minimum)	Cr1 per ton of vessel chartered

Starships

Charter rate per 2-week block. Ship owner provides crew and covers all overhead expenses.

Per ton of cargo space available	+Cr900
Per High Passage accommodation available	+Cr9000
Per Low Passage accommodation available	+Cr900

mail is usually intended for delivery to a specific point (such as the Travellers' Aid Society building, or a tavern keeper), and is generally accompanied by a Cr20 to Cr120 honorarium. The Referee should decide if a private message to is awaiting transmittal, and determine randomly which crew member is approached to carry it. Serving as a carrier for private mail also serves as an introduction to the recipient as a dependable, trustworthy person.

Mail: 1d6-1 tons waiting. Cr25000 no matter what the actual tonnage carried is, even if no mail at all is waiting.

Charters: The standard price to charter a non-starship is Cr1 per ton per hour, usually with a twelve-hour minimum. Charter price for a starship is computed based on its capacity. Starships are chartered in 2-week blocks; the charge is Cr900 per ton of cargo hold plus Cr9,000 per high passage berth and Cr900 per low passage berth. The owner pays all overhead and supplies a crew.

SPECULATIVE TRADING

A trader with cargo space available and free capital with which to speculate may seek out suitable goods to buy and sell. The Speculative Trade Goods table lists many types of goods, often of general classes which may be of interest to characters for various uses. The goods labels are abstractions, such that a cargo of firearms could potentially be any form from muzzle loading replicas to laser carbines. Should characters wish to divert some part of the cargo to personal use (through payment or pilferage), the exact type of cargo must be determined by the Referee.

Locating Buyers or Cargos for Sale: Each week a trader spends on a world she may search for suitable cargos to buy, attempt to locate a buyer for goods she has for sale, or both. The trader must make a Broker skill check, the DC determined on the Locating and Selling Speculative Cargo table below, based on the local starport type. Reduce the listed DC by -1 for each Population UWP digit for local world. If successful, the specified numbers of speculative cargos or potential buyers are available.

A professional broker can usually be hired to assist in the buying or selling of speculative cargos at most starports, if the merchant nor any of her companions or crew have the skill. In return for their fee, a professional broker assures that a potential cargo for sale or a potential buyer will be located within a week of hire; no check is required. This does not guarantee a sale, nor even a price, although the broker can also be hired to negotiate a price in addition to locating a cargo or buyer (see The Price of Goods).

LOCATING AND SELLING SPECULATIVE CARGO

Starport Type	*DC*	*Potential Buyers or Speculative Cargos for Sale*	*Broker Fee*
A	15	1d8 available	Cr1000
B	20	1d6 available	Cr500
C	25	1d4 available	Cr250
D	30	1d3 available	Cr200
E	35	1d2 available	Cr150
X	40	1 available	Cr100

Modifiers

Circumstance	*DC*
Per World Population UWP digit	-1 or more

Buying Goods: Once it has been determined that one or more speculative cargos are available for sale, it must be determined what exactly each of the cargos are. The Referee should roll 1d100, adding +10 if the local world has a Population UWP digit of 9 or greater, and subtracting -10 if the Population UWP is 5 or less. If the result is less than 0, add +10 to the result. If the result is greater than 100, subtract -10 from the result. Apply this final result to the Speculative Trade Goods table to determine what type of cargo is for sale, its base price, any purchase modifiers, and the exact quantity of goods available. Once these values have been determined, proceed to The Price of Goods below.

Selling Goods: If the character is attempting to sell a cargo, find it on the Speculative Trade Goods table and determine its base price, any resale modifiers, and the exact quantity of goods available. Once these values have been determined, proceed to The Price of Goods below. Only one potential buyer is found per week, but actually represents the best of a number of offers made for the goods.

THE PRICE OF GOODS

A character may elect to negotiate the price of goods for herself, or hire a broker to do so for her. The use of a broker is handy when a character is not trained in the mercantile arts (i.e.: non-Merchant class characters).

The price of goods is determined by rolling 3d6 and consulting the Actual Value table (AV). The result from this table determines the percentage of the base price that will be paid for each quantity of goods in this lot. This roll on the actual value table can be modifier by the following factors:

Using a Broker: The character must decide what quality of broker will be hired for the job. The more effective the broker's capabilities, the higher the price for his services will be. For each +1 modifier on the Actual Value Table the broker adds, he will charge a 5% fee based on the final negotiated price. The maximum broker bonus that may be hired is +4.

BROKERS

Four types of brokers are available:

+5 AVT Modifier	5% commission.
+10 AVT Modifier	10% commission
+15 AVT Modifier	15% commission
+20 AVT Modifier	20% commission

Character Skills: Instead of hiring a professional broker at a starport, a character with the Broker skill may make a skill check in an attempt to gain a brokering bonus. The character must select what level of bonus they will attempt to achieve (+1 to +4) before the skill check is made as this determines the DC of the check itself. See the Character Brokers table below.

Bribery may be used in place of the standard broker skill, but a payment must be made based on the level of bonus and the final sale price to the person being bribed. P/Administration skill may be used in place of Broker or Bribery, but with a -2 penalty to the skill check roll.

Only Merchants with the Calculating Eye class feature may Take10 when attempting to negotiate the price of speculative cargo.

CHARACTER BROKERS

Attempted Bonus	*DC*	*Minimum Bribe*
+1	15	5% of final price
+2	20	10% of final price
+3	25	15% of final price
+4	30	20% of final price

World Type: The type of world a cargo is being bought or sold at may impart a bonus or penalty to the purchase or sale. For example, trying to sell grain on an agricultural world is probably not the road to riches.

ACTUAL VALUE

3d6	*Percentage Value*	*3d6*	*Percentage Value*
3-	30	13	130
4	40	14	140
5	50	15	150
6	60	16	160
7	70	17	170
8	80	18	180
9	90	19	200
10	100	20	300
11	110	21+	400
12	120		

All applicable modifiers are used when rolling on the Actual Value Table.

SPECULATIVE TRADE GOODS

Die	Trade Goods	Base Price	Purchase Modifiers	Resale Modifiers	Quantity
0-	Add 10 to the roll and redetermine the result				
01	Grain	300	A-2, NA+1, I+2	A-2	8d6x5
02	Scrap Metal	300	P-2, NI-2	I+2, R-2	5d6x10
03	Steel	500	I-2, R-1, P+1	I-2, R-1, P+3	4d6x10
04	Lead	500	P-6, NI-4	I+4, R-1	10d6x10
05	Livestock	1,000	A-4	NA+4, NI+2, A-2	1d6x5 (4/ton)
06	Plants	1,000	A-4	NA+2, R+2, I-1	4d6x10
07	Aluminium	1,000	I-3, R-2, P+1	I-3, NI+4, R-1	5d6x10
08	Carbon	1,000	NI-3, P-2	I+2, A+1, R-2	5d6x10
09	Fruit	1,000	A-3, NA+1, I+2	A-2, I+3, P+2	2d6x5
10	Rope	1,000	A-6, NI-2	I+2, NI+2	4d6x10
11	Meat	1,500	A-2, NA+2, I+3	A-2, I+2, P+1	4d6x5
12	Wire	1,500	I-4, R-2, NI+2	A+4, NI+2, P+2	2d6x10
13	Paper Products	1,500	P-1, A-4, I+2	R+2, NA+4	5d6x10
14	Workable Stone	1,500	P-4, NI-2, NA-2	I+4, R+4	5d6x10
15	Wood	2,000	A-6	A-6, I+1, R+2	2d6x10
16	Copper	2,000	I-3, R-2, P+1	I-3, R-1	2d6x10
17	Organic Oils	2,000	A-6	I+2, R+4, P+1	1d6x10
18	Inorganic fertilizer	2,000	P-4, NI-2	A+4, R+2, NA-2	5d6x10
19	Herbs	2,500	A-6	R+4, I+3	5d6
20	Textiles	3,000	A-7, NA-5, NI-3	A-6, NA+1, R+3	3d6x5
21	Piping	3,000	I-4, P-2, NI+2	NI+4, R-2	2d6x5
22	Caustic Alkali	3,000	P-4, NI-2	I+2, R-2	4d6x10
23	Brass	4,000	NI-2	I+1, R-1	4d6x10
24	Glass	4,000	I-2, P-2	NI+1, R-1	2d6x10
25	Agricultural Seeds	5,000	A-6, R-2, P+3	NA+3, P+2	2d6
26	Minerals	5,000	NI-2, I+4, P-3	I+3, R-1	2d6x10
27	Liquid Pavement	5,000	I+2, P-2, NI-1	I+4, R+2	2d6x10
28	Bulk Plastic	5,000	NI-2, I+2, NA-4	I+4, A+2	5d6x10
29	Dishware	5,000	P-2, NI-2, NA-2	R+1	1d6x10
30	Fireworks	5,000	P-3, NI-2	R+2, A+4, NA-1	2d6
31	Abrasive Powders	5,000	P-4, NI-2	I+4	4d6x10
32	Pigments/Dyes	5,000	P-2, A-4	NA+4, R+2	2d6x10
33	Spices	6,000	A-2, NA+3, I+2	A-2, R+2, P+3	1d6x5
34	Coatings (Paint)	6,000	I-2, NA-1	I+4, A+1, R-1	1d6x5
35	Polymers	7,000	I-2, R-3, P+2	I-2, R+3	4d6x5
36	Adhesives	7,000	P+2, I-2	I+2, R+2	1d6x5
37	Tin	9,000	I-3, R-2, P+1	I-3, R-1	3d6x10
38	Books	10,000	P-6, A-2	R+4, I-2, NI+2, NA+2	1d6x10
39	Liquor	10,000	A-4	A-3, I+1, R+2	1d6x5
40	Petrochemicals	10,000	NA-4, I+1, NI-5	NA-4, I+3, NI-5	1d6
41	Compressed Gasses	10,000	NI-2, P-4	I+4, R+2	2d6
42	Blades	10,000	I-3, R-2, P+3	I-2, R-1, P+3	2d6
43	Tools	10,000	I-3, R-2, P+3	I-2, R-1, P+3	2d6
44	Preserved Foods	10,000	I-4, A-2	I+2, NA+4, P+2, R-1	1d6x10
45	Leather	10,000	A-4, P-2	R+4, I+2	4d6
46	Strong Acids	15,000	NI-2, P-1	I+4, R-1	2d6
47	Canned Beverages	15,000	P-4, NI-2, I-2	R+4, I+4	1d6x10
48	Insecticide	15,000	NI-2, NA-4	A+4, R+2	1d6x10
49	Mercury	15,000	NI-2, P-4, I+2	I+4, R-1	2d6
50	Furniture	15,000	P-2, I-4, A-1	I+2, R+4	2d6x5
51	Crystals	20,000	NA-3, I+4	NA-3, I+3, R+3	1d6
52	Animal Skins	20,000	A-4, P-1	NA+1, R+4	2d6
53	Tea	20,000	A-4, NI-2	R+8, I+4	3d6
54	Chemical Catalysts	20,000	NI-2, P-2	I+4, R+2	1d6x5
55	Chemical Solvents	20,000	NI-1, AG-1	I+4, R+2	1d6x10
56	Coffee	25,000	A-4, NI-2	R+8, I+4	4d6
57	Starship Hull Plates	25,000	I-2	R+2, NI-2	4d6
58	Explosives	25,000	P+2, I-2	I+2	2d6

59	Toys	25,000	P-2, NA-2, I-4	R+4, A+2	4d6
60	Firearms	30,000	I-3, R-2, P+3	I-2, R-1, P+3	2d6
61	Ammunition	30,000	-3, R-2, P+3	I-2, R-1, P+3	2d6
62	Refined Silicon	35,000	NI-2, I-4, P-1	I+6, R+2	2d6x10
63	Info Cubes/Disks	50,000	R-2, I-2	P+3, A+6, R+4	1d6
64	Modular Buildings	50,000	I-2, R-2	P+4, NI+2	2d6
65	Body Armor	50,000	I-1,R-3,P+3	I-2,R+1,P+4	2d6
66	Fragrance Oils	50,000	P-2, NI-2, A-4	I+2, R+6	1d6
67	Silver	70,000	I+5, R-1, P+2	I+5, R-1	1d6x5
68	Mechanical Parts	70,000	I-5, R-3	N I+3, A+2	1d6x5
69	Construction Equipment	75,000	I-4, R-2	NI+4, P+4, NA+2	2d6 (4 tons ea)
70	Computer Software	100,000	I-4, R-2	I+2, NI+2	2d6
71	Pharmaceuticals	100,000	NA-3, +4, P+3	NA-3, I+5, R+4	1d6
72	Electronics Parts	100,000	I-4, R-3	NI+2, P+1	1d6x5
73	Starship Electronics Parts	150,000	I-4	R+4, NI-2	2d6
74	Farm Machinery	150,000	I-5, R-2	A+5, NA-8, P+1	1d6
75	Computer Parts	150,000	I-5, R-3	NI+3, A+1, NA+2	1d6x5
76	Special Alloys	200,000	I-3, NI+5, R-2	I-3, NI+4, R-1	1d6
77	Holo-Vid Cubes	250,000	I-4	R+4, P+2	4d6
78	Statuary	250,000	P-6, NI-2, NA-2	R+4, I+2	2d6
79	Cybernetic Parts	250,000	I-4, R-1	NI+4, A+1, NA+2	1d6x5
80	Starship Engine Parts	250,000	I-2	R+2, NI-2	4d6
81	Art Work	250,000	P-4, NI-2, NA-2	R+6, I+2	1d6
82	Vacc Suits	400,000	NA-5, I-3, R-1	NA-1, NI+2, P+1	1d6x5
83	Cloned Human Organs	500,000	P-1, I-2	R+6, I+2, NI-2	1d6
84	Human-Cybernetic Parts	500,000	I-4	R+2, I+4	2d6
85	Robot Parts	500,000	I-4	R+2, P+4, NI+4	4d6
86	Energy Cells	500,000	I-4. NI+2, P+2	R+2, NA+2	2d6
87	Antiques	500,000	P-2	R+6, I+2	2d6
88	Machine Tools	750,000	I-5, R-4	NI+3,A+1, NA+2	1d6x5
89	Computer Memory Modules	1,000,000	I-4	R+2	2d6
90	Radioactives	1,000,000	I+7, NI-3, R+5	I+6, NI-3, R-4	1d6
91	Gems	1,000,000	I+4, NI-8, P-3	I+4, NI-2, R+8	1d6
92	Aircraft	1,000,000	I-4, R-3	NI+2, P+1, NA-2	1d6
93	Robots	1,500,000	I-4	R+2, P+4, NI+4	2d6 (4/ton)
94	All Terrain Vehicles	3,000,000	I-2, R-2	NI+2, P+1, A+1	1d6
95	Jewelry	5,000,000	I-2, NI-4, P-3	R+8	1d6
96	Air/raft	6,000,000	I-3, R-2	NI+2, P+1	1d6
97	Armored Vehicles	7,000,000	I-5, R-2, P+4	NA-2, A+2, R+1	1d6
98	Gold	8,000,000	P-2, NI-2, NA-2	I+4, R+6	1d6
99	Computers	10,000,000	I-2, R-2	NI+2, P+1, A-3	1d6
100	Starship Weapons	Per weapon	I-2	R+2	2d6 (4/ton)
101+	Subtract 10 to the roll and redetermine the result				

Trade Goods: The specific type of goods located for sale or attempting to be sold.
Base Price: The single unit price of the goods. Used to determine the final price. See The Price of Goods, pg 359.
World Types: The Speculative Trade Goods table indicates purchase and resale modifiers based on world types. The Universe chapter indicates the meaning of various world characteristics for other aspects of Traveller, and defines trade classifications. There are six classifications of interest: agricultural and non-agricultural, industrial and non-industrial, rich and poor worlds. A world may meet the criteria for more than one label (it may be poor, non-industrial, for example). Those meeting criteria for more than one label are subject to the modifiers for each such label when using the trade goods table.

A - Agricultural: atmos 4-9, hydro 4-8, popul 5-7.
NA - Non-agricultural: atmos 3-, popul 6+.
I - Industrial: atmos 0-2, 4, 7, or 9, popul 9+.
NI - Non-Industrial: popul 6-.
R - Rich: atmos 6 or 8, popul 6-8, govt 4-9.
P - Poor: atmos 2-5, hydro 3-.

Purchase Modfiers: Any modifiers applied to the determination of the final price of purchase based on the type of world the goods are being bought by a character. See The Price of Goods.
Resale Modifiers: Any modifiers applied to the determination of the final price at sale, based on the type of world the goods are being sold upon by a character. See The Price of Goods.
Quantity: This is the quantity of goods available in the lot, expressed in tons except where quantity has a bracketed value following it. In these cases Quantity refers to the actual number of objects at the tonnage described. Goods are available up to the quantity encountered. A lot may be split or partial purchases may be made if the characters desire; such partial purchases do entail a handling fee of 1% if made.

Throw the number of dice and multiply as shown. For example, 3d6x5 indicates that the result of three d6 is multiplied by 5.

When determining the contents of a cargo, the players and Referee must be certain to correlate the established price of goods with the cost per ton. For example, the base price of a shotgun is Cr150, while a ton of firearms as trade goods has a base price of Cr30,000. A strict weight extension of the shotgun (3.75 kg per shotgun) would indicate 266 shotguns. Extension should be instead based on price, with weight as a limiting factor. Thus one ton of shotguns would contain 200 guns, at Cr150 each. The extra weight can be considered packing and crates. Similar calculations should be made to keep prices in line on other trade goods.

STARSHIP ENCOUNTERS

Starships, by their very nature, come and go. They may thus be encountered anywhere. The Referee should check for encounters any time a ship enters or leaves a star system, and as often as seems appropriate while a ship remains in-system. Make a check (DC17) to see if an encounter occurs. If the system has a class A or B starport add +10 to the roll, add +5 for a class C starport, and add +2 for a class D starport. There are no modifiers for a class E or X starport. If the check roll is equal or higher than 17, an encounter occurs.

1) First determine the type of encounter that has occurred on the table below. Be sure to note the modifiers for the starport type, the population of the mainworld and the presence of any bases.

1d100	*Type of Encounter*
01-05	Pirate Vessel
06-65	Merchant Vessel or Liner
66-85	System Defense Vessel
86-90	Other Vessel or Craft
91-95	Scout Service Vessel
96-00	Navy Vessel

Encounter Modifiers	
Class A or B Starport	+5
Class C Starport	+0
Class D Starport	-5
Class E or X	-10
Naval Depot Present	+25
Naval Base Present	+10
Scout Base Present	+5
Carrying Security Cargo	-10
Carrying Speculative Cargo worth Cr100,000-999,999 per ton	-10
Carrying Speculative Cargo worth Cr1,000,000-9,999,999 per ton	-15
Carrying Speculative Cargo worth Cr10,000,000+ per ton	-20

2) Next determine the range at which the encounter occurs (see Encounter Distance pg. 144).

3) Now determine the specifics of the encountered vessel(s) and their reactions. Each encounter type (determined in step 1 above) is detailed on the following pages.

PIRATE

The scourge of the universe, pirates can be found lurking even in the most civilized of regions at times. Naval and mercenary ships are constantly on patrol to deter or destroy pirates, but they cannot be everywhere. Naval forces will move in to clean up an area particularly beset by piracy, but the really smart pirates will have moved on by then. To determining a pirate encounter, consult the tables that follow. These will allow you to determine the number of pirate ships encountered, what type of ship each of them are (roll individually), where the attack is likely to occur (use the next available result if no asteroid belt or gas giant is present), and the action the pirates will take. Note that most pirates do not advertise what they are, and will use deception and stealth to take their victims unawares. "Pirate" encounters could also include foreign commerce raiders, privateers or rogue naval vessels.



1d100	Number of Pirate Vessels
01-40	1
41-70	2
71-90	3
91-100	4

1d100	Type of Ship
01-10	Scout/Courier
11-35	Free Trader
36-50	Subsidized Merchant
50-75	Corsair
76-90	Patrol Cruiser
91-100	Mercenary Cruiser

1d100	Position
01-40	Lying in ambush for ships skimming the local gas giant
41-70	Hiding in the local asteroid belt
71-90	Close to the standard jump point for this system
91-100	Hiding on the far-side of the mainworld or its moon

1d100	Reaction
01-10	Attack without warning
11-20	Attack with warning
21-30	Ordered to heave to and be boarded or they will attack (automatically attack if fail to comply)
31-50	Ordered to heave to and be boarded or they will attack (roll again at -25 if fail to comply)
51-70	Ordered to heave to and be boarded or they will attack (roll again if fail to comply)
71-80	Ordered to heave to and be boarded or they will attack (roll again at +25 if fail to comply)
81-90	Ordered to heave to and be boarded or they will attack (will ignore if fail to comply)
91-100	Will ignore

Situational Modifiers	Modifier
Pirates outnumbered	+5 per ship exceeding the number of pirate vessels
Target outnumbered	-5 per ship exceeding the number of pirate vessels
Pirates outweigh the target in tonnage	-25
Target outweighs the pirates in tonnage	+25
Scout base present	+10
Naval base present	+25

If a pirate group takes serious damage to more than 20% of its vessels, they will break and run on a DC of 15.

MERCHANT OR LINER

The lifeblood of any interstellar civilization, these will be the most common types of ships encountered when travelling across space. Use the tables below to determine the specific type of ship encountered, what it is doing at the time of the encounter, and what its reaction will be if contacted.

1d100	Type of Ship
01-20	200-ton Free Trader
21-30	200-ton Far Trader
31-45	400-ton Subsidized Merchant
46-60	400-ton Subsidized Merchant
61-70	600-ton Subsidized Liner
71-90	Bulk Carrier
91-100	Luxury Liner

1d100	Activity
01-30	Inbound
31-60	Outbound
61-85	Refueling at gas giant or making repairs (no assistance required)
86-95	In need of non-emergency assistance
96-100	Signal GK!

1d100	Reaction
01-10	Hostile, wants no contact. Will attack (DC18) if provoked
21-25	Hostile, wants no contact
26-50	Unfriendly, is irritated at contact
51-90	Friendly, welcomes contact, offers possible information
91-100	Very Friendly, initiates contact, possible future contact.

SYSTEM DEFENSE

Most mainworlds with a sufficient technological capacity (TL 9 and higher) will typically have some form of ships for customs enforcement, security and in-system defense. Use the tables below to determine the type of ship encounter, what action it will take, and what its reaction might be if its orders are not obeyed.

1d100	Type of Ship
01-25	Scout Courier
26-50	Patrol Cruiser
51-75	System Defense Boat
76-90	Planetary Naval Ship
91-100	Interstellar Naval Ship

1d100	Activity
01-40	On patrol
41-50	Heading out to patrol or Jump
51-60	Inbound from patrol or Jump
61-75	Escorting or carrying out inspection of other vessel (determine type on the Merchant/Liner chart, above)
76-90	On maneuvers
91-95	Responding to emergency
96-00	Returning with combat damage

1d100	Action
01-05	Hostile, mistakes ship for known pirate vessel. Fires shot across bow and orders ship to heave to and prepare for boarding
06-15	Requires boarding inspection before ship may continue.
16-30	Requires transponder codes and manifests to be transmitted before ship may continue
31-75	None
76-90	Offers formal greeting and general advisory on local conditions
91-00	Offers friendly greeting and welcome on behalf of owning government

1d100	Reaction
01-10	Attacks
11-35	Issues warning (roll again -25 to the roll)
36-60	Issues warning (roll again)
61-85	Issues warning (roll again +25 to the roll)
86-100	Ignores and allows ship to continue, but notes ship for future reference

OTHER

There are many other types of ships in service throughout charted space, all on different missions for different purposes. Use the tables below to determine the nature of the vessel encountered, its current activity, and its possible reaction if contacted.

1d100	*Type of Ship*
01-10	Seeker
26-50	Scout/Courier
51-70	Lab Ship
71-80	Safari Ship
81-95	Yacht
96-100	Mercenary Cruiser

1d100	*Activity*
01-30	Inbound
31-60	Outbound
61-85	Refueling at gas giant or making repairs (no assistance required)
86-95	In need of non-emergency assistance
96-100	Signal GK!

1d100	*Reaction*
01-10	Hostile, wants no contact. Will attack (DC18) if provoked
21-25	Hostile, wants no contact
26-50	Unfriendly, is irritated at contact
51-90	Friendly, welcomes contact, offers possible information
91-100	Very Friendly, initiates contact, possible future contact.

SCOUT SERVICE

The scout services utilized many different types of ships, but by far the most commonly encountered are the ubiquitous scout/courier, the X-boat, and the X-boat tender. The tables below will allow you to determine specifically what type of Scout vessel is encountered, its current activity, and its general reaction if contacted.

1d100	*Type of Ship*
01-50	Scout/Courier
51-75	X-Boat
76-100	X-Boat Tender
	+ 25 if Scout Base present
	+10 if system is on an x-boat route

1d100	*Activity*
01-30	Inbound
31-60	Outbound
61-70	Refueling at gas giant or making repairs (no assistance required)
71-85	Sending/receiving communications; launching receiving Xboat or courier; conducting a survey
86-95	In need of non-emergency assistance
96-100	Signal GK!

1d100	*Reaction*
01-10	Hostile, wants no contact. Will attack (DC18) if provoked
21-25	Hostile, wants no contact
26-50	Unfriendly, is irritated at contact
51-90	Friendly, welcomes contact, offers possible information
91-100	Very Friendly, initiates contact, possible future contact.

NAVY

Ships of a navy can't be everywhere all the time, but when they are encountered they will normally make their presence known (especially if on patrol or "showing the flag"). Naval vessels brook little interference in the conduct of their duties and mission. Use the tables provided below to determine the type of Naval vessel encountered, its mission, what its actions will be when encountered, and what reaction it will have if its orders are not obeyed.

1d100	*Type of Ship*
01-40	Escort, Patrol Ship or Courier (See Subtable)
41-80	Transport or Auxiliary (See Subtable)
81-90	Cruiser or Light Carrier (See Subtable)
91-95	Capital Ship (See Subtable)
96-00	Naval Squadron (See Subtable)

Escorts, Patrol Ships and Couriers Subtable

1d100	*Type of Ship*
01-20	Scout/Courier
21-40	300t Close Escort
41-60	400t Patrol Cruiser
61-70	400t Fleet Courier
71-80	1000t Escort Destroyer
81-90	3000t Destroyer
91-00	5000t Fleet Escort

Transport & Auxiliary Subtable

1d100	*Type of Ship*
01-15	Auxiliary: Far Trader
16-30	Auxiliary: Subsidized merchant
31-50	Auxiliary: 1000t Freighter
51-55	Assault Transport
56-60	Troopship
61-80	Tanker
81-95	Logistics Ship
96-00	Intelligence Ship

Cruiser & Light Carrier Subtable

1d100	*Type of Ship*
01-50	Light Cruiser
51-65	Heavy/Armored Cruiser
66-80	Light Carrier/Escort Carrier
81-85	Strike Cruiser
86-90	Strike Carrier
91-95	Bombardment Cruiser
96-00	Assault Carrier

Capital Ship Subtable

1d100	*Type of Ship*
01-30	Battle Cruiser
31-50	Fleet Carrier
51-95	Battleship
96-99	Dreadnought
00	Command/Superdreadnought

Naval Squadron Subtable

1d100	*Type of Squadron*
01-25	Patrol Flotilla (1d6+1 Patrol Cruisers)
26-50	Convoy (1d6 Auxiliaries and 1d6 Close Escorts)
51-65	DestRon (Destroyer Squadron; 1d6 Destroyers)
66-75	CruRon (1d6 Light Cruisers)
76-80	Task Force: Light Carrier, Light Cruiser and 1d6 Close Escorts)
81-85	Logistics ship and 1d6 Close Escorts
86-90	Heavy Cruiser and 1d6 Destroyer Escorts
91-99	TankRon (Tanker Squadron: 1d6 Tankers + 2d6 Close Escorts)
00	BatRon: 1d6 Battle Cruisers, Battleships or Dreadnoughts plus escorts

1d100	*Mission*
01-50	On Patrol/Guardship
51-60	Courtesy Visit (Flag-Showing)
61-75	On Maneuvers
76-90	Moving to or from mission area ("Redeploying")
86-95	Hunting Pirates
96-00	Other, or secret, mission (Referee should determine nature)

1d100	*Action*
01-05	Hostile, mistakes ship for known pirate vessel. Fires shot across bow and orders ship to heave to and prepare for boarding
06-15	Requires boarding inspection before ship may continue.
16-30	Requires transponder codes and manifests to be transmitted before ship may continue
31-76	None
76-91	Offers formal greeting and general advisory on local conditions
91-00	Offers friendly greeting on behalf of owning government

1d100	*Reaction*
01-20	Attacks
21-50	Issues warning (roll again -25 to the roll)
51-80	Issues warning (roll again)
81-95	Issues warning (roll again +25 to the roll)
96-100	Ignores and allows ship to continue, but notes ship for future reference

FLESHING OUT STARSHIP ENCOUNTERS

Starship encounters can be made more memorable if the Referee keeps a list of vessels handy, and assigns a name and a "personality" to any vessel contacted. Encountering familiar ships helps create the feeling of a "living universe" in the players, and also keeps them guessing if this encounter is significant, or just a chance meeting on the way to the Jump point.

Any starship or small craft will be in space for a reason, though that reason may not always be obvious. Nor is a ship's stated purpose always what it claims. Many a pirate has claimed to be a system defense vessel or an innocent merchant in order to surprise its victims. However, for the most part it will be obvious what a ship is up to from its heading, acceleration etc. For example, a merchant ship moving away from the starport is almost certainly heading out to Jump. Such vessels only make a profit when they deliver their cargo to its destination, so they will waste little time in getting there.

Most starship encounters will be a simple matter of exchanging transponder squawks and maybe a polite greeting. Much of the time this can be assumed to be going on "in the background" as the players near the port or the Jump point, and to be of little consequence. However, some encounters are more significant. Naturally, any encounter involving weapons fire will need to be resolved using the starship combat rules, but other encounters can also be important. A short chat with a passing merchant ship may provide a vital clue, or may allow the players to avoid a dangerous situation. Also, some situations require a response that may lead to adventure.



Sometimes, special circumstances may require the vessels in a system to remain in port or to enter a holding orbit, to heave to for boarding and inspection, or to run for cover from a sudden solar flare. A vessel transmitting a GK signal (a distress call) must be assisted unless the ship receiving the call has a pressing reason not to do so. The absolute minimum response is to rebroadcast the signal (increasing its range), but as a rule an attempt to render assistance must be made unless it would expose the rescuing ship or here passengers and crew to unreasonable danger.

Around a busy Class A or B starport, it is impossible not to encounter other ships, though there is little point in detailing every single vessel in the area. There will always be a host of ships and craft coming and going. Among the merchants and passenger ships will be port utility craft, customs cutters and perhaps fighters or SDBs on close-in security patrol. Vessels behaving strangely or disregarding traffic control instructions can expect a rapid intervention from local defense craft, and weapons fire will bring an escalating response that few vessels can survive. Important worlds will also have standing naval patrols and SDB squadrons scattered across the system for police and defense operations.

As a rule, other ships are more friendly when encountered in these busy systems, feeling more secure under the guns of defense craft than out in the backwaters.

Class C ports see less traffic, though there may be a handful of ships in system at any one time. There will still be a few port authority cutters, fighters etc, but these ports will not have dozens of small craft buzzing about. System defenses are also lighter, and vessels will be more cautious since help is often a long time coming, if it is available at all.

Class D and E ports see little traffic. A class D port will have at most a couple of small craft for utility and rescue work, and a Class E will have none at all. Vessels are generally cautious in these backwaters, since there is no assistance to be had if an encounter goes awry. Of course, there may be visiting Navy ships or a vessel serving a tour as a Guardship, on anti-piracy patrol or whatever, but it is more than likely that the players' vessel will be more or less alone in the system; two or three ships on the landing pad at once is unusual enough to be remarkable.

Naval and Port Authority ships, and also the merchant vessels operated by major shipping lines, have defined protocols for dealing with other ships. They tend to be polite and formal, and also somewhat jealous of their space. Vessels coming in too close will be briskly warned off. However, although the crews of these vessels will not be inclined to gossip, contact is likely to be cordial (though some merchant lines are notoriously contemptuous of Free Traders).

If a boarding party is sent over by a naval or customs vessel, personnel will be armed, cautious, and (usually) professionally polite. Some boarding party personnel may be officious or overbearing (this is quite common when going through a customs check at a high-law world).

Smaller vessels, such as Scouts and Free Traders, are more varied in their contact with other vessels. Vessels transiting to and from the Jump point are likely to be willing to chat and exchange news (though insider trading tips are a valuable commodity and not lightly handed out). Chatting to other ships can thus be a good way to pick up rumors. Of course, the 'personality' of a ship depends upon her captain and crew. Some are garrulous, some are haughty, some are coldly formal or ignore contact entirely. Smaller ships are often quite distinctive due to their long, eventful careers and the little idiosyncrasies they pick up along the way.

UNIVERSE/WORLDS DEVELOPMENT

OPEN GAMING CONTENT NOTE

The rules presented in this chapter on the design of star systems and worlds are not Open Gaming Content, however any star systems or worlds created using the rules are considered Open Gaming Content. Basically you cannot explain how to create a star system or world as described under these rules, but you may freely publish and distribute the final stellar or world data and information under the terms of the Open Gaming License.

THE UNIVERSE

The Referee is responsible for mapping the universe before actual game play begins. The entire universe is not necessary immediately, however, as only a small portion can be used at any one time. In unsupervised play, one of the players can generate worlds and perform mapping on a turn-by-turn or adventure-by-adventure basis.

The universe is mapped in convenient segments, called subsectors. Each sub-sector is an area of hexagonal cells measuring eight hexes by ten hexes. Since the recommended scale is one parsec (3.26 light years) per hex, the subsector covers an area ten parsecs by eight parsecs (see the Subsector Form, pg. 439)..

Four subsectors (arranged in 2 rows of 2 subsectors each) form a quadrant.

Sixteen subsectors (arranged in four rows of four subsectors each) form a sector, probably the largest size practical for a continuing Traveller campaign.

Mapping a subsector consists of two sequences: star mapping and world development. Star mapping examines each hexagon in the subsector grid and determines if there is a star system present. It also determines the presence or absence of starports, bases, and fuel for starships. All of this information is coded onto the subsector hexes, and serves as a guide to the Referee and to the players during interstellar travel. World development examines the single most important world in each system and determines the basic characteristics for it. This information is retained for use in adventures on the world surface.

STAR SYSTEM DEVELOPMENT

These system and world generation rules are derived from the original expanded System Generation rules found in Classic Traveller Book 6 - Scouts. They are not intended to replace that work; rather this revision is designed to streamline and simplify the original rules. They are an approximation, and as such they may in places diverge from what we currently know as 'scientific fact' (which anyway has a tendency to change with time...). Playability and a sense of believability are what drove its design rather than formulas and hard facts. Those looking for a more detailed and 'authentic' design system are encouraged to pick up a copy of the Classic Traveller Reprint: The Books (0-9), or the GURPS: Space or GURPS Traveller: First In supplements.

THE UNIVERSAL WORLD PROFILE (UWP)

Traveller uses a shorthand method of describing the most important features of a world. This is termed a Universal World Profile (UWP). UWPs can be created for any planetary body, though normally they are used for the main world of any given system, providing the Referee with quick reference.

UWPs use code numbers and letters to indicate the characteristics of a world. Codes follow a Unidigit system, beginning at 0-9, then using letters to avoid the confusion created by 2-digit entries. Thus A=10, F=15, etc.

Full details of the UWP are found under World Data Format. The most important points are summarized here:

Name:	The name of the world or planetary body
Starport Code:	A-X and indicating decreasing quality of starport, and no starport, respectively
Size:	The Size Code of the world, representing its diameter in thousands of kilometers
Atmosphere:	Atmosphere Code, representing the type of atmosphere the world possesses
Hydrographics:	Hydrographics Code, in increments of 10% water coverage
Population:	Population Code, in orders of magnitude
Government:	Government Code, indicating the nature of the dominant world government
Law Level:	Law Code, indicating the general nature of law and law enforcement on-planet
Tech Level:	0-F and higher, indicating increasing technological capability



Systems and worlds developed with this system are fully compatible with worlds created with the Classic Traveller rules, and vice-versa.

STEP 1 - STELLAR OCCURRENCE

There is normally a basic one-half chance that a hex will contain a stellar system. Systematically check each hex, throwing one die and marking the hex with a circle if the result is a 4, 5, or 6. This indicates that at least one star is present; otherwise, leave the hex blank.

The Referee may elect to alter the normal chances of stars being present, making them more or less frequent to correspond to specific regions of the galaxy. This is easily accomplished by imposing a modifier of +1 or -1 on the whole subsector, or on broad areas within a subsector.

Density	*Check*	*Example*
Standard	4+ on 1d6	standard region
Dense	3+ on 1d6	thick with worlds
Sparse	5+ on 1d6	few worlds
Rift	6 on 1d6	a handful of worlds at best.

STEP 2 - STARS IN SYSTEM

The next step in developing a star system is to determine the number of stars that are present. Normally there will only be a single star, but occasionally a binary (two-star) or trinary (three-star) system will be found. If there are multiple stars, repeat steps 3-5 for each star.

2d6 Roll	*Result*
2-7	Solo (single star)
8-11	Binary (two stars)
12	Trinary (three stars)

STEP 3 - STAR SIZE

Use the Star Size table to determine the size of each star in the system, rolling once for each. When rolling for the size of a binary (2nd) star in a system subtract -2 from the roll. When rolling the size for a trinary (3rd) star in a system subtract -4 from the roll. If the result is a Giant star, roll again on the Giant Star Size subtable.

White Dwarf: A white dwarf (Spectral Class W, Size D) is what remains of most stars at the end of their life. All of the star's fuel has been expended, and it is slowly cooling off and becoming dimmer. Eventually the star will become what is known as a Black Dwarf; nothing but a planetary sized hunk of fused metal of incredible density and a massive gravitational field. About 5% of the stars in our galaxy are classified as a white dwarf. If the star is a white dwarf, you may skip step 4, as the spectral class of the star is automatically W.

Red Dwarf: The most common of all stars is the Red Dwarf (Spectral Class M, Size V) star, which make up approximately 80% of the stars in our galaxy. If the star is a red dwarf, you may skip step 4, as the spectral class of the star is automatically M. A red dwarf is the most long lived of stars, with a lifespan that numbers hundreds of millions of years.

Main Sequence: A main sequence star, also known as a Dwarf star, are the most commonly found stars in the universe, and represent the mature lifespan of a star. These stars will usually evolve into some type of giant star during the later stages of their existence.

Giant: Typically an older star that has become large and brighter, moving out of the main sequence stage. During this period some stars can grow to as much as 100 times their original size. Most giants are destined to become either a white dwarf, or end their existence in a massive supernova.

STAR SIZE

1d20	*Descriptor*	*Size*	*Odds*	*Temp Mod.*
1	White Dwarf	D	(1 in 20)	+2
2-16	Red Dwarf	V	(1 in 1.25)	+1
17-19	Main Sequence (Dwarf) Star	V	(1 in 33)	+0
20	Giant	Varies	(1 in 20)	-

GIANT STAR SIZE

1d20	*Descriptor*	*Size*	*Odds*	*Temp Mod.*
1-6	Sub-Giant	IV	(1 in 67)	-0
6-14	Giant	III	(1 in 45)	-1
15-18	Bright Giant	II	(1 in 100)	-2
19	Weak Super Giant	Ib	(1 in 400)	-2
20	Bright Super Giant	Ia	(1 in 400)	-4

STEP 4 - STAR SPECTRAL CLASSIFICATION

Once the size of the star has been determined, consult the Spectral Class table to determine the spectral class of the star. Roll once for each star in the system. The number and type of dice that should be rolled will depend on the type of star as shown on the Spectral Class Dice table.

If the star size result was a White Dwarf or a Red Dwarf, this step should be skipped. When rolling for the size of a binary (2nd) star in a system add +2 from the roll. When rolling the size for a trinary (3rd) star in a system add +4 from the roll.

Stars are rated by their spectral class from brightest (and hottest) to dimmest (and coolest), and represented by the letters O, B, A, F, G, K, and M. A common and easy mnemonic to use to remember this is "**O**h **B**e **A** **F**ine **G**irl (or Guy) **K**iss **M**e".

O: The class O star is very rare, so much so that there is no way to factor it into the tables for this game. The referee should place these types of stars as they see fit, but it is recommended to place no more than one or maybe two per sector. The class O is an extremely bright blue star, hotter, brighter and generally larger than the class B, and has an even shorter lifespan.

B: These rare large blue stars are extremely bright and hot, but extremely short-lived with a typical lifespan only numbered in hundreds of thousands of years.

A: A usually large, white hot star with a lifespan ranging from millions to tens of millions of years.

F, G, K: Very common, warm stars ranging in color from light yellow to yellow to orange in appearance, and from bright to normal to dim in luminosity. They generally have lifespans numbering millions if not tens of millions of years.

M: If the star is a red dwarf, this is a small, cool, dim star with a lifespan numbering hundreds of millions if not billions of year. For giant stars, this is usually a former main sequence star in the final days of its existence. The planets that might have existed in the stars habitable zone during its main sequence phase will have been swallowed up during the expansion into a red giant. Any planets that do exist will not have had enough time to recover from the expansion of the star to have developed any type of ecosystem.

Stars also have a further spectral classification value ranging from 0 to 9, that represents how far along the spectral class a star is. For example, a K5 star is halfway to being a class G star and is

midway between orange and yellow in color. While this more detailed size has no actual use in T20, it does complete compatibility with previous versions of Traveller.

For those who wish to further determine the spectral classification of a star, roll 1d10 to specify the spectral distance with 10 equaling 0. Note that there are no known Class K5 to K9 sub-giant stars. If this occurs simply reroll or set the distance as K4.

SPECTRAL CLASS

Result	Class	Color	Temp Mod.
1-3	B	Light Blue	-6
4	A	White	-4
5-9	F	Light Yellow	-2
10-11	G	Yellow	+0
12-13	K	Orange	+1
14-20	M	Red	+2

SPECTRAL CLASS DICE

Star Size	Roll
Main Sequence	2d6+1
Sub-Giant	2d6
Giant	2d10
Super Giant	1d20

STEP 5 - GAS GIANTS PRESENT

Most (but not all!) stars have a gas giant or two circling them. Use the table below when checking for the presence of gas giants around each star in the system. Once the number of gas giants has been determined, their size can be found by rolling 1d6. A result of 4 or greater indicates a small gas giant. 3 or less indicates a large gas giant. A small gas giant is roughly 40-60,000 km in diameter, while a large gas giant will range from 60-120,000 km in diameter.

Digit	Average Size	Gravity Description	Typical Surface Gravity
SGG	50,000km	Small Gas Giant	1.25g
LGG	90,000km	Large Gas Giant	2.5g

2d6 Roll	Number of Gas Giants
2	5
3	4
4	3
5	2
6	2
7	1
8	1
9	1
10+	0

STEP 6 - PLANETOID BELTS PRESENT

Planetoid belts are also a common occurrence among star systems, whether debris from an unformed planet or the remains of a planet destroyed in a collision with another stellar body. A planetoid belt that is the main world of a system is referred to as an Asteroid Belt to distinguish it from non-mainworld planetoids.

2d6 Roll	Number of Planetoid Belts
2	3
3	2
4	2
5	1
6	1
7+	0

STEP 7 - PLACE MAIN WORLD, GAS GIANTS, AND PLANETOID BELTS

Orbits are based on distance from the center of the parent star, and are numbered from 0 to 19 from closest to farthest orbit. An orbit of zero is usually (dwarf stars being the exception) within the corona of the star itself. Some star types, most notably giants and supergiants, will have a minimum orbit at which planets, gas giants, or planetoid belts will be found due to the enlarged nature of the sun. Anything that would normally have been found in these closer orbits have been swallowed up by the radius of the star itself. Thus, when placing any stellar feature, the object must be placed in an orbit at least equal to the Minimum Orbit for the star.

MINIMUM ORBIT

Star Size	Spectral Class B	A	F	G	K	M
Dwarf	0	0	0	0	0	0
Main Sequence	0	0	0	0	0	0
Giant	1	2	3	4	5	6
Super Giant	2	3	4	5	6	8

ORBITAL DISTANCES

Orbit Number	Distance in Millions of Kilometers
0	30
1	60
2	105
3	150
4	240
5	420
6	780
7	1500
8	3000
9	5800
10	11,500
11	23,000
12	46,000
13	92,000
14	185,000
15	368,000
16	735,000
17	1,470,000
18	2,940,000
19	5,880,000
20	Beyond...

Habitable Zone: This is a temperate orbit around a star where stellar radiation is neither too much nor too little. If other factors are right, life may exist on worlds in this zone. Use the table that follows to determine the Habitable Zone orbit for a given star. A result of X means there is no possible habitable zone around this type of star.

HABITABLE ZONE

Star Size	Spectral Class B	A	F	G	K	M
White Dwarf	0	X	3	1d2	1d2-1	0
Red Dwarf or Main Sequence	8+1d4	5+1d2	3+1d3	1+1d4	1d4	0
Sub-Giant or Giant	9+1d3	6+1d3	5+1d3	6+1d2	6+1d3	7+1d3
Super Giant	10+1d3	9+1d3	9+1d3	9+1d3	9+1d3	10+1d2

Zones: Orbits closer to a star than the Habitable Zone are said to lie in the Inner Orbits of the star. Orbits farther out than the Habitable Zone are said to lie in the Outer Orbits of the star. The Star Stellar Type and Size determine the Habitable Zone.

Companion Stars: Companion binary stars are normally found in close orbit to the primary star (orbit 0), or in a far orbit from the primary (orbit 20+). However a companion star is occasionally found within the main orbits of a primary star. In such cases the next orbit out from the companion will always be empty as will half of the orbits extending from the companion in towards the primary star.

Companion trinary stars are almost always found in far orbits from the primary (orbit 20+), but follow the same placement as binary companions when exceptions are found.

The Main World: If the main world of a system has already been determined, it should be placed in the Habitable Zone of a star's available orbits. If the Main World has an atmosphere of 1- or 10+, then it is not necessary to place it in the Habitable Zone.

Gas Giants: Gas Giants should generally be placed in the Outer Orbits of a star first where possible. They may also appear in the Inner Orbits and the Habitable Zones, though this is far less frequent.

Planetoid Belts: Planetoid Belts should be placed in the next orbit inward from a Gas Giant where feasible.

STEP 8 - OTHER PLANETS

Once the Main World orbit has been determined, and gas giants and planetoid belts (if any) have been placed, check the remaining stellar orbits to see if any other planets exist in the system.

Roll (2d6 - Number of gas giants - Number of planetoid belts - 1). If the result is greater than 0, that is the number of additional planets in the system. Place them as you see fit in any remaining open orbits around the star with preference to the Habitable, Inner, then Outer Zones in that order.

STEP 9 - SATELLITES

It is not usually necessary to determine the details of satellites of all worlds in a system. For worlds where it is relevant, use the following process:

Normal World:	1d6-3 (minimum 0)
Small Gas Giant:	2d6-4 (minimum 0)
Large Gas Giant:	2d6

Satellite size equals the main world size code - 1d6. If satellite Size=0 then it is a ring of debris instead. If satellite Size is less than 0 then the satellite is a small world, (1d8) x 100 km in diameter. Satellites of Size 1 or greater may have an atmosphere and hydrographics (determine normally). Smaller satellites and rings never have an atmosphere.

WORLD DEVELOPMENT

STEP 0 - MAIN WORLD PARENT STAR

The first step in setting up the main world is to determine which star it orbits if there is more than one star in the system. If there is only one star, then obviously the main world will orbit it.

2d6 Roll	Parent Star
2-7	Primary
8-10	Binary (2nd star if present, otherwise Primary)
11-12	Trinary (3rd star if present, otherwise Binary)

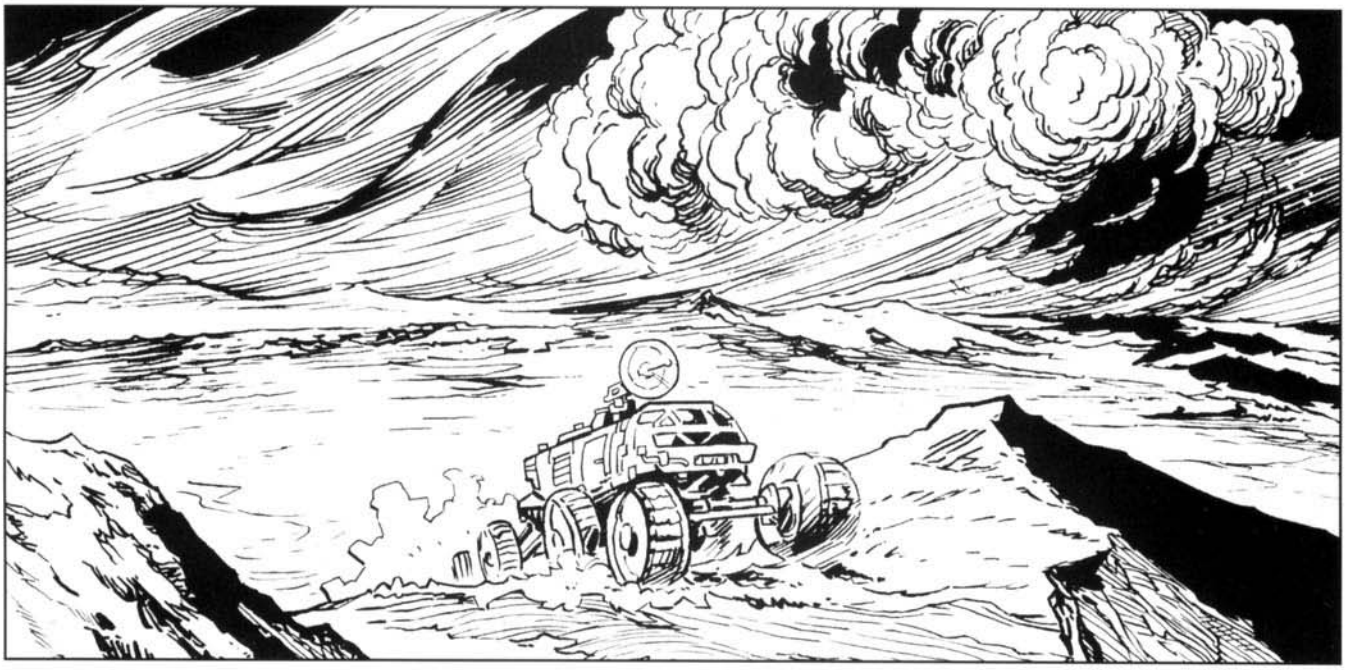
STEP - 1 WORLD ORBIT

The orbit of the world should have already been established when determining the stellar properties of the star system. If for some reason it has not been determined, you may select any open orbit around the star (preferably in the Habitable Zone) or roll 1d20-1 with the result equaling the world's orbit. If the orbit is already occupied, roll again.

The table below should also be used to determine further temperature modifiers for the world in addition to those imposed by the parent star itself, and the length of the year of the world (the time it takes to make a complete orbit of the parent star). 1 Year is based on 365.25 days.

WORLD ORBIT

Orbit	Temp Modifier	Length of Year	Example
0	-4	x0.1	
1	-2	x0.25	Mercury
2	-1	x0.6	Venus
3	+0	x1	Earth
4	+1	x2	Mars
5	+5	x8	Planetoid Belt
6	+6	x12	Jupiter
7	+7	x84	Uranus
8	+8	x165	Neptune
9	+9	x250	Pluto
10	+10	x678	
11	+11	x1911	
12	+12	x5395	
13	+13	x15,244	
14	+14	x43,096	
15	+15	x121,863	
16	+16	x344,639	
17	+17	x974,728	
18	+18	x2,756,862	
19	+19	x7,797,464	



STEP 2 - WORLD SIZE

The digit representing planetary Size indicates the diameter of the planetary sphere stated in thousands of kilometers. To determine the Size of a world, roll 2d6-2. If the world is in orbit 0 subtract -5; if the world is in orbit 1 subtract -4; if the world is in orbit 2 subtract -3. If the world is orbiting a Spectral Class M star, subtract -2 from the roll. Any roll total of less than 0 equals 0. Results of R and S are special results used only for satellites.

Digit	*Average Size*	*Gravity Description*	*Typical Gravity*
R	Ring (around a world)	No Gravity	0
S	Small (200-800 km)	No Gravity	0
0	Asteroid Belt	No Gravity	0
1	1600 km	Very Low Gravity	0.125g
2	3200 km	Very Low Gravity	0.25g
3	4800 km	Very Low Gravity	0.375g
4	6400 km	Low Gravity	0.5g
5	8000 km	Low Gravity	0.625g
6	9600 km	Low Gravity	0.75g
7	11,200 km	Average Gravity	0.875g
8	12,800 km	Average Gravity	1g
9	14,400 km	Average Gravity	1.125g
A+	16,000 km	Heavy Gravity	1.25g

STEP 3 - WORLD ATMOSPHERE

The digit indicating planetary Atmosphere represents the type of atmosphere encountered on the world. Some types of atmospheres require the use of protective clothing or masks. To determine the Atmosphere code for a world, roll 2d6-7, and add the world Size digit to the total. If the world is in the Inner Zone of a star, subtract -2 from the roll. If the world is in the Outer Zone of a star, subtract -4 from the roll. If the world size is 0 or S, then the atmosphere is automatically 0. Results of less than 0 should be changed to 0.

No Atmosphere or Trace: Total or near total vacuum. Survival in these atmospheres requires a vac suit, or other pressurized shelter or protection.

Very Thin: The world has a very thin standard oxygen/nitrogen atmosphere of 0.1 to 0.49 atmospheres. Survival requires the use of compressors to ensure an adequate supply of oxygen can be drawn from the atmosphere.

Thin: The atmosphere is thin (0.5 to 0.74 atmospheres) but a standard oxygen/nitrogen mix. No assistance is needed to breathe on these worlds, though those not acclimatized to the conditions will tire quickly.

Standard: A normal to near-normal atmosphere density (0.75 to 1.49 atmospheres) with an oxygen/nitrogen mix. No assistance is needed to breathe on these worlds.

Dense: A dense atmosphere (1.5 to 2.5 atmospheres) with a standard oxygen/nitrogen mix. No assistance is needed to breathe on these worlds, though those not acclimatized may find breathing uncomfortable.

Tainted: The atmosphere contains some type of taint such as severe industrial pollutants, a high sulfur count, a biological agent, or some other contaminant which requires the use of a filter mask or filtration system to survive.

Exotic: An exotic atmosphere is one with an unbreathable gas mix that requires the use of a constant fresh air supply such as oxygen tanks for survival. No other protective gear is normally required.

Corrosive: These atmospheres are physically corrosive and damaging to all but the most robust of equipment and gear. A hazardous environment suit or vac suit is required to survive in these types of atmosphere.

Insidious: A similar but more extreme version of the Corrosive atmosphere, an insidious atmosphere will actually defeat any protective measures within 2-12 (2d6) hours of their exposure.

Digit	*Description*
0	No Atmosphere.
1	Trace.
2	Very Thin, Tainted.
3	Very Thin
4	Thin, Tainted.
5	Thin
6	Standard
7	Standard, Tainted.
8	Dense
9	Dense, Tainted.
A	Exotic.
B	Corrosive
C	Insidious
D	Dense, High Pressure
E	Ellipsoid
F	Thin, Low Pressure

Dense, High Pressure: Pressure at or below sea level is too high to support most forms of life, but at higher altitudes in the lower pressure the atmosphere becomes breathable.

Ellipsoid: The world's shape is an ellipsoid rather than a sphere, causing much higher atmospheric pressure at the poles of the planet and much lower atmospheric pressure in the equatorial regions. Usually a region with a breathable atmosphere can be found at some point between these extremes.

Thin, Low Pressure: Because of the enormous size of the world, its thin atmosphere sinks to the lowest levels of the terrain rendering the atmosphere unbreathable except at very low altitudes such as deep valleys, crevasses, and depressions.

STEP 4 - WORLD CLIMATE

The average daytime climate of a world depends on a number of factors including the world's orbit, the type if star it circles, the type of atmosphere it has, and a bit of random chance. Worlds within the inner orbital zone of a star are almost exclusively torrid in temperature and generally unfit for supporting life without significant technological assistance. Similarly, worlds within the outer orbital zone of a star are typically frozen and far too cold to support life without additional technological support. It is only worlds within the habitable zone of a star that are usually capable of maintaining the more tolerable temperatures to support life without massive technical assistance.

Roll 1d20 and add the temperature modifiers imposed by the parent star of the world, along with the temperature modifier for the orbit of the world as determined in Step 1. Cross-reference the roll result with the table below to determine the climate.

WORLD CLIMATE

1d20	*Climate*	*Temp**
5 or less	Torrid	61 or higher
6	Very Hot	55
7	Hot	45
8	Warm	35
9	Tropical	25
10-11	Temperate	15
12	Chilly	0
13	Cool	-15
14	Cold	-25
15	Frigid	-35
16 or greater	Frozen	-41 or lower

Use the table below to determine the average night temperature of the world at 30 degrees latitude, based on the atmosphere type.

NIGHTTIME TEMPERATURES

Atmosphere	*Low Temperature*
None	-3 x Max Temperature
Trace	-2 x Max Temperature
Very Thin	-1.5 x Max Temperature
Thin	- Max Temperature
Standard	-1/2 x Max Temperature
Dense	-1/4 x Max Temperature
Exotic	-
Corrosive	-
Insidious	-

STEP 5 - WORLD HYDROGRAPHICS

The digit indicating Hydrographic percentage represents the percentage of planetary surface (in increments of 10%) covered by seas or oceans. For normal worlds, this will be water; on other worlds (with exotic, corrosive, or insidious atmospheres), it may instead be other liquids, such as ammonia.

To determine the available Hydrographics on a world, roll 2d6-7 adding the Atmosphere digit of the world to the roll. If the world is in the Inner Zone of the star, then the Hydrographics digit is automatically 0. If the world is in the Outer Zone, subtract -2 from the roll. If the size of the world is 1 or less (including S), then Hydrographics is automatically 0. If the world's Atmosphere is 1- or 10+ then subtract -4 from the roll. Any result of less than 0 should be changed to 0.

Digit	*Description*
0	No free-standing liquid. Desert
1	10% surface liquid
2	20% surface liquid
3	30% surface liquid
4	40% surface liquid
5	50% surface liquid
6	60% surface liquid
7	70% surface liquid
8	80% surface liquid
9	90% surface liquid
A	No large land masses. Water or Fluid World

STEP 6 - NATURAL RESOURCES

Natural Resources can be anything from mineral deposits to exotic lifeforms, to food production capabilities. This value will most often be used as a part of the determination of a world's trade potential, along with forming the basis for general prospecting. To determine the natural resources of a world, roll 2d6-7+Size digit; if Atmosphere is 4-9, add +2. If Hydrographics is 0 or A, subtract -2. If Hydrographics is 4-7, add +1. Treat any Natural Resources result of less than 0 as 0.

STEP 7 - INDIGENOUS LIFEFORMS

The possibility of native lifeforms on a world is represented below. This refers to non-sentient lifeforms. The presence of sentient lifeforms is left to the discretion of the Referee. The Referee is also free to ignore this step and assign the presence of any lifeforms on a world as seems appropriate. Note that the odds of life evolving on a world in the inner or outer zones of a star are very unlikely. If found on such worlds life will usually be found underground where there is shelter from the extreme temperatures of the surface.

INDIGENOUS LIFEFORMS

Worlds in the Habitable Zone	DC16
Worlds in the Outer Zone	DC18
Worlds in the Inner Zone	DC20
Modifiers	
Very Thin Atmosphere	-1
Trace Atmosphere	-2
Exotic Atmosphere	-1
Corrosive Atmosphere	-2
Insidious Atmosphere	-4
No Water	-4
Hot Climate	-1
Very Hot Climate	-2
Torrid Climate	-4
Very Cold Climate	-1
Frozen Climate	-2
Frigid Climate	-4

Where life does exist, biodiversity may also be determined ran-

domly by rolling 2d6 and adding the modifiers given above.

BIODIVERSITY

Roll	Biodiversity	Description
3 or less	Minute	small strains of single-celled life-forms. Bacteria and the like
4-5	Minor	Algae, lichens, and mosses are most common
6-7	Active	abundant plant diversity, some low form animals (e.g. insects)
8 or more	Diverse	Thriving plant and animal ecological systems

Additional Modifiers	Mod.
Giant Star	-8
White Dwarf	-4

STEP 8 - WORLD POPULATION

The digit indicating population is an exponent of 10. This may be viewed as the number of zeros following a one. Thus, a population digit of 6 indicates a population of approximately 1,000,000. To determine the population digit of a world, roll 2d6-2. If the atmosphere of the world is anything other than 0, 5, 6, or 8, subtract -2 from the population roll. If the orbit of the planet is within the Inner Orbit Zone of a star subtract -5 from the population roll, and if within the Outer Orbit Zone subtract -3 from the population roll. A Population of less than 0 should be changed to 0.

Digit	Description	Population
0	No Inhabitants	0-9
1	Tens of Inhabitants	10-99
2	Hundreds of Inhabitants	100-999
3	Thousands of Inhabitants	1000-9999
4	Tens of Thousands	10,000-99,999
5	Hundreds of Thousands	100,000-999,999
6	Millions of Inhabitants	1,000,000-9,999,999
7	Tens of Millions	10,000,000-99,999,999
8	Hundreds of Millions	100,000,000-999,999,999
9	Billions of Inhabitants	1,000,000,000-9,999,999,999
A	Tens of Billions	10,000,000,000+

POPULATION EXPONENT

To further refine the population census, each world also has a Population Exponent, which is used as a multiplier against the base population digit to determine total population. The Population Exponent is determined by rolling 1d10-1. Count 0 as 1 unless the Population digit is 0, in which case the world is totally uninhabited.

STEP 9 - STARPORTS AND BASES

2d6 Roll	Starport*	Naval Base**	Scout Base***
2	A	no	no
3	A	no	no
4	A	no	no
5	B	no	no
6	B	no	no
7	C	no	yes
8	C	yes	yes
9	D	yes	yes
10	E	yes	yes
11	E	yes	yes
12	X	yes	yes

Roll once for each column.
* **Starport:** +3 if Population 3-, +5 if Population 2-, if Population is 0 then Starport is type X.
** **Scout Base:** -1 if Starport C, -2 if Starport B, -3 if Starport A. Do not roll if Starport E or X.
*** **Naval Base:** Do not roll if Starport C, D, E, or X.

STARPORT TYPES

A: Excellent Quality Installation.
Refined fuel is available along with annual maintenance overhaul facilities. Shipyard capable of constructing starships and non-starships present. Naval base and/or scout base may be present

B: Good Quality Installation.
Refined fuel is available along with annual maintenance overhaul facilities. Shipyard capable of constructing non-starships present. Naval base and/or scout base may be present

C: Routine Quality Installation.
Only unrefined fuel is available along with reasonable repair facilities. Scout base may be present

D: Poor Quality Installation.
Only unrefined fuel is available, but no repair or shipyard facilities. Scout base may be present.

E: Frontier Installation.
Essentially a marked spot of bedrock with no fuel, facilities, or bases present.

X: No Starport.
No provisions have been made for any ship landings.

STEP 10 - WORLD GOVERNMENT

The digit representing planetary government indicates a range of possible ruling systems, from anarchy to totalitarianism. The planetary government table gives a brief description of the general characteristics of each government type. Balkanization is a special result, and indicates that there is no world government; instead several rival territorial governments exist. In such cases, the Referee should generate the specific qualities of each territory on the planet separately. To determine the overall world government digit, roll 2d6-7 + Population Digit.

Digit	Description
0	No Government Structure: In many cases family bonds predominate.
1	Company Corporation: Government by a company man agerial elite. Citizens are company employees.
2	Participatory Democracy: Government by advice and consent of the citizens.
3	Self-Perpetuating Oligarchy: Government by a restricted minority, with little or no input from the masses.
4	Representative Democracy: Government by elected representatives.
5	Feudal Technocracy: Government by specific individuals for those who agree to be ruled. Relationships are based on the performance of technical activities that are mutually beneficial.
6	Captive Government: Government by an imposed leadership answerable to an outside group. A colony or conquered area.
7	Balkanization: No central ruling authority exists; rival governments compete for control.
8	Civil Service Bureaucracy: Government by agencies employing individuals selected for their expertise.
9	Impersonal Bureaucracy: Government by agencies that are insulated from the governed.
A	Charismatic Dictator: Government by a single leader enjoying the confidence of the citizens.
B	Non-Charismatic Leader: A previous charismatic dictator

	has been replaced by a leader through normal channels.
C	Charismatic Oligarchy: Government by a select group, organization, or class enjoying the overwhelming confidence of the citizenry.
D	Religious Dictatorship: Government by a religious organization without regard to the specific needs of the citizenry.
E	Religious Autocracy: Government by a single religious leader having absolute power over the citizenry.
F	Totalitarian Oligarchy: Government by an all-powerful minority which maintains absolute control through widespread coercion and oppression.

STEP 11 - LAW LEVEL

The digit representing Law Level indicates the relative force of law extant on the world. The level specifically states the restrictions in force concerning the possession and use of weapons by individuals. To determine Law Level, roll 2d6-7 + Government digit.

Digit	*Description*
0	No Law. No prohibitions.
1	Low. Body pistols undetectable by standard detectors, explosives (bombs, grenades), and poison gas prohibited.
2	Low. Portable energy weapons (laser carbine, laser rifle) prohibited. Ship's gunnery not affected.
3	Low. Weapons of a strict military nature (machineguns, automatic rifles) prohibited.
4	Moderate. Light assault weapons (submachineguns) prohibited.
5	Moderate. Personal concealable firearms (such as pistols and revolvers) prohibited.
6	Moderate. Most firearms (all except shotguns) prohibited. The carrying of any type of weapon openly is discouraged.
7	Moderate. Shotguns are prohibited.
8	High. Long bladed weapons (all but daggers) are controlled, and open possession is prohibited.
9	High. Possession of any weapon outside one's residence is prohibited.
A	Extreme. Weapon possession prohibited.
B	Extreme. Rigid control of civilian movement.
C	Extreme. Unrestricted invasion of privacy.
D	Extreme. Paramilitary law enforcement.
E	Extreme. Full-fledged police state.
F	Extreme. All facets of daily life rigidly controlled.
G	Extreme. Severe punishment for petty infractions.
H	Extreme. Legalized oppressive practices.
J	Extreme. Routinely oppressive and restrictive.
K	Extreme. Excessively oppressive and restrictive.
L	Extreme. Totally oppressive and restrictive.

Note: Law level is also the DC to avoid police or enforcement harassment for violations. Thus, on a world with law level 4, the Referee must make a basic check vs. DC 4 to see if local officials attempt to harass or arrest the characters when they encounter them. If the roll is less than the world Law Level, the local authorities will want to question the characters. Most such harassment will be of a petty nature, such as demanding identification, rather than groundless arrest. However, the characters may not be aware that they have violated a local law or custom until the police arrive.

STEP 12 - TECHNOLOGICAL LEVEL

The degree of technological expertise, and thus the capabilities of local industry, depends greatly on the basic characteristics of a world. This technological index is generated based on a 1d6 throw, modified by planetary characteristics.

Consult the tech level table and reference the appropriate planetary digits with the descriptions, note all modifiers indicated, and sum them to form one total modifier. Roll 1d6 and apply the modifier to the result, thus determining the local Technological Level (TL).

Tech Level may vary from 0 to 20, more commonly ranging from 4 through about 10. Higher numbers indicate greater capability.

The Technological Level is used in conjunction with the Technological Level table (pg. 194) to determine the general quality and capability of local industry. The tables indicate the general types or categories of goods in general use on the world. In most cases, such goods are the best that may be produced locally, although local organizations or businesses may import better goods when a specific need is felt. In most cases, local citizenry will not be armed with weapons of a type that cannot be produced locally, although police or military may be. Tech Level also indicates the general ability of local technology to repair or maintain items that have failed or malfunctioned.

The Technological Level tables have several spaces or holes, and the Referee or the players should fill in such gaps when they discover items or devices of interest.

Digit	*Description*
0	Stone Age, primitive
1	Bronze Age to Middle Age
2	circa 1400 to 1700 AD
3	circa 1700 to 1860 AD
4	circa 1860 to 1900 AD
5	circa 1900 to 1939 AD
6	circa 1940 to 1969 AD
7	circa 1970 to 1990 AD
8	circa 1990 to 2100 AD
9	circa 2100+ AD
10	Early Interstellar Community
11	Average Interstellar Community
12	Average Interstellar Community
13	Above Average Interstellar Community
14	Above Average Interstellar Community
15	Technical Maximum Interstellar Community
16	Occasional Interstellar Community

Digit	*Starport*	*Size*	*Atmos*	*Hydro*	*Pop*	*Gov*
0	-	+2	+1	-	-	+1
1	-	+2	+1	-	+1	-
2	-	+1	+1	-	+1	-
3	-	+1	+1	-	+1	-
4	-	+1	-	-	+1	-
5	-	-	-	-	+1	+1
6	-	-	-	-	-	-
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	+1	+2	-
A	+6	-	+1	+2	+4	-
B	+4	-	+1	-	-	-
C	+2	-	+1	-	-	-
D	-	-	+1	-	-	-2
E	-	-	+1	-	-	-
F	-	-	-	-	-	-
X	-4	-	-	-	-	-

STEP 13 - TRADE CLASSIFICATIONS

The term trade classification is a general catchall phrase that covers world attributes that influence trade and commerce, and other information that is of interest to PCs. Some trade classifications influence the Seculative Trade Goods table, see Speculative Trading (pg. 358).

Agricultural (Ag) worlds have large portions of their economies devoted to agriculture. They must have an Atmosphere of 4 through 9, Hydrographics of 4 through 8, and a Population of 5 through 7.

Non-agricultural (Na) worlds must import much of their foodstuffs from off planet. While such a world may produce synthetic foodstuffs for local consumption, it probably imports quality foods as luxury items. A non-agricultural world must have an Atmosphere of 3 or less, Hydrographics of 3 or less, and a Population of 6 or more.

Industrial (In) worlds have large production bases and can easily engage in the manufacture of finished goods. Such a world must have an Atmosphere of 0, 1, 2, 4, 7, or 9 (vacuum, trace, or tainted), and a Population of 9 or greater.

Non-industrial (Ni) worlds are forced to import much of their finished goods. Non-industrial worlds must have a Population of 6 or less.

Rich (Ri) worlds have good climates and environments and are sought after by most individuals as living places. A rich world must have Government type 4 through 9, an Atmosphere of 6 or 8, and a Population of 6 through 8.

Poor (Po) worlds are undeveloped and marginal backwaters. A poor world must have an Atmosphere of 2 through 5 and Hydrographics of 3 or less.

Water worlds (Wa) are totally covered by seas and oceans, i.e. Hydrographics A.

Desert worlds (De) have no standing water, i.e. Hydrographics 0.

Vacuum worlds (Va) have no atmosphere i.e. Atmosphere 0.

Asteroid belts (As) are accumulations of small planetoids in a belt around the central star of the system, occupied by the majority of the system population and thus considered to be the mainworld. Asteroid belts have Size 0

Ice-capped (Ic) worlds have water present only in the form of ice caps; these are mostly vacuum worlds that would ordinarily have no water. Ice-capped worlds must have Atmosphere 0 or 1 and Hydrographics 1 or greater.

Subsector Capital is the term given to the single most important world in the subsector, especially if the entire sector is under one interstellar government. Subsector Capital designations are assigned by the Referee.

Capital is the term given to a world that is the seat of an interstellar government. If there are several interstellar governments within a subsector, each will probably have a capital. Capital designations are assigned by the Referee.

Other notations are possible as well. The Referee may elect to note the presence of prison worlds, exile worlds, preserves or reserves for various purposes, and so on.

STEP 14 - WORLD TRADE BALANCE

The World Trade Balance is equal to the Natural Resources score for the main world - Population digit, with the modifiers given in the tables below. For example, Modern Earth +5 (TL 9, Pop 9, Starport D, Law Level 4-6, Industrial, Law Level 5, Govt 4). If the Trade Balance is negative, the world is a net importer, i.e. it imports more Credits in goods than it exports. If the Trade Balance is positive, then the world is a net exporter, i.e. it exports more Credits in goods than it imports.

Tech Level	*Modifier*
16+	+3
14-15	+2
13-12	+1
10-11	+0
7-9	-1
4-6	-2
0-3	-3

Starport	*Modifier*
A	+2
B	+1
C	+0
D	-1
E	-2
X	-3

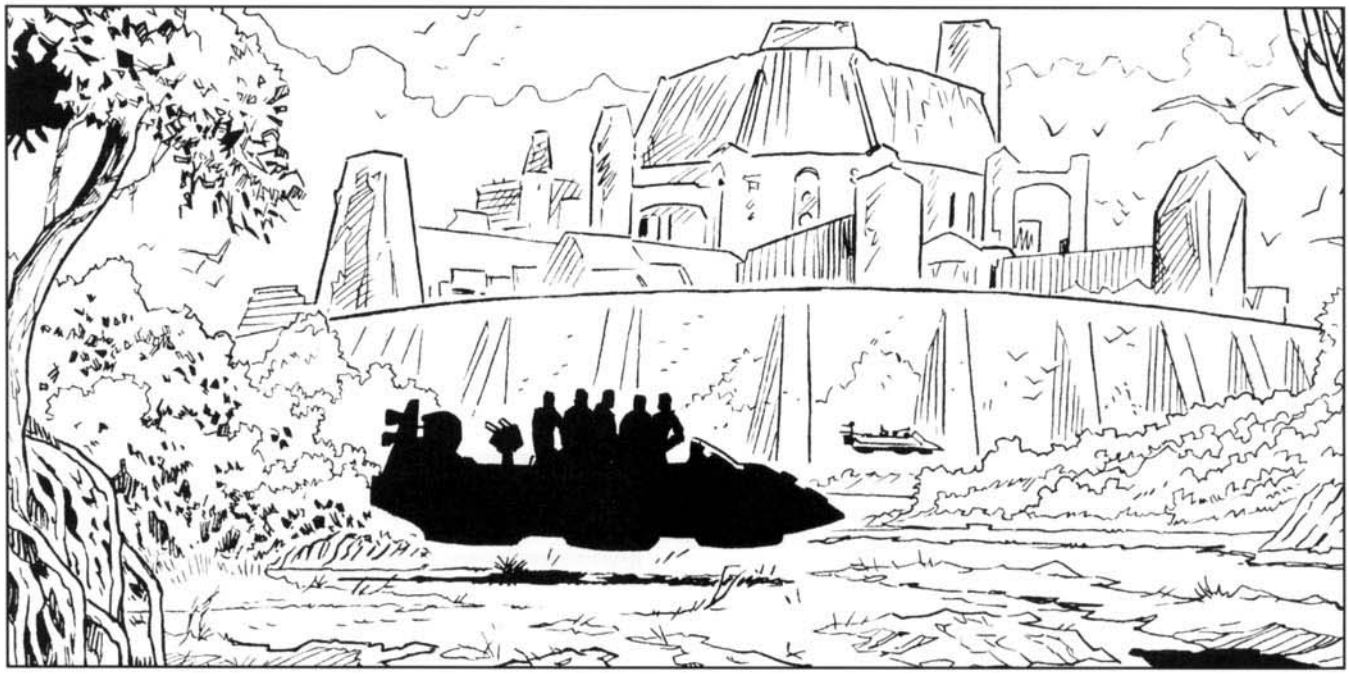
Trade Class	*Modifier*
Industrial	+4
Agricultural	+1
Rich	+2
Poor	-1

Law Level	*Modifier*
0-3	+2
4-6	+1
7-8	+0
9+	-1

Government	*Modifier*	*Notes*
3 or C	-1	Oligarchy
5	-1	Captive Government
8 or 9	-1	Bureaucracy
D	-2	Religious Dictatorship

The following table indicates the most likely types of goods to be Exported (E) or Imported (I) for a given world, depending upon its Trade classification.

	Basic Trade Goods					
Trade Classification	*Food Drink*	*Wood Plant*	*Raw Materials*	*Refined Materials*	*Manufactured Goods*	*Luxury Goods*
Industrial	I	I	I	E	E	E
Agricultural	E	E	I	E	I	I
Non Agricultural	-	-	I	E	E	I
Non-Industrial	E	E	-	-	I	I
Rich	E	I	I	E	I	E
Poor	I	I	E	I	I	I
None	-	-	E	-	-	I



REFEREE'S NOTES

The purpose of the world generation sequence can best be seen as a prod to the imagination. Even the most imaginative individual soon loses brilliance in the face of creating hundreds of individual worlds. The procedure uses die rolls to create a basic world type and then allows the Referee to use that information to determine specific world data. Imagination may be required to explain a tech level 4 civilization in an asteroid belt, or a high population world with a participating democracy for a government.

Specific characteristics for worlds should be construed as guidelines rather than strict limits. For example, a world with a hydrographic percentage of A is 100% ocean; nevertheless, the world would probably have some small islands sufficient for establishing a starport.

Starport: The various starport types are intended to provide a variety of facilities for use in trade or survey missions. Starports provide fuel or construction yards.

TECH LEVEL AND THE IMPERIUM

The Imperium in the Official Traveller Universe is currently at a maximum TL of 14, with the first TL15 items starting to become available to the Imperial military in the year 1000.

Bases: The tables provide for Scout and Naval bases at some worlds. These bases serve as points for Scout and Naval veterans to renew acquaintances with old friends, to find potential patrons, and to scrounge or buy surplus equipment of use to them. The Referee may elect to include other types of bases, perhaps army bases, merchant exploration or trade bases, and defense establishments.

Travel Zones: The use of travel zones is intended to assist in designating areas to avoid and areas to explore. The Referee should consider travel zones and their underlying reasons.

World Size: The generation tables assume that the world in question will be a solid matter sphere. Some alternatives are possible, although they are rare enough to require implementation by the Referee. These include:

Rosettes: Three or more equal masses (worlds) set at the points of an equilateral polygon, and with the correct equal angular velocities about their center of mass, will have a stable orbital configuration. In fact, no central star is required for the group. Rosettes will almost never occur naturally.

Ringworlds: An incredibly strong band may be set rotating about a central star, making a ringworld which uses centrifugal force to provide a simulation of gravity. Such a ringworld, of 93 million miles radius, and with a width of 1 million miles, has a usable surface area equal to about 3 million Earths.

Sphereworlds: Using materials similar to those in a ringworld, and adding gravity generators where necessary for strength and comfort, a spherical shell could be used to completely enclose a star. Such a shell would then trap all

WORLD DATA FORMAT SAMPLE

Name	Hex #	UWP	Bases	Trade Classification	Zone	PBG	Allegiance	Stellar Data
Speer	0108	C432430-8	S	Poor, Non-industrial	R	404	1	K8 V

stellar radiation for use by the civilization. With a radius of about 93 million miles, the internal surface area would equal about one billion Earths.

Atmosphere: The various atmosphere types require specific personal equipment for survival and protection.

- No atmosphere and trace atmospheres require use of a vac suit.
- Tainted atmospheres require the use of filter masks.
- Very thin atmospheres require the use of compressors to insure sufficient oxygen to breathe. The tainted very thin atmosphere requires a combination respirator/filter mask for survival.
- Thin, standard, and dense atmosphere are breathable without assistance.
- Exotic atmospheres require the use of oxygen tanks, but protective suits are not required.
- Corrosive atmospheres require the use of protective suits or vacc suits.
- Insidious atmospheres are similar to corrosive atmospheres, but will defeat any personal protective measures in 2 to 12 hours.

Hydrographics: It is possible for some worlds with vacuum atmospheres to have hydrographic percentages greater than 0. In such cases, the world has ice caps present; the water will not be freestanding liquid.

Population Density: For comparison, the following population densities are common on twentieth century Earth. Earth on the whole has a population of about three billion during the 1970's (population level 9); that was approximately 5 persons per square mile, or 16 persons per square mile of land area. Europe is populated at about 151 persons per square mile, the equivalent of population level 10. The Netherlands contain 1500 persons per square mile, or about population level 11. Hong Kong has 10,000 persons per square mile, the equivalent of population level 12.

Government: Government types are intended to convey the general type of authority on the world; each listed type should be a clue to the Referee in administering details of encounters on the world.

Law Level: Law level is an indication of the relative oppressiveness of the world. The digit is classified on the law level table to show prohibitions against weapons. It is also the DC to avoid being harassed or arrested by local authorities.

Tech Level: The technological level of a world determines the quality and sophistication of the products of a world. It indicates what precise types of equipment are available and common locally.

Trade Classifications: Additional details of a specific world can be expressed by the trade classification and statements about the world. The Referee should be ready to establish new classifications when appropriate.

WORLD DATA FORMAT

When noting Universal World Profiles, the following format should be used in order to insure recording all necessary information.

Name: The name of the star system, typically also the name of the mainworld.

Hex #: The hex location of the system on the local sector (not subsector) map.

UWP: The mainworld Universal World Profile. The UWP is a shorthand notation of a world's basic 8 characteristics. In order of placement these are: Starport Classification, Size, Atmosphere, Hydrographics, Population, Government Type, Law Level, and Technological Level. For example:

Speer C432430-8

The world called Speer has a Class 'C' starport, a size of 4 (6400km), an Atmosphere of 3 (Very Thin), a Hydrographics rating of 2 (20% surface water), a Population of 4 (Tens of Thousands), a Government Type of 4 (Self-Perpetuating Oligarchy), a Law Level of 0 (No prohibitions), and a Technological Level of 8.

Bases: The type of bases found in the system. S is used to denote a scout base, while N is used to denote a naval base.

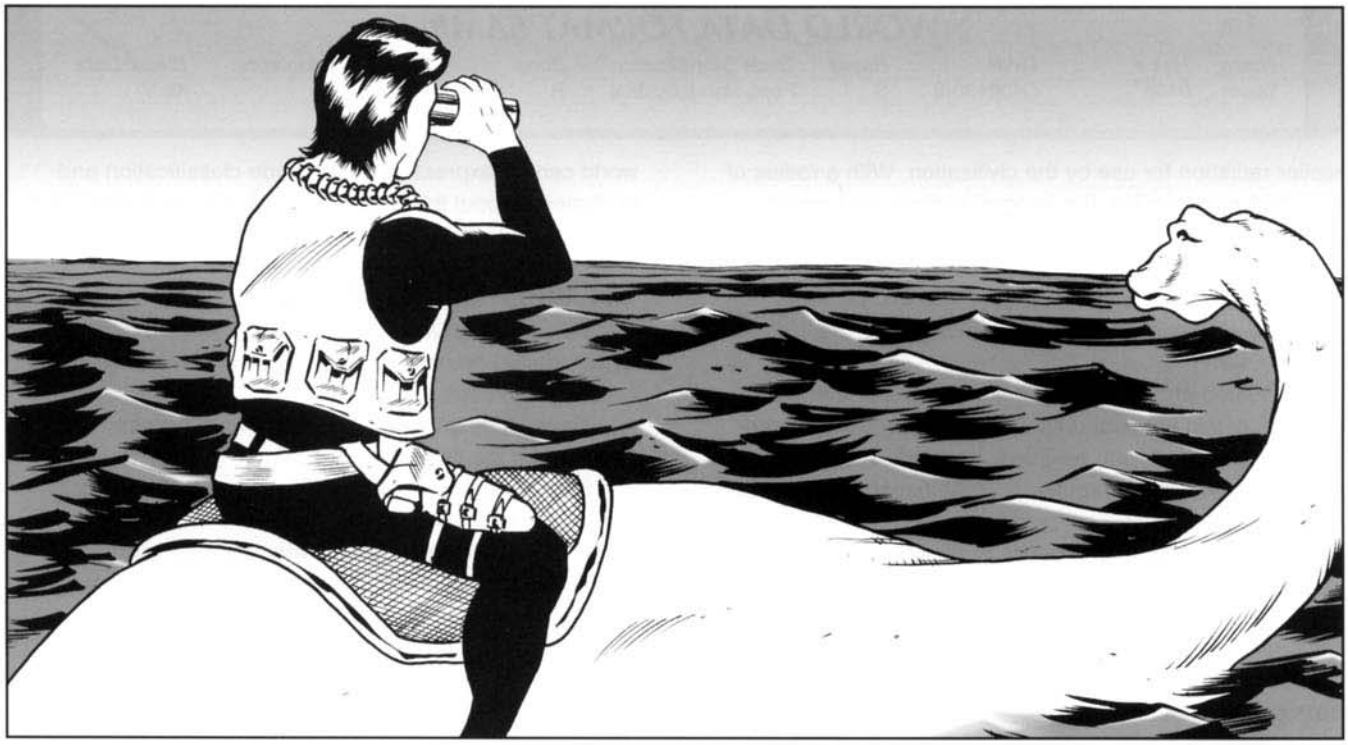
Trade Classification: The trade classifications of the local mainworld.

Travel Zone: The local TAS travel zone rating, typically R for a red zone or restricted world, A for an amber zone or dangerous world, and G for a green zone or safe (relatively) world. Red zoned or interdicted worlds are usually either posted with warning bouys or actively patrolled by scout or naval vessels.

PBG: Three digits representing: The local mainworld Population Exponent, the number of planetoid belts found in the system, and the number of gas giants found in the system, respectively.

Allegiance: A numerical or abbreviated representation of the allegiance of the system to any interstellar government.

Stellar Data: Size and spectral classification data for the stars found in this system.



ENVIRONMENTS

WATER

Any character can wade in relatively calm water that isn't over his head. No check is required.

Swimming in calm water only requires skill checks with a DC of 10. Trained swimmers can just Take10.

Fast-moving water is much more dangerous. On a successful Swim or Strength check (DC 15), it deals 1d3 points of Stamina damage per round (1d6 points of normal damage if flowing over rocks and cascades). On a failed check, the character must make another check that round to avoid going under. If the character goes under, the character is drowning.

Very deep water is not only generally pitch black, posing a navigational hazard, but worse, if one ascends or descends too quickly they may suffer from the bends (see Pressure Breach, pg. 387), with every 30m meters distance up or down equaling 1 atmosphere of pressure increase or decrease.

Very cold water deals 1d6 points of Stamina damage from hypothermia per minute of exposure.

DROWNING

Any character can hold her breath for a number of rounds equal to twice her Constitution score. After this period of time, the character must make a Constitution check (DC 10) every round in order to continue holding her breath. Each round, the DC increases by 1.

When the character finally fails her Constitution check, she begins to drown. In the first round, she falls unconscious (0 Stamina). In each following round, she loses 1d6 Lifeblood until Lifeblood reaches -10 and she dies.
It is possible to drown in substances other than water, such as sand, quicksand, fine dust, and silos full of grain.

STARVATION AND THIRST

In normal climates, Medium-size characters need at least 3 litres of fluids and about 2,000 calories (about half a kilo) of decent food to keep them nourished and avoid starvation. This is proportional to size, so small characters may need as little as half as much. In very hot climates, characters need two or three times as much water to avoid dehydration.

A character can go without water for 1 day plus a number of hours equal to his Constitution score. After this time, the character must make a Constitution check each hour (DC 10, +1 for each previous check) or sustain 1d6 points of Stamina damage.

A character can go without food for 3 days, in growing discomfort. After this time, the character must make a Constitution check each day (DC 10, +1 for each previous check) or sustain 1d6 points of Stamina damage.
Characters who have taken Stamina damage from lack of food or water are fatigued. Stamina damage from thirst or starvation cannot be recovered until the character gets food or water. Not even psionic abilities that restore Stamina can heal this damage.

HEAT

Heat deals Stamina damage that cannot be recovered until the character gets cooled off. Once rendered unconscious through the accumulation of Stamina damage, the character begins to take Lifeblood damage at the same rate.

A character in very hot conditions (above 32° C) must make a Fortitude saving throw each hour (DC 15, +1 for each previous check) or sustain 1d4 points of Stamina damage. Characters wearing heavy clothing or armor of any sort have a -4 penalty to the save. A character with the Survival skill may receive a bonus to this saving throw and may be able to apply this bonus to other characters as well through appropriate measures. Characters reduced to unconsciousness begin taking Lifeblood damage (1d4 points per hour).

In extreme heat (above 45° C), a character must make a Fortitude save once every 10 minutes (DC 15, +1 for each previous check) or sustain 1d4 points of Stamina damage. Characters wearing heavy clothing or armor of any sort have a -4 penalty to their saving throws. A character with the Survival skill may receive a bonus to this saving throw and may be able to apply this bonus to other characters as well. Characters reduced to unconsciousness begin taking Lifeblood damage (1d4 points per each 10-minute period).

A character who sustains any Stamina damage from heat exposure now suffers from heatstroke and is fatigued. These penalties end when the character recovers the Stamina damage she took from the heat.

Abysmal heat (air temperature over 60° C, fire, boiling water, lava) deals Lifeblood damage. Breathing air in these temperatures deals 1d6 points of Lifeblood damage per minute (no save). In addition, a character must make a Fortitude save every 5 minutes (DC 15, +1 per previous check) or sustain 1d4 points of Stamina damage. Those wearing heavy clothing or any sort of armor have a -4 penalty to their saving throws. In addition, those wearing metal armor or coming into contact with very hot metal suffer 2d4 Lifeblood damage per round of contact.

Boiling water deals 1d6 points of scalding damage, unless the character is fully immersed, in which case it deals 10d6 points of damage per round of exposure.

CATCHING ON FIRE

Characters at risk of catching fire are allowed a Reflex saving throw (DC 15) to avoid this fate. If a character's clothes or hair catch fire, he takes 1d6 points of damage immediately. In each subsequent round, the burning character must make another Reflex saving throw. Failure means he takes another 1d6 points of damage that round. Success means that the fire has gone out. (That is, once he succeeds at his saving throw, he's no longer on fire.)

A character on fire may automatically extinguish the flames by jumping into enough water to douse himself. If no body of water is at hand, rolling on the ground or smothering the fire with cloaks or the like permits the character another save with a +4 bonus.

Those unlucky enough to have their clothes or equipment catch fire must make Reflex saving throws (DC 15) for each item. Flammable items that fail sustain the same amount of damage as the character.

COLD

Cold and exposure deal Stamina damage to the victim. This Stamina damage cannot be recovered until the character gets out of the cold and warms up again. Once a character is rendered unconscious through the accumulation of Stamina damage, the cold and exposure begins to deal Lifeblood damage at the same rate.

An unprotected character in cold weather (below 5° C) must make a Fortitude saving throw each hour (DC 15, + 1 per previous check) or sustain 1d6 points of Stamina damage. A character who has the Survival skill may receive a bonus to this saving throw and may be able to apply this bonus to other characters as well.

In conditions of extreme cold or exposure (below -15° C), an unprotected character must make a Fortitude save once every 10 minutes (DC 15, +1 per previous check), taking 1d6 points of Stamina damage on each failed save. A character who has the Survival skill may receive a bonus to this saving throw and may be able to apply this bonus to other characters as well. Characters wearing winter clothing only need check once per hour for cold and exposure damage.

A character who sustains any Stamina damage from cold or exposure suffers from frostbite or hypothermia and is fatigued. These penalties end when the character recovers the Stamina damage she took from the cold and exposure.

WEATHER HAZARDS

WINDS

Winds can create a stinging spray of sand or dust, fan a large fire, heel over a small boat, and blow gases or vapors away. If powerful enough, they can even knock characters down (see the Wind Effects table), interfere with ranged attacks, or impose penalties on some skill checks.

Light Wind: A gentle breeze, having little or no game effect.

Moderate Wind: A steady wind with a 50% chance of extinguishing small unprotected flames, such as candles.

Strong Wind: Gusts that automatically extinguish unprotected flames (candles, torches, and the like). Such gusts impose a -2 penalty to ranged attacks and to Listen checks.

Severe Wind: In addition to automatically extinguishing any unprotected flames, winds of this magnitude cause protected flames (such as those of lanterns) to dance wildly and have a 50% chance of extinguishing these lights. Ranged weapon attacks and Listen checks are at a -4 penalty.

Windstorm: Powerful enough to bring down branches if not whole trees, windstorms automatically extinguish unprotected flames and have a 75% chance of blowing out protected flames, such as those of lanterns. Ranged weapon attacks are impossible, and even heavy weapons such as artillery and rockets have a -4 penalty to attack. Listen checks are at a -8 penalty due to the howling of the wind.

Hurricane-force Wind: All flames are extinguished. Ranged attacks are at -10, and even heavy weapons suffer a -8 penalty. Listen checks are impossible; all characters can hear is the roaring of the wind. Hurricane-force winds often fell trees.

Tornado: All flames are extinguished. All ranged attacks are impossible (even with heavy weapons), as are Listen checks. Instead of being blown away (see the Wind Effects table), characters in close proximity to a tornado who fail their Fortitude saves are sucked toward the tornado. Those who come in contact with the actual funnel cloud are picked up and whirled around for 1d10 rounds, taking 6d6 points of Stamina damage per round, before being violently expelled (falling damage may apply). While a tornado's rotational speed can be as great as 500 kph, the funnel itself moves forward at an average of 50 kph. A tornado uproots trees, destroys buildings, and causes other similar forms of major destruction.

PRECIPITATION

Most precipitation is in the form of rain, but in cold conditions it can manifest as snow, sleet, or hail. Precipitation of any kind followed by a cold snap in which the temperature dips from above freezing to 0° C or below may produce ice.

Rain: Rain reduces visibility ranges by half, resulting in a -4 penalty to Spot and Search checks. It has the same effect on flames, ranged weapon attacks, and Listen checks as severe wind (see above).

Snow: While falling, snow reduces visibility as rain (-4 penalty to ranged weapon attacks, Spot checks, and Search checks). Once on the ground, it reduces movement by half. Snow has the same effect on flames as Moderate Wind (see above).

Sleet: Essentially frozen rain, sleet has the same effect as rain while falling (except that its chance to extinguish protected flames is 75%) and the same effect as snow once on the ground.

Hail: Hail does not reduce visibility, but the sound of falling hail makes Listen checks more difficult (-4 penalty). Sometimes (5% chance) hail can become large enough to deal 1 point of damage (per storm) to anything in the open. Once on the ground, hail has the same effect on movement as snow.

Storms: The combined effects of precipitation (or dust) and wind that accompany all storms reduce visibility ranges by three quarters, imposing a -8 penalty to all Spot, Search, and Listen checks. Storms make ranged weapon attacks very difficult (-10 penalty), except for heavy weapons, (-4 penalty to attack.) They automatically extinguish candles, torches, and similar unprotected flames. They cause protected flames, such as those of lanterns, to dance wildly and have a 50% chance to extinguish these lights. See the Wind Effects table for possible consequences to creatures caught outside without shelter during such a storm. Storms are divided into two types: Thunderstorms and Duststorms:

Duststorm: These desert storms differ from other storms in that they have no precipitation. Instead, a duststorm blows fine grains of sand that obscure vision, smother unprotected flames, and can even choke protected flames (50% chance). Most duststorms are accompanied by Severe Winds (see above) and leave behind a deposit of 1d6 inches of sand. However, there is a 10% chance of a greater duststorm accompanied by Windstorm-magnitude winds (see above and the Wind Effects table). These greater duststorms deal 1d3 points of Stamina damage each round on anyone caught out in the open without shelter and also pose a choking hazard (see the Drowning Rules, except that a character with a scarf or similar protection across her mouth and nose does not begin to choke until after a number of rounds equal to ten times her Constitution score). Greater duststorms leave 1d3 meters of fine sand in their wake.

Snowstorm: In addition to the wind and precipitation common to other storms, snowstorms leave 2d6 centimeters of snow on the ground afterward.

Thunderstorm: In addition to wind and precipitation (usually rain, but sometimes also hail), thunderstorms are accompanied by lightning that can pose a hazard to characters without proper shelter (especially those in metal armor). As a rule of thumb, assume one bolt per minute for a 1-hour period at the center of the storm. Each bolt causes electrical damage equal to 1d10 eight-sided dice. One in ten thunderstorms is accompanied by a Tornado.

Powerful Storms: Very high winds and torrential precipitation reduce visibility to zero, making Spot and Search rolls, Listen checks, and all ranged weapon attacks impossible. Unprotected flames are automatically extinguished, and even protected flames have a 75% chance of being doused. Creatures caught in the area can make a Fortitude saving throw (DC 20) or face the following effects

WIND EFFECTS

Wind Force	Wind Speed	Ranged Attacks (Normal/Heavy Weapons•)	Creature Size••	Wind Effect on Creatures	Fort Save DC
Light	0-15 kph	-/-	Any	None	-
Moderate	16-30 kph	-/-	Any	None	-
Strong	31-50 kph	-2/-	Tiny or smaller	Knocked down	10
			Small or larger	None	
Severe	51-80 kph	-4/-	Tiny	Blown away	15
			Small	Knocked down	
			Medium-size	Checked	
			Large or larger	None	
Windstorm	81-120 kph	-10/-4	Small or smaller	Blown away	18
			Medium-size	Knocked down	
			Large or Huge	Checked	
			Gargantuan or Colossal	None	
Hurricane	121-280 kph	Impossible/-8	Medium-size or smaller	Blown away	20
			Large	Knocked down	
			Huge	Checked	
			Gargantuan or Colossal	None	
Tornado	281-500 kph	Impossible/impossible	Large or smaller	Blown away	30
			Huge	Knocked down	
			Gargantuan or Colossal	Checked	

•Wind effects are as follows:

Checked: Creatures are unable to move forward against the force of the wind. Flying creatures are blown back 1d10 meters.

Knocked Down: Creatures are knocked prone by the force of the wind. Flying creatures are instead blown back 1d10 meters.

Blown Away: Creatures on the ground are knocked prone and rolled 1d12 meters, sustaining 1d4 points of Stamina damage per 3 meters. Flying creatures are blown back 2d10 meters and sustain 2d6 points of Stamina damage due to battering and buffering.

based on the size of the creature. Powerful storms are divided into the following four types:

Windstorm: While accompanied by little or no precipitation, windstorms can cause considerable damage simply through the force of their wind (see the Wind Effects table).

Blizzard: The combination of high winds (see the Wind Effects table), heavy snow (typically 10d10 cm), and bitter cold make blizzards deadly for all who are unprepared for them.

Hurricane: In addition to very high winds (see the Wind Effects table) and heavy rain, hurricanes may be accompanied by flash floods (see below). Most adventuring activity is impossible under such conditions.

Tornado: One in ten Thunderstorms is accompanied by a tornado (see the Wind Effects table).

Fog: Whether in the form of a low-lying cloud or a mist rising from the ground, fog obscures all sight, including infrared sensors, beyond 1.5 meters. Creatures within 1.5 meters have one-half concealment (attacks by or against them have a 20% miss chance).

Flash Floods: Runoff from heavy rain forces creatures in its path to make a Fortitude save (DC 15). Creatures of size Large or smaller who fail the save are swept away by the rushing water, taking 1d6 points of Stamina damage per round (1d3 points on a successful Swim check). Huge creatures who fail are knocked down and face potential drowning. Gargantuan and Colossal creatures are checked, but they only drown if the waters rise above their heads.

OTHER DANGERS

Use the following guidelines to cover the other sorts of dangers a character can face.

ACID

Corrosive acids deal 1d6 points of damage per round of exposure except in the case of total immersion (such as into a vat of acid), which deals 10d6 points of damage per round. An attack with acid, such as from a hurled vial, counts as a round of exposure.

The fumes from most acids cause damage upon inhalation. Those who come close enough to a large body of acid (often found on exotic, corrosive or insidious atmosphere worlds) to dunk a creature in it must make a Fortitude save (DC 13) or take 1 point of Lifeblood damage. All such characters must make a second save 1 minute later or take another 1d4 points of Lifeblood damage.

Creatures immune to acid's caustic properties might still drown in it if they are totally immersed.

CORROSIVE ATMOSPHERE

A corrosive atmosphere is unbreathable to humans and most lifeforms in general, inflicting 1d6 points of Lifeblood damage to lifeforms for each round of inhalation.

In addition, these atmospheres are typically of extreme temperatures (either extremely hot or extremely cold) which would be enough to quickly and easily kill a person.

Those whose skin is partially exposed to a corrosive atmosphere (say by vac suit failure) must make a Fortitude save (DC 13) or take 1 point of Stamina damage per minute of exposure. Those who are fully exposed (i.e. have no suit but perhaps a breathing mask) make the same save and suffer 1d6 points of Stamina damage and 1 point of Lifeblood damage per minute of exposure if it is failed.

A Vac Suit, while sufficient to protect a lifeform from the effects of a corrosive atmosphere, will begin to break down (-1 AR per hour) after 24 hours of repeated exposure due to the acidic effects. Once a Vac Suit reaches 0 AR or lower suit failure automatically occurs. Hostile Environment Suits and pressurized vehicles are immune to this corrosive effect.

CYROGENIC FLUIDS

Cryogenic fluids are the very cold liquids, like Liquid Hydrogen, found as vehicle or starship fuel, used in Low Berths, or carried as cargo. Cryogenic liquids deal 2d6 points of damage for splash hits, up to 20d6 points for total immersion. Sealed armor, such as a vac suit, combat armor, hostile environment suit, or battle dress will reduce this damage normally. Unsealed armor has no effect against this type of damage.

EXOTIC ATMOSPHERE

Exotic atmospheres are not safely breathable by most lifeforms, but are not otherwise generally dangerous. This is often due to unusual biological or chemical compounds within the atmosphere that can cause adverse effects. These compounds sometimes cause damage and at other times have more specific effects. If exposed to an Exotic atmosphere, a character will suffer the effects of suffocation in addition to any other effects listed in the description of the planetary atmosphere.

FALLING OBJECTS

Just as characters take damage when they fall more than 3 meters, so too do they take damage when they are hit by falling objects. Objects that fall upon characters deal damage based on their weight and the distance they have fallen.

For each 90kg of an object's weight, the object deals 1d6 points of damage, provided it falls at least 3 meters. Distance also comes into play, adding an additional 1d6 points of damage for every 3-meter increment it falls beyond the first (to a maximum of 20d6 points of damage).

Objects smaller than 90kg also deal damage when dropped, but they must fall farther to deal the same damage. Use the Damage from Falling Objects table to see how far an object of a given weight must drop to deal 1d6 points of damage.

DAMAGE FROM FALLING OBJECTS

Object Weight	*Falling Distance*
90-46 kg.	6 meters.
45-24 kg.	9 meters.
23-15 kg.	12 meters.
14-4.6 kg.	15 meters.
4.5-2.4 kg.	18 meters.
2.3kg-500gr.	21 meters.

For each additional increment an object falls, it deals an additional 1d6 points of damage. For example, since a 15kg metal sphere must fall 15 meters to deal damage (1d6 points of damage), such a sphere that fell 45 meters would deal 3d6 points of damage. Objects weighing less than 500 grams do not deal damage to those they land upon, no matter how far they have fallen. For any object which is totally unyielding (e.g. rock or metal) or which is well shaped to cause damage (a weapon or stalactite), double the damage it causes when it falls.

ICE

Characters walking on ice must make Balance checks (DC 15) to avoid slipping and falling. Over long distances, a character must make a check each minute. Characters in prolonged contact with ice may run the risk of cold damage.

INSIDIOUS ATMOSPHERE

Insidious atmospheres are the most dangerous types of atmospheres to deal with, since nothing is safe from their effects. Unprotected characters suffer 2d6 points of damage per round of exposure. Damage continues for 1d3 rounds after exposure ceases, but this additional damage is only half of that dealt during actual contact (that is, 1d6 points per round).

Vac suits are useless in an insidious atmosphere, but a Hostile Environment Suit or pressurized vehicle will last 6 hours before beginning to succumb to the effects at a rate of -2 AR per 15 minutes of additional exposure. Once a Hostile Environment Suit reaches 0 AR or lower suit failure automatically occurs.

LACK OF AIR/HYPOXIA

Characters in conditions of low oxygen, such as on top of a mountain, must roll a Fortitude saving throw each hour (DC 15, +1 per previous check), taking 1d6 points of Stamina damage each time they fail.

A character who sustains any Stamina damage from lack of oxygen is automatically fatigued. These penalties end when the character recovers the Stamina damage he took from low oxygen.

Hypoxia: Long-term oxygen deprivation due to low atmospheric pressure (typically high altitude) or other causes, affects mental and physical ability scores. After each 6-hour period a character spends at an altitude of over 6 kilometers, he must make a Fortitude save (DC 15, +1 per previous check) or take 1 point of temporary damage to all ability scores.

LAVA

Lava or magma deals 2d6 points of Stamina damage per round of exposure, except in the case of total immersion (such as when a character falls into the crater of an active volcano), which deals 20d6 points of lifeblood per round. Damage continues for 1d3 rounds after exposure ceases, but this additional damage is only half of that dealt during actual contact (that is, 10d6 points per round).

An immunity or resistance to heat or fire serves as an immunity to lava or magma.

PRESSURE BREACH

The interior of starships in space, vehicles used in deep water, along with buildings on vacuum, trace, exotic, corrosive, or insidious atmosphere worlds are typically pressurized, allowing those inhabitants within to live and work without the use of a pressure suit. In the event that such an environment should lose internal pressure through any reason other than the normal use of airlocks, will cause compression (if the outside pressure is higher) or decompression (if the outside pressure is lower).

If a path of open hatches, iris valves, doors (any type, open or closed), internal walls (if they are not airtight), and/or breached bulkheads can be traced from a location in the vessel to a pressure breach, then all locations along that path become exposed, resulting in compression or decompression. Iris valves and hatches may not be opened if there is a difference of pressure on either side (i.e. they will not function if there is pressure on one side and vacuum on the other side).

Rate of Compression: A 1-ton (14 cu. meter) area will compress at a rate of 0.1 atmosphere X the difference in outside air pressure every 12 seconds from a hole 100 square centimeter (1 sq. meter) in size. Thus a 100-ton ship on a planet with an atmospheric pressure of 10 would increase from 1 atmosphere to 10 atmosphere in a period of 2 minutes from a 100 sq. cm hole. The rate of compression scales up and down proportionally to the size of the hole.

If the rate of compression is enough to raise the pressure 1 full atmosphere or more in a single round, exposed victims must make a Fortitude save (DC15) to avoid getting the 'bends' or pressure sickness. A failed save will inflict 1d6 Lifeblood damage per 1 full atmosphere of change.

Rate of Decompression: A 1-ton (14 cu. meter) area will decompress at a rate of 0.1 atmosphere every 12 seconds from a hole 100 square centimeter (1 sq. meter) in size. Thus a 100-ton ship would drop from 1 atmosphere to 0.1 atmosphere (effective vacuum) in a period of 20 minutes from a 100 sq. cm hole. The rate of decompression scales up and down proportionally to the size of the hole.

If the rate of decompression is enough to drop the pressure 1 full atmosphere or more in a single round, an explosive decompression occurs (see below). In addition, survivors of the explosive decompression must make a Fort save (DC15) to avoid getting the 'bends' or pressure sickness. A failed save will inflict 1d6 Lifeblood damage per 1 full atmosphere of change.

Explosive Decompression: Any lifeform unprotected and exposed must make a Reflex save (DC15) to avoid holding their breath. Characters with the Armor Proficiency (Vac Suit), Armor Proficiency (Battle Dress), or Zero-G and Low Gravity Adaptation feat may add +2 to their saving throws due to training and experience. If the saving throw is failed, the character held their breath, resulting in lung damage. The character must now make a second Reflex save (same DC and modifiers) to realize their mistake fast enough to avoid too much damage. If this second save is successful, the character takes 3d6 Lifeblood damage (which can reduce the victim to a minimum of 1 Lifeblood). If the save fails, immediately reduce their Lifeblood rating immediately to 0, and the character is dying.

A character in a decompressed area is now subject to vacuum exposure.

Robots, along with lifeforms in sealed vac suits, battle dress, or combat armor are immune to the effects of explosive decompression.

Signs of Atmospheric Change: The following signs can be used by the Referee to give characters a hint that they are facing a change in atmospheric pressure:

(a) Explosive Noise. When a rapid change of pressure occurs it is usually accompanied by a loud explosive noise when the two air masses meet.

(b) Flying Debris. As the air is rapidly drawn out of a spacecraft or aircraft at altitude, unsecured items within the cabin with also be drawn toward the point of rupture. Most anything of 1kg or less will become a hurtling projectile, some very capable of inflicting serious damage if they should happen to strike anyone in their path. The Referee may wish to have characters in such a situation make a Reflex save (DC10 to 15) to avoid getting hit by debris for 1d6 damage.

(c) Fogging. Sudden changes in temperature or pressure, or both, can create a temporary fog within the cabin during the event.

(d) Temperature. If a decompression occurs, temperature will be reduced rapidly. Chilling and frostbite may

RADIATION DAMAGE

Severity	*Rads*	*Stamina*	*Lifeblood*	*CON**	*Symptoms*
Mild	51-150	1d6	-	-	Mild to moderate nausea and vomiting
Moderate	151-300	2d6	1d4	-1 once	Hair loss, mild skin burns, nausea, vomiting
Severe	301-500	2d10	2d6	-1 per hour	Hair loss, moderate skin burns, nausea, vomiting, internal bleeding.
Extreme	501-800	3d10	2d10	-2 per hour	Hair loss, severe skin burns, nausea, vomiting, internal bleeding, sterility
Lethal	800+	4d10	3d10	-4 per hour	Hair loss, massive skin burns, nausea, vomiting, internal bleeding, sterility

* Requires a Fortitude save (DC10 + 2 per 100 rads of exposure), to avoid this permanent loss to Constitution.

Solar Flares: The effects of a solar flare will last 1d12 hours during which time it will bombard any exposed living creature to 100x1d20 rads per hour.

occur if protective clothing is not worn or available. If compression occurs, temperatures will rise rapidly to match the outside temperature.

(e) Pressure. A compression or decompression event is accompanied by a rapid change in air pressure, cause the ears to pop, sinuses to clog, etc.

RADIATION

Radiation occurs from many sources; Nuclear bombs, Meson guns, solar flares, some power plant fuels are all sources of radiation. Some planets may also be heavily radiated due to any number of factors including large concentrations of heavy metals and other radioactive elements, stellar bombardment, or even ancient wars.

Radiation occurs in two modes, burst and continuous. Radiation bursts, like from a nuclear bomb blast, do normal stamina/lifeblood damage, but personal armor has no effect (vehicle and starship armor still apply normally).

Continuous radiation exposure, like from solar flares or nuclear fuel rods, cause damage based on the level of exposure measure in Rads (see the Radiation Damage table above), for each hour of exposure.

SMOKE OR HEAVY DUST

A character who breathes heavy smoke must make a Fortitude saving throw each round (DC 15, +1 per previous check) or spend that round choking and coughing. A character who chokes for two consecutive rounds takes 1d6 points of Stamina damage.

Smoke obscures vision, giving one-half concealment (20% miss chance) to characters within it.

SUFFOCATION

A character who has no air to breathe can hold her breath for 1 round per point of Constitution. After this period of time, the character must make a Constitution check (DC 10) in order to continue holding her breath. The save must be repeated each round, with the DC increasing by +1 for each previous success.

When the character fails one of these Constitution checks, she begins to suffocate. In the first round, she falls unconscious (0 Stamina). In each subsequent round, she loses 1d6 Lifeblood until she suffocates to death.

Slow Suffocation: A Medium-size character can breathe easily for 6 hours in a sealed chamber measuring 3 meters on a side. After that time, the character takes 1d6 points of Stamina and 1 point of Lifeblood damage every 15 minutes. Each additional Medium-size character or significant fire source (a torch, for example) proportionally reduces the time the air will last. Thus, two people can last for 3 hours, after which they each take 1d6 stamina and 1 Lifeblood damage per 15 minutes. If a fire or other flame is present (equivalent to another Medium-size character in terms of the air it uses), the air runs out in only 2 hours.

VACUUM EXPOSURE

A character who is exposed to vacuum without protection suffers effects similar to suffocation, but due to the nature of a vacuum the character cannot hold her breath. To do so would be extremely harmful. (see Explosive Decompression for more information). While exposed to a vacuum a character can survive for 1 round per 2 points of Constitution. After this period of time, the character must make a Constitution check (DC 20) in order to continue to

SAMPLE ENCOUNTER TABLE

CLEAR Terrain ***Regina (A788899-A)***

1d6	*Animal*	*Size*	*SP/LB*	*AC/AR*	*Attacks and Damage*	*AFS*	*S/D/C*	*F/R/W*
1	1d6 Grazers	Small (6kg)	2/6	17/8	Claws +0 (1)	A+ F9 S3	3/6/6	+1/+2/+6
2	Hunter	Small (25kg)	8/7	13/0	Slap +5 (1d3-2)		7/14/7	+1/+7/+5
3	1d6 Grazers	Large (400kg)	10/11	11/6	Slap +0 (2d4+5)		21/3/11	+0/+6/+0
4	Intimidator	Large (1200kg)	42/16	5/0	Bite +2 (2d6+2), Slap +2 (2d6+2)		15/3/16	+3/+4/+4
5	1d6 Hunters	Large (600kg)	19/12	12/3	Gore +4 (1d10), Kick +4 (1d10)		11/11/12	+6/+2/+2
6	Gatherer	Medium (200kg)	19/11	10/0	Bite +0 (2d4+1)		13/10/11	+0/+12/+3

The top line of the encounter table should denote the type of terrain the table is to be used for, and the planet for which the table was generated (including the UWP rating for the world).

Animal: The number and type (or name) of animal encountered.

Size: The size of each animal by d20 size category and weight.

St/Lb: Each animal's average Stamina and Lifeblood ratings.

AC/AR: The Armor Class and Armor Rating of each creature in the group.

Attacks and Damage: The type of attacks the creature may utilize and the amount of damage such an attack may inflict.

AFS: The Attack - Flee - Speed factors of each animal in the group.

S/D/C: The Strength, Dexterity, and Constitution scores for the animals.

F/R/W: The Fortitude, Reflex, and Willpower saving throw bonuses for the animals.

survive. The save must be repeated each round, with the DC increasing by +1 for each previous success.

When the character fails one of these Constitution checks, she falls unconscious (0 stamina). In each subsequent round, takes 1d6 Lifeblood damage until she dies.

ANIMAL ENCOUNTERS

Animals in any ecological system interact with each other, forming food chains, obeying instincts, defending territory, and generally living out their lives. When people enter such an ecological system, they will encounter the animals of the system, prompting natural reactions, such as attack or flight.

Although the precise nature of animals may change, and they may prove quite alien to ordinary experience, most will conform to the broad classifications given below. A Referee may choose to establish his own ecological system on a specific world, ignoring the encounter system outlined here. This system, however, is intended to allow broad latitude in both animal types and attack/defense mechanisms, while remaining essentially logical and reasonable.

Animal Types: Nearly all animals may be classified into four basic categories: herbivore, omnivore, carnivore, and scavenger. Specific definitions for these terms are provided in a later section of these rules, and differ from the precise scientific definitions in current use. Within each category, a variety of animal types exist, based on specific feeding/hunting habits; examples of this concept are grazers, chasers, and pouncers.

Animals which are encountered may be classified into various categories and types, and specific attack and defense mechanisms determined. The resulting description indicates the actions an animal will take without resorting to such confining labels as bear or tiger. While a Referee may well elect to use such names, this system also allows the players freedom to encounter truly alien beasts as well.

USING AN ENCOUNTER TABLE

Each day, an adventuring band may possibly have one or more encounters with some animal life forms. As a general rule, the Referee will check for an encounter once while the band is travelling and once while the band is halted (for rest, exercise, encampment, or whatever). There is a one-third chance (DC7 to avoid) that an animal encounter will occur in any of the specified terrain types. The Referee may choose to modify this frequency depending on planetary or local conditions.

In addition, specific encounters at specific locations are always possible. For example, the Referee may already have populated a location (perhaps a ruin) with specific animals. These are not subject to normal random encounter rules.

Procedure: Twice each day, the Referee will throw to determine if an encounter occurs. If a band splits temporarily, each portion of the band should be liable for an independent encounter. When an encounter does occur, the correct (based on terrain type) encounter column is then used to ascertain the class, type, quantity, and characteristics of the animal encountered (in some circumstances the encounter column may indicate that a non-animal event has been encountered instead. The encounter range is determined using the Encounters rules on pg. 144.

Animal Descriptions: The Referee may elect to describe animals in order to create a better image in the adventurers' minds. The basic system may be used without this aspect, but descriptions such as lion-like, amoeboid, etc. may prove useful.

The table on page 389 is an example of typical animal encounter table, showing the format for presentation of the information and for easy use of the encounters. The table is clearly headed with the type of terrain, and with the world on which the terrain occurs.

Note that each line is a single encounter. For example, die roll 6 indicates that the party has encountered 8 grazers of 400kg each, probably feeding in the clear terrain. They can take 25 hits before unconsciousness, and another 15 hits before dying. They are unarmored, and use hooves for weapons (inflicting 14 Stamina damage each time they hit). They will flee on 1+, attack on 7+ if they have not already fled, and have a speed of 4 times ordinary.

TERRAIN TYPES

Terrain Type	*Terrain Equivalent*	*Subspecies Mod*	*Size Mod*
Clear	Road, Open	+3	-
Prairie	Plain Steppe	+4	-
Rough	Hills, Foothills	-	-
Broken	Badlands	-3	-3
Mountain	Alpine	-	-
Forest	Woods	-4	-4
Jungle	Rainforest	-3	-2
River	Stream, Creek	+1	+1
Swamp	Bog	-2	+4
Marsh	Wetland	-	-1
Desert	Dunes	+3	-3
Beach	Shore, Sea Edge	+3	+2
Surface	Ocean, Sea	+2	+3
Shallows	Ocean, Sea	+2	+2
Depths	Ocean, Sea	+2	+4
Bottom	Ocean, Sea	-4	-
Sea Cave	Sea Cavern	-2	-
Sargasso	Seaweed	-4	-2
Ruins	Old City	-3	-
Cave	Cavern	-4	+1
Chasm	Crevasse, Abyss	-1	-3
Crater	Hollow	-	-1

CREATING ANIMAL ENCOUNTER TABLES

Once the encounter table format has been decided upon, the Referee notes the terrain type for the table, and consults the terrain types table. Any applicable modifiers are recorded. The Referee refers to the Animal Types table and rolls two dice for the animal category involved. The result is the animal type for the entry. The Special Attributes table is consulted to determine if the animal has any special characteristics, such as the ability to fly or swim. The Animal Sizes and Weaponry table is consulted to determine the animal's size, wound potential, weaponry, and armor. Finally, the Characteristics table is consulted to note the animal's predisposition to attack or flee, and its speed.

When events are called for on the encounter table, the Referee should insert an event from those described in these rules, or generate additional events appropriate to the situation.

ANIMAL ENCOUNTERS

2d6 Column Die		*Category*	*1d6 Column Die*		*Category*
2	S	Scavenger	1	S	Scavenger
3	O	Omnivore	2	H	Herbivore
4	S	Scavenger	3	H	Herbivore
5	O	Omnivore	4	H	Herbivore
6	H	Herbivore	5	O	Omnivore
7	H	Herbivore	6	C	Carnivore
8	H	Herbivore			
9	C	Carnivore			
10	E	Event			
11	C	Carnivore			
12	C	Carnivore			

A) TERRAIN TYPE

The Referee should determine the local terrain type from the Terrain Types table. This table will determine specific modifiers that will be used later in steps 2 (Animal Subspecies) and step 4 (Animal Size).

B) ENCOUNTER TABLE TYPE

There are two types of encounter tables that may be generated, a 1d6 and a 2d6-based table. Which type should be used is up to the Referee, as the only difference is the number of entries on each. When generating a new creature, the Referee rolls on this table to determine the basic category of animal the creature is: carnivore, omnivore, scavenger, or herbivore.

1) ANIMAL CATEGORY

Nearly all animals may be classified into four basic categories: herbivore, omnivore, carnivore, and scavenger. Specific definitions for these terms are provided below, and differ from the precise scientific definitions in current use.

Scavengers: Animals that share or steal the prey of others, or that take the remains of kills, are classed as scavengers.

Herbivores: Animals that eat unresisting food are generally classed as herbivores. While this is usually construed as covering plant eaters, the definition is extended here to cover the eating of unresisting animals as well. For example, the anteater and the whale eat effectively unresisting animals (ants and krill) and should be classified as herbivores.

Omnivores: Animals that eat food without regard to its resistance are termed omnivores. The bear, which will eat fruits and berries as readily as it will hunt for animals, is an omnivore.

Carnivores: Animals that prey on other animals by attacking and killing them in the face of resistance are classed as carnivores.

EVENTS

Events are not necessarily animals, comprising instead both geographic and geological dangers, and special types of animals not ordinarily encountered. The following examples are provided, but more should be generated by the Referee to cover the wide range of possibilities in the universe.

Ravines and Precipices: The party has encountered unexpected geographic features, which will retard progress by one day if travel is overland. If the encounter occurs at close range (to a party on foot), the lead member of the party will probably fall (make Dexterity check to avoid falling), receiving 1d6 x10 in Stamina damage, and 2d6 in Lifeblood damage. If this event occurs at close or short range to a party in a land vehicle, it will topple (make a driving skill check to avoid, DC12); modifier of -1 per 10 kph of speed), inflicting 1d6 x5 Stamina and 1d6 Lifeblood damage to each person in the vehicle.

Seismic Quake: A seismic disturbance occurs. Each adventurer must make a Strength check to avoid being thrown to the ground and taking 6d6 Stamina damage (a successful Dexterity check to halves this damage).

Meteor Shower: Possible only on airless worlds or in asteroid belts, the meteor shower can puncture vacc suits or vehicles. Throw 2d10 to determine the size and strength of the shower. The result indicates the number of adventurers hit; each one hit must make a Reflex save (DC = size of the shower) to avoid a vacc suit puncture. If the size of the shower is 10+, the shower may puncture a vehicle on a basic check against a DC equal to the strength of the shower. If it does, those inside must roll for injuries as above.

Storm: A violent rainstorm occurs abruptly, forcing the band to stop and seek shelter, or to continue the journey with increased danger. See Weather Hazards, pg. 385 for more information.

Animals: Distantly viewed (or heard) animals.

Plants: Animated vines, tangled underbrush, fire hazards, hallucinogenic (or allergenic) pollen.

Terrain: Bad water, radiation areas, ruins or statues or other lost civilization artifacts.

DETERMINING ANIMAL CATEGORY

Roll on the appropriate Animal Encounters table from Setup Step B above, to determine category type of animal encountered. For example, using the 2d6 based encounter table you roll a 9 on 2d6 to determine that the new animal is a Carnivore. If we used the 1d6 table instead and had rolled a 5, the animal would be an Omnivore instead.

2) ANIMAL SUBSPECIES

Animals which are encountered may be classified into various categories and types, and specific attack and defense mechanisms determined. The resulting description indicates the actions an animal will take without resorting to such confining labels as 'bear' or 'tiger'. While a Referee may well elect to use such names, this system also allows the players freedom to encounter truly alien beasts as well.

Within each animal category, a variety of animal subspecies exist, based on specific feeding/hunting habits; examples of this concept are grazers, chasers, and pouncers. The following definitions more fully detail the meanings of the descriptive terms used for animal categories, types, and events.

HERBIVORES

Herbivores are of three types:

Grazers: Animals that devote most of their time to eating are termed grazers. They may be solitary or grouped in herds. Their primary defense is flight, although such action may result in stampedes that could endanger adventurers in their path. When forced to fight, they will fight fiercely until killed or routed. Typical Terran grazers are the antelope and the moose. The whale (which scoops krill from the sea at it swims through it) is also a grazer.

Intermittent: Herbivores that do not devote full time to eating are termed intermittents. They tend to be solitary. Intermittents usually freeze when an encounter occurs, fleeing if attacked by a larger animal. There is some potential that an intermittent will attack to protect territory or young. Typical Terran intermittents are the chipmunk and the elephant.

Filters: Herbivores that pass the environment through their bodies are termed filters. Unlike grazers, which move to food, filters move a flow of water or air through themselves in order to gain food. Generally, filters suck, trip, push, or pull anything (even animals) at close range into a digestive sac, inflicting automatic wounds of 3d6 Stamina per 50 kg or less of animal mass (wound alteration should be ignored for filters). Filters are often solitary and generally slow-moving. They will attack reflexively (as indicated above), succeeding against adventurers with a normal attack. Prompt struggle by adventurers will secure an escape with a Strength check (DC 11), a modifier of +2 for each companion at close range assisting. Throw once per combat round, beginning on the round following the attack. A filter can absorb an animal up to twice its own weight. Terran filters are generally aquatic, such as the barnacle.

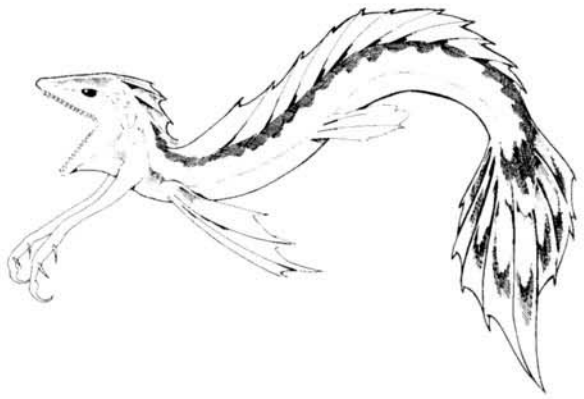
OMNIVORES

Omnivores are of three types: gatherers, hunters, and eaters.

Gatherers: Animals that display a greater tendency toward herbivorous behavior are termed gatherers. In most respects, they are similar to intermittents. Typical Terran gatherers are the raccoon and the chimpanzee.

Hunters: Animals that display a greater tendency toward carnivorous behavior are termed hunters. In most respects, they are similar to small or inefficient chasers. Typical Terran hunters are bears or humans.

Eaters: The true omnivore (in the sense that it will eat anything and everything) does not distinguish its food, consuming all that it confronts. Eaters present considerable danger in that they will not avoid adventurers when encountered. A typical Terran eater is the army ant (when an entire swarm is considered to be one organism).



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CARNIVORES

Carnivores are of five basic types: pouncers, chasers, trappers, sirens, and killers.

Pouncers: Animals that kill their prey by attacking from hiding or by stalking and springing are termed pouncers. Because of the difficulty of coordinating such attacks, pouncers are usually solitary animals. In an encounter, pouncers which have achieved surprise have succeeded in their basic aim and will attack regardless of range. If they do not have surprise, they will sometimes still attack. They will flee if they themselves are surprised. Typical Terran pouncers are cats.

Chasers: Animals that kill their prey by attacking after a chase are termed chasers. They tend to be pack animals. Typical chasers are wolves.

Trappers: Animals that passively allow their prey to enter a created trap wherein they are killed and then eaten are termed trappers. Trappers tend to be solitary and slow, but will attack any animal that enters their trap (treat as the Entangle special ability). Companions are subject to capture by the trap while providing assistance. Usually, a trap will not wound or damage a character, but will tend to hold

the adventurer to allow the trapper to attempt to kill him. A typical Terran trapper is the spider; less typical is the ant lion.

Siren: Distinct from the trapper, which creates a trap for its prey, a siren also creates a lure to draw prey to the trap. The trap is treated in much the same manner as that of the trapper, but the lure entails additional consideration. In most cases, the lure will be specific to some animal, but will be unnoticed by humans. In rare cases (roll vs. DC18) the lure will be universal, perhaps a smell or scent, or a mirage or beautiful configuration, which will attract characters into a vulnerable position. Very rarely, the lure will be psionic in nature. Typical Terran sirens are the angler fish (its mouth is the trap) and the Venus Flytrap.

Killers: Certain carnivores devote much attention to killing, sometimes apparently for the sake of it. The normal reason for killing other animals (such as territorial defense) are replaced by bloodlust or a raw killing instinct. Attacks by killers are fierce and violent. Killers will generally disregard the defender's size as a factor. The typical Terran killer is the shark.

ANIMAL SUBSPECIES

Die	Herbivore	Omnivore	Carnivore	Scavenger
0	Filter (1d6)	Gatherer	Siren	Carrion-eater (1d6)
1	Filter	Gather	Pouncer	Carrion-eater (2d6)
2	Filter	Eater	Siren	Reducer (1d6)
3	Intermittent	Gatherer	Pouncer	Hijacker (1d6)
4	Intermittent	Eater (2d6)	Killer (1d6)	Carrion-eater (2d6)
5	Intermittent (1d6)	Gatherer	Trapper	Intimidator (1d6)
6	Intermittent	Hunter	Pouncer	Reducer
7	Grazer	Hunter (1d6)	Chaser	Carrion-eater (1d6)
8	Grazer (1d6)	Hunter	Chaser (3d6)	Reducer (3d6)
9	Grazer (1d6)	Gatherer	Chaser	Hijacker
10	Grazer (1d6)	Eater (1d6)	Killer	Intimidator (2d6)
11	Grazer (1d6)	Hunter (1d6)	Chaser (2d6)	Reducer (1d6)
12	Grazer (1d6)	Gatherer	Siren	Hijacker
13	Grazer (1d6)	Gatherer	Chaser (1d6)	Intimidator (1d6)

Roll 2d6 to determine the subspecies based on the category of the animal.

Table Modifiers:
* Apply any Subspecies modifiers from the Terrain Type table.

SCAVENGERS

Scavengers are of four types: intimidators, hijackers, carrion-eaters, and reducers.

Intimidators: Scavengers that establish their claim to food by frightening or threatening other animals are termed intimidators. Their standard procedure is to approach a kill and force other animals away by appearing to be a threat. A typical Terran intimidator is the coyote.

Hijackers: Scavengers that establish their claim to food by simply taking it are termed hijackers. They rely on their superior strength or size to allow them to hijack food because the other animals present cannot effectively object. A typical Terran hijacker is the lion or the Tyrannosaurus Rex.

Carrion-Eaters: Scavengers that take dead meat when it becomes available (often waiting patiently for all other threats to disperse before beginning) are termed carrion-eaters. Most typical of Terran carrion-eaters is the vulture.

Reducers: Scavengers that act constantly on all available food are termed reducers. They eat the remains of food after all other scavengers are finished with it, consuming bone and other leavings. Terran reducers are all microscopic, such as bacteria.

DETERMINING ANIMAL SUBSPECIES

Roll 2d6, adding any terrain type modifiers for subspecies, and consult the Animal Subspecies table above. This will determine the exact type of animal encounters based on its category. For example, having already determined that a new animal is a herbivore, we roll 2d6 for a total of 8, subtract -3 for broken terrain, for a final roll of 5. Looking on the Animal Subspecies chart under Herbivore we see that 1d6 Intermittents have been encountered.

3) SPECIAL ATTRIBUTES

Animals which adventurers will encounter will tend to be walkers, but may be flyers, swimmers, amphibians, or even triphibians. Four special attribute types are possible on the table that follows.

Flyers: Animals capable of flying through the use of wings, levitating gas sacs, or other mechanisms.

ANIMAL SPECIAL ATTRIBUTES

Die	Beach	Marsh	River	Sea	Swamp	Other
2	Swimmer (+1)	Swimmer (–6)	Swimmer (+1)	Swimmer (+2)	Swimmer (–3)	-
3	Amphibian (+2)	Amphibian (+2)	Amphibian (+1)	Swimmer (+2)	Amphibian (+1)	-
4	Amphibian (+2)	Amphibian (+1)	-	Swimmer (+2)	Amphibian (+1)	-
5	-	-	-	Amphibian (+2)	-	-
6	-	-	-	Amphibian	-	-
7	-	-	-	Swimmer (+1)	-	-
8	-	-	-	Swimmer (–1)	-	-
9	-	-	-	Triphibian (–7)	-	-
10	-	-	-	Triphibian (–6)	-	-
11	Flyer (–6)	Flyer (–6)	Flyer (–6)	Flyer (–6)	Flyer (–6)	Flyer (–5)
12	Flyer (–5)	Flyer (–5)	Flyer (–5)	Flyer (–5)	Flyer (–5)	Flyer (–3)

Roll 2d6 and compare to the appropriate terrain type.

Table Modifiers:

- If the world size if 9 or larger, subtract –1 from the roll.
- If the world size is 4 or 5, add +1 to the roll.
- If the world size is 3 or smaller, add +2 to the roll.
- If the local atmosphere is rated 8 or higher, add +1 to the roll.
- If the local atmosphere is rated 5 or less, subtract –1 to the roll.

Swimmers: Animals living in liquid and swimming through the use of fins, flippers, jets, or other mechanisms.

Amphibians: Animals living in liquid, but capable of emerging onto land.

Triphibians: Animals living in liquid, but capable of walking on land and flying in the air.

DETERMINING SPECIAL ATTRIBUTES

Roll 2d6 and cross-reference the roll result with the appropriate terrain type. Certain entries on the table are followed by a parenthetical modifier that must be applied to the animal size roll; its general effect is to make flyers smaller and swimmers larger. Note the special attribute (if any) on the blank encounter column being filled in. Record any size modifier temporarily for use in step 4 (Animal Size).

4) ANIMAL SIZE

Animals range in size from tiny (massing about 270 grams) to colossal (massing 113 metric tons or greater), and their size determines a variety of their characteristics:

Size: The creature's standard d20 size designation.

Weight: The average weight of the creature in kilograms.

Str, Dex, and Con: These columns list the dice rolls used to determine the Strength, Dexterity, and Constitution ability scores for the creature. No creature will have a Str, Dex, or Con score of less than 1 regardless of the rolled result.

Stamina Dice: This column gives the number of Stamina Dice the creature. The type of dice used to determine a creature's stamina total is based on the animal type:

Carnivore: d10
Scavenger: d8
Omnivore: d6
Herbivore: d4

Damage: This column shows the damage each of the creature's natural attacks deals.

DETERMINING ANIMAL SIZE

Roll 1d20 and consult the Size, Weight, Str, Dex, Con, and Stamina Dice columns (rolling only once for all seven). If the result is (+6), roll again and add +6 to the result before consulting this table again.

TABLE MODIFIERS:

- Apply and size modifiers based on the Terrain Type or Special Abilities.
- If the size of the planet is 8 or larger, subtract -1 from the roll.
- If the planet size is 4 or smaller, add +1 to the roll.
- If the creature is a Carnivore, add +4 to the final Dex score.
- If the creature is an Omnivore, add +2 to the final Dex score.
- If the creature is a Herbivore, subtract -2 from the final Dex score (min. 1).
- If creature is an infant, reduce the result by -5.
- If the creature is a child, reduce the result by -3.
- If the creature is a young adult, reduce the result by -1.
- If the creature is middle-aged, reduce its Str, Dex, Con, Stamina, and Damage result by -1 row.
- If the creature is old, reduce its Str, Dex, Con, Stamina, and Damage result by -2 rows.
- If the creature is venerable, reduce its Str, Dex, Con, Stamina, and Damage result by -3 rows.

ANIMAL SIZE

1d20	Size	Average Weight	Str	Dex	Con	Stamina Dice
1	Diminutive	Less than 1kg	1d6-2	3d6	1d6-2	1 point
2	Diminutive	1kg	1d6-1	4d6	1d6-1	1/4 die
3	Tiny	2 kg	1d6	4d6-1	1d6	1/2 die
4	Tiny	3 kg	1d6	4d6-2	2d6-1	1 die
5	Small	6 kg	2d6-1	3d8	2d6-1	1 die
6	Small	12 kg	2d6	3d8-1	2d6	1+1 dice
7	Small	25 kg	2d6	3d8-2	3d6-2	2 dice
8	Medium	50 kg	3d6-2	3d6+2	3d6-2	2+2 dice
9	Medium	75 kg	3d6-1	3d6+1	3d6-1	3 dice
10	Medium	100 kg	3d6	3d6	3d6	3+1 dice
11	Medium	150 kg	3d6+1	3d6-1	3d6+1	3+2 dice
12	Medium	200 kg	3d6+1	3d6-2	3d6+2	4 dice
13	Large	400 kg	4d6	3d6-2	3d6+2	4+2 dice
14	Large	600 kg	4d6+1	3d6-2	3d6+3	5 dice
15	Large	800 kg	4d6+2	3d6-2	3d6+4	6 dice
16	Large	1200 kg	4d8	3d6-4	4d6	8 dice
17	Large	1600 kg	4d8+1	3d6-4	4d6+1	10 dice
18	Huge	3200 kg	4d8+2	3d6-4	4d6+2	11 dice
19	Huge	6000 kg	4d10	2d6	4d8	12 dice
20	Huge	12,000 kg	4d10+1	2d6	4d8+1	13 dice
21	(+6)	(+6)	(+6)	(+6)	(+6)	(+6)
22	Gargantuan	24,000 kg	4d10+2	2d6-1	4d8+2	14 dice
23	Gargantuan	30,000 kg	4d10+4	2d6-1	4d8+4	16 dice
24	Gargantuan	36,000 kg	4d10+6	2d6-2	4d8+6	18 dice
25	Gargantuan	40,000 kg	4d10+8	2d6-2	4d8+8	20 dice
26	Gargantuan	44,000 kg	4d10+10	2d6-3	4d8+10	25 dice
27	Gargantuan	50,000+ kg	4d10+12	2d6-3	4d8+12	30 dice

5) NATURAL ATTACKS, ARMOR, AND SAVES

Most creatures have some form of natural weapons with which to defend themselves, be they teeth, claws, stingers, or other form of attack. Some creatures have developed a type of natural armor to help protect them from predators and hostile terrain.

Natural AR: This column gives the creature's natural armor rating (AR) bonus (if any). Roll 1d20 to determine the result.

Natural Weaponry: This line gives the creature's natural physical attacks. If a weapon is followed by an asterisk (*), the weapon is venomous, automatically giving the creature the poison special attack (see Special Attacks, pg. 397).

Natural weapons have types just as other weapons do. The most common are summarized below.

Bite: The creature attacks with its mouth, dealing piercing, slashing, and bludgeoning damage.

Claw or Rake: The creature rips with a sharp appendage, dealing piercing and slashing damage.

Gore: The creature spears the opponent with an antler, horn or similar appendage, dealing piercing damage.

Kick, Slap or Slam: The creature batters opponents with an appendage, dealing bludgeoning damage.

Sting: The creature stabs with a stinger, dealing piercing damage. Stings are usually (75%) envenomed (see Special Attacks: Poison).

BAB: The BAB column determine the base attack bonus the creature has when using any natural weaponry. Carnivores add +2 to this result, omnivores add +1 to the result, and herbivores halve the result.

Saves (Fort, Reflex, and Will): The animal's basic saving throw bonuses (if any).

ANIMAL ATTACKS, ARMOR, AND SAVES

1d20	Natural AR	Natural Weaponry	BAB	Dmg	Saves Fort	Reflex	Will
1 or less	(+6)	Gore and Kick	-2	1	+0	+18	+0
2	-	Gore	-1	1	+0	+16	+0
3	-	Kick and Bite	-1	1d2-1	+1	+14	+1
4	2	Kick	0	1d2	+1	+12	+1
5	-	Gore and Bite	0	1d2	+1	+10	+1
6	-	Slap or Slam	0	1d3-1	+2	+8	+2
7	-	Claw and Bite	1	1d3	+2	+6	+2
8	-	Bite*	1	1d3	+2	+6	+2
9	-	Claw	2	1d4	+3	+6	+3
10	2	Claw	2	1d6	+3	+5	+3
11	-	Slap or Slam	3	1d8	+3	+5	+3
12	1	Claw and Bite	3	2d4	+4	+5	+4
13	2	Claw	4	2d4	+4	+4	+4
14	3	Sting*	4	1d10	+4	+4	+4
15	4	Claw and Bite	5	1d12	+5	+4	+5
16	5	Bite	5	2d6	+5	+3	+5
17	6	Spit*	6	3d4	+5	+3	+5
18	7	Claw and Sting*	7	2d8	+6	+3	+6
19	8	Bite	8	4d4	+6	+2	+6
20	9	Bite and Slap	10	3d6	+6	+2	+6
21	(+6)	-	(+6)	(+6)	(+6)	(+6)	(+6)
22	10	-	12	1d20	+8	+2	+8
23	11	-14	2d10	+10	+1	+10	
24	12	-	16	5d4	+12	+1	+12
25	13	-	18	2d12	+14	+1	+14
26	14	-	20	3d8	+16	+0	+16
27+	15	-	22	4d6	+18	+0	+18

Roll once for each column in this table. If an asterisk (*) follows a natural weapon, the creature also has the poison special ability with this weapon.

Table Modifiers:

- If the creature is a carnivore, add +8 to the BAB roll, subtract –1 from the Natural AR roll, and add +2 to the Will roll.
- If the creature is an omnivore, add +4 to the BAB roll and add +1 to the Fort, Reflex, and Will roll.
- If the creature is a scavenger, add +1 to the Natural AR roll and add +2 to the Fort roll.
- If the creature is a herbivore, subtract –3 from the BAB roll, add +2 to the Natural AR roll, and add +2 to the Reflex roll.
- If creature is an infant, reduce the BAB and Save results by –5.
- If the creature is a child, reduce the BAB and Save results by –3.
  If the creature is a young adult, reduce the BAB and Save results by –1.
- Add the creature's size modifier to the Damage roll (Diminutive –4, Tiny, -2, Small –1, Large +1, Huge +2, Gargantuan +4).

DETERMINING NATURAL ATTACKS, ARMOR, AND SAVES

Roll 1d20, once for each column, to determine any natural armor, what type of natural attacks the creature has, how well it attacks, the damage it may inflict, and its saving throw modifiers. If the roll results in (+6), roll again and add a modifier of +6 to the roll. If (+6) is rolled again, just reroll without the +6 modifier. If the creature possesses more than one form of natural weaponry, roll on the damage column once for each type of weapon to determine its specific damage.

6) SPECIAL ATTACKS

To determine if a creature has a special form of attack, roll 1d20. Add +2 to the roll for each size category the creature is below medium (Small +2, Tiny +4, Diminutive +6). If the result is 20 or greater, the creature has some form of special attack.

Blindsight: Some creatures have the ability to use a non-visual sense (or a combination of such senses) to operate effectively without vision. Such sense may include sensitivity to vibrations, acute scent, keen hearing, or echolocation. This ability makes darkness irrelevant to the creature, and operates out to a range specified in the creature description. Blindsight never allows a creature to distinguish color or visual contrast, which means that it is not possible to read with blindsight.

Deafening or sonic attacks thwart blindsight if it relies on hearing. Blindsight works underwater but not in a vacuum.

Cold Resistance: A cold resistant creature may always make a Fort save against any type of damage due to low temperatures. It will take no damage upon a successful save, and only half-damage on a failed save. It takes double damage from heat based energy weapons (lasers, plasma or fusion guns, some types of radiation) or other high temperatures, unless the situation allows a saving throw for half damage, in which case it takes half damage on a successful save and double damage on a failed save.

Constrict: The creature crushes the opponent, dealing its listed damage, after making a successful grapple check. The amount of damage is given in the creature's entry. If the creature also has the improved Grab ability, it deals constriction damage in addition to damage dealt by the weapon used to grab.

Darkvision: Darkvision is the extraordinary ability to see with no light source at all, out to a range specified for the creature, but such vision is only in black and white. Darkvision does not allow creatures to see anything that they could not see otherwise. The presence of light does not spoil darkvision.

Entangle: Similar to a constriction attack, but an entangle attack does not cause damage. It instead immobilizes the target while the grapple is held.

Evasion & Improved Evasion: If subjected to an attack that allows a Reflex save for half damage, a creature with evasion takes no damage on a successful save. Because it is a reflexive ability, the creature need not know that the attack is coming to use evasion.

As with a Reflex save for any creature, it must have room to move in order to evade. A bound creature or one in a completely restrictive area (crawling through a 2 1/2-foot-wide shaft, for example) cannot use evasion.

Improved evasion is treated like evasion, except that even on a failed saving throw the creature takes only half damage, provided it has the room to evade at all.

Fast Healing: At the beginning of each of the creature's turns, it heals a certain number of points (defined in its description). Unlike regeneration, fast healing does not allow a creature to regrow or reattach lost body parts. This healing is applied first against any Stamina damage the creature may have, with any remaining healing applied against Lifeblood damage.

Fast healing does not restore Stamina or Lifeblood lost from starvation, thirst, or suffocation.

Fear: Certain creatures can affect characters with fear. In most cases, the character makes a Will saving throw to resist this effect, and a failed roll means that the character is shaken, frightened, or panicked.

• *Shaken:* Characters who are shaken suffer a -2 morale penalty to attack rolls, saves, and checks.

• *Frightened:* Characters who are frightened are shaken, and in addition they must flee from the source of their fear as quickly as they can, although they can choose the path of their flight. Other than that stipulation, once they are out of sight (or hearing) of the source of their fear, they can act as they want. However, if the duration of their fear continues, characters can be forced to flee once more if the source of their fear presents itself again. Characters unable to flee can fight (though they are still shaken).

• *Panicked:* Characters who are panicked are shaken, and in addition there is a 50% chance that they will drop what they are holding and run away from the source of their fear as quickly as they can. Other than running away from the source, their path is random. They flee from all other dangers that confront them rather than facing those dangers. Panicked characters cower helplessly if they are prevented from fleeing.

Becoming Even More Fearful: Fear effects are cumulative. A shaken character who is made shaken again becomes frightened, and a shaken character who is made frightened becomes panicked instead. A frightened character who is made shaken or frightened becomes panicked instead.

Heat Resistance: A heat resistant creature may

always make a Fort save against any type of damage due to high temperatures. It will take no damage upon a successful save, and only half-damage on a failed save. It takes double damage from the effects of cold unless the situation allows a saving throw for half damage, in which case it takes half damage on a successful save and double damage on a failed save.

Frightful Presence: This ability makes the creature's very presence unsettling to foes. It takes effect automatically when the creature performs some sort of dramatic action (such as charging, attacking, or snarling). Opponents within range who witness the action may become frightened or shaken.

This ability affects only opponents with fewer Stamina Dice or levels than the creature has. An affected opponent can resist the effects with a successful Will save with a DC of 10 + 1/2 frightful creature's SD + frightful creature's Charisma modifier. An opponent who succeeds at the saving throw is immune to that creature's frightful presence for one day.

Improved Grab: If the creature hits with a melee weapon (usually a claw or bite attack), it deals normal damage and attempts to start a grapple as a free action without provoking an attack of opportunity. No initial touch attack is required, and Tiny and Small creatures do not suffer a special size penalty. Unless otherwise stated, improved grab works only against opponents at least one size category smaller than the creature. The creature has the option to conduct the grapple normally, or simply use the part of its body it used in the improved grab to hold the opponent. If it chooses to do the latter, it suffers a -20 penalty to grapple checks, and can use its remaining attacks against other opponents.

A successful hold does not deal any additional damage unless the creature also has the constrict ability. If the creature does not constrict, each successful grapple check it makes during successive rounds automatically deals the damage listed for the attack that established the hold. Otherwise, it deals constriction damage as well (the amount is listed in the creature's descriptive text).

When a creature gets a hold after an improved grab attack, it pulls the opponent into its space. This act does not provoke attacks of opportunity. The creature is not considered grappled while it holds the opponent, so it still threatens adjacent squares and retains its Dexterity bonus. It can even move (possibly carrying away the opponent), provided it can drag the opponent's weight.

Low-Light Vision: Creatures with low-light vision can see outdoors on a moonlit night as well as they can during the day.

Poison: If a creature with the poison special attack makes a successful attack with its venomous weapon, the target must make a Fort save or suffer the initial effects of the poison. Even if successful, the target must make a second Fort save a minute (10 rounds) later or suffer the secondary effects of the poison.

Unless the poison's damage is noted as permanent (Referee's choice when designing a poison), a character will heal one ability point lost to the poison per day of rest.

TYPES OF POISON

Type	*Ability Affected*
Muscle	Str damage
Necrotic	Con damage
Neurological	Dex damage
Hallucinogenic	Wis damage

POISON STRENGTH

	Damage		
Strength	*Initial*	*Secondary*	*DC*
Very Weak	1	1d3	10
Weak	1d3	1d4	12
Mild	1d4	1d6	14
Moderate	1d6	2d6	16
Potent	2d6	3d6	18
Highly Toxic	3d6	3d6	20

Poison Immunities: Lifeforms with natural poison attacks are immune to their own poison. Lifeforms without metabolisms are always immune to poison. Oozes, plants, and certain kinds of lifeforms are also immune to poison, although conceivably special poisons could be concocted specifically to harm them.

Regeneration: Creatures with this extraordinary ability recover from wounds quickly and can even regrow or reattach severed body parts.

All Lifeblood damage dealt to the creature is treated as Stamina damage, and the creature automatically cures itself of Stamina damage at a fixed rate. Severed parts die if they are not reattached.

Certain attack forms, typically fire and acid, deal damage to the creature normally; that sort of Lifeblood damage doesn't convert to Stamina damage and so doesn't go away. The creature's description includes the details. Regeneration does not restore Stamina or Lifeblood lost from starvation, thirst, or suffocation. Attack forms that don't deal Stamina or Lifeblood damage (for example, most poisons) ignore regeneration. An attack that can cause instant death, such as a coup de grace, or an assassin's death attack, only threatens the creature with death if it is delivered by weapons that can deal it normal damage.

Resistance to Energy: A creature with resistance to energy has the ability to ignore some damage of a certain type (such as cold, electricity, or laser fire) each round, but it does not have total immunity. Each ability is defined by

what energy type it resists and the amount of damage it can absorb from that type of attack before being affected. The creature still makes saving throws normally. Count the creature's resistance from the start of its turn to the start of its turn the next round. Its resistance "resets" on its turn.

This resistance does not stack with the resistance provided by worn armor, such as ablat or reflec, might provide.

Scent: This extraordinary ability lets a creature detect approaching enemies, sniff out hidden foes, and track by sense of smell.

The creature can detect opponents by sense of smell, generally within 30 feet. If the opponent is upwind, the range is 60 feet. If it is downwind, the range is 15 feet. Strong scents, such as smoke or rotting garbage, can be detected at twice the ranges noted above. Overpowering scents, such as skunk musk, can be detected at three times these ranges.

The creature detects another creature's presence but not its specific location. Noting the direction of the scent is a standard action. If it moves within 5 feet of the scent's source, the creature can pinpoint that source.

The creature can follow tracks by smell, making a Wisdom check to find or follow a track. The typical DC for a fresh trail is 10. The DC increases or decreases depending on how strong the quarry's odor is, the number of creatures, and the age of the trail. For each hour that the trail is cold, the DC increases by 2. The ability otherwise follows the rules for the Track feat. Creatures tracking by scent ignore the effects of surface conditions and poor visibility.

Creatures with the scent ability can identify familiar odors just as humans do familiar sights.

Water, particularly running water, ruins a trail for air-breathing creatures. Water-breathing creatures such as sharks, however, have the scent ability and can use it in the water easily.

False, powerful odors can easily mask other scents. The presence of such an odor completely spoils the ability to properly detect or identify creatures, and the base Survival DC to track becomes 20 rather than 10.

Sonic Attacks: Unless noted otherwise, sonic attacks follow the rules for spreads; the range of the spread is measured from the creature using the sonic attack. Once a sonic attack has taken effect, deafening the subject or stopping its ears does not break the effect. Stopping one's ears ahead of time allows opponents to avoid having to make saving throws against mind-affecting sonic attacks, but not other kinds of sonic attacks (such as those that inflict damage). Stopping one's ears is a full-round action and requires wax or other soundproof material to stuff into the ears.

Swallow Whole: The creature can swallow opponents it holds (see Improved Grab, above). If it makes a second successful grapple check after a grab, it swallows its prey. Unless otherwise noted, the opponent can be of a size up to one size category smaller than the swallowing creature. Damage is usually bludgeoning, often accompanied by acid damage from the creature's digestive juices. The consequences of being swallowed vary with the creature and are explained in its descriptive text.

Trample: The creature may run over an opponent at least one size category smaller than itself as a standard attack each round. This type of attack inflicts the creature's normal damage rating, multiplied by the number of leg pairs the creature possesses. For example a four-legged creature would inflict x2 damage, a six-legged creature would inflict x3 damage, etc.

Tremorsense: A creature with tremorsense locates other creatures by sensing vibrations in the ground. It will automatically sense the location of anything that is in contact with the ground, moving, and within range. If no straight path exists through the ground from the creature to what it is sensing, then the range defines the maximum distance of the shortest indirect path.

The sensing creature itself must be in contact with this ground for this special ability to work. As long as the other creatures are taking physical actions, they are considered to be moving; they don't have to move from place to place for a creature with tremorsense to detect them.

7) ANIMAL CHARACTERISTICS

Because animals have predispositions to attack or to flee, these details must be noted on your animal encounter table for each specific type presented. These characteristics are noted in the form of three codes in the table: A for Attack, F for Flee, and S for Speed and is followed by a number or letter as defined below:

ATTACK

When an encounter with an animal first occurs, the Referee uses this characteristic to determine if the animal attempts to attack.

AS: The animal will attack only if it has surprised one or more targets.

A+: The animals will attack if they outnumber their prey.

AP: The animal will attack if at all possible, even if outnumbered.

A(0-20): If the Referee rolls this number or higher on 1d20, the animal will attack if at all possible, even if outnumbered. If the value is 0, this is a special case and will be spelled out in the description of the creature (Referee's choice).

FLEE

If a creature has not already committed to attack when an encounter first occurs, it must be checked to see if it

will flee instead. If the value is 0, this is a special case and will be spelled out in the description of the creature (Referee's choice).

FS: If the animal is surprised, it will attempt to flee if possible.

F(0-20): If the Referee rolls this number or higher on 1d20, the animal will flee if at all possible.

SPEED

The speed of a creature will be needed whenever an encounter occurs, whether the creature attacks, flees, or stands its ground.

S(0-99): This number is the speed of the creature in meters per round. A creature with a speed of 0 is immobile (like a rooted plant) and cannot move from its present position.

DETERMINING ANIMAL CHARACTERISTICS:

Find the appropriate animal type and subspecies on the Animal Charactoristics table. Note the result for each characteristic; Attack, Flee, and Speed. If the result is a die roll, make the roll and note the result.

USING ANIMAL CHARACTERISTICS:

When determining the reaction of herbivores, always check to see if they flee, and if they do not, then check to see if they will attack. For all other types (omnivores, carnivores, and scavengers) check to see if they attack first and if not then check to see if they flee. If neither occurs, the creature will stand its ground and not move away.

ANIMAL CHARACTERISTICS

Category Type	*DC To Attack*	*DC To Flee*	*Typical Speed x3 meters*
Herbivores			
Filter	If possible	2d6	1d4-1 (min. 0)
Intermittent	2d6+2	2d6+2	1d4
Grazer	2d6	1d8	2d8
Omnivores			
Gatherer	2d6+2	2d6	1d6
Hunter	1d8	2d6	1d4
Eater	1d8	2d6+2	1d6
Carnivore			
Pouncer	If surprise	If surprised	1d4
Chaser	If more	2d6+2	2d8
Trapper	If surprise	2d6	1d4-1 (min. 0)
Siren	If surprise	2d6+2	1d6-2 (min. 0)
Killer	1d8	2d6+2	1d6
Scavenger			
Hijacker	1d10	2d6	1d4
Intimidator	2d6	1d10	1d4
Carrion-Eater	2d6+2	2d6	1d6
Reducer	2d6+2	2d6	1d4

8) OTHER ANIMAL ABILITY SCORES

The remaining ability scores for animals (INT, EDU, WIS, CHA, and SOC) are based on the animal type as determined from the table below:

OTHER ANIMAL ABILITY SCORES

Type	*INT*	*EDU*	*WIS*	*CHA*	*SOC*
Herbivore	1d3	n/a	3d6	1d6	n/a
Omnivore	1d4	n/a	2d6	2d6	n/a
Carnivore	1d3+1	n/a	1d6	2d6	n/a
Scavenger	1d4	n/a	2d6	1d4	n/a

Skill Points: Animals will generally have 5 + 1d10 + Int modifier in skill points that may be applied to any of the following skills: Balance, Climb, Hide, Intuit Direction, Jump, Listen, Move Silently, Spot, Survival, Swim, Tumble

Feats: A creature will have a number of feats equal to 1d6 - its INT modifier. If the creature is a herbivore, subtract -1 from the result, if it is an omnivore add +1 to the result, and if it is a carnivore add +2 to the result. If the final number of feats is less than or equal to zero, the creature will have no feats.

These feats may be selected from among the following standard feats:

Acrobatics, Alertness, Dodge, Endurance, Great Fortitude, Improved Initiative, Improved Zero-G/Low Gravity Adaptation, Lightning Reflexes, Mobility, Run, Spring Attack, Stealthy, Toughness, Zero-G/Low Gravity Adaptation, Weapon Specialization.

In addition, a creature may choose to take an additional special ability (see step 6 above) in place of a feat, or they may select any of the following specialized animal feats:

FLYBY ATTACK

Aggressive flying animals will often have this specialized animal feat.

Prerequisite: Must be a Flyer.

Benefit: When flying, the creature can take a move action (including a dive) and another partial action at any point during the move. The creature cannot take a second move action during a round when it makes a flyby attack.

Normal: Without this feat, the creature takes a partial action either before or after its move.

MULTIATTACK

This feat is often found with creatures that have more than one natural form of attack.

Prerequisite: Two or more natural weapons.

Benefit: The creature's secondary attacks with natural weapons suffer only a -2 penalty.

Normal: Without this feat, the creature's secondary natural attacks suffer a -5 penalty.

MULTIDEXTERITY

This feat is used for animals in place of the standard Ambidexterity feat.

Prerequisite: Dex 15+, two or more arms.

Benefit: The creature ignores all penalties for using an off hand.

Normal: Without this feat, a creature that uses an off hand suffers a -4 penalty to attack rolls, ability checks, and skill checks. A creature has one primary hand, and all the others are off hands; for example, a four-armed creature has one primary hand and three off hands.

MULTIWEAPON FIGHTING

This feat is used for animals in place of the standard Two-Weapon Fighting feat.

Prerequisite: Two or more hands.

Benefit: Penalties for fighting with multiple weapons are reduced by 2.

Normal: A creature without this feat suffers a -6 penalty to attacks made with its primary hand and a -10 penalty to attacks made with its off hands. (It has one primary hand, and all the others are off hands.)

REFEREE'S ADDITIONS

Animals may be provided with more complex motivations than the simple dice rolls for attack and flight. The descriptions of the animal categories and subspecies under steps 1 and 2 will prove helpful. Carnivores will base their decisions on the sizes of the party and of individuals; humans may resemble a carnivore's natural prey, and so on. Large herbivores will be less likely to flee than small ones, tending to ignore a party unless it gets too close. Any animal may attack if the party threatens its young, nest, territory, meal, etc.

Other responses are possible beyond attack or flight. A carnivore may stalk a party, hoping to attack an isolated member. An armored animal may curl up into a ball or withdraw its extremities into its shell. There may be responses analogous to those of the opossum or skunk. An animal may be friendly or want to play it might even mistake a party for members of the opposite sex.

Common Sense: Airless worlds will almost never have life of any consequence on them; if they do, animal life will still tend to follow the same broad outlines given above. Still, flyers and liquid breathers will be almost non-existent.

The Referee should always be prepared to alter or restrain prescribed procedures if it is felt that they contravene logic or reason.

INDIVIDUAL CREATURE DESCRIPTIONS

Name
Size:
Type:
Stamina
Lifeblood:
Initiative:
To Attack:
To Flee:
Speed:
AC:
AR:
Attacks:
Damage:
Saves:
Abilities:
Skills:
Feats:
Special Abilities:
Climate/Terrain:
Organization:

Name: This is the name by which the creature is generally known.

Size: Information on the creature's base size.

Type: The following definitions more fully detail the meanings of the descriptive terms used for animal categories and types.

Stamina Dice: This line gives the number and type of Stamina Dice the creature has and any bonus hit points. A parenthetical note gives the creature's average stamina points. A creature's Stamina Dice total is also its rate of natural healing, and its maximum ranks in a skill.

Lifeblood: A creature has a number of Lifeblood points equal to its Constitution ability score.

Initiative: This line shows the creature's modifier to initiative rolls. A parenthetical note tells where the modifier comes from.

To Attack: The chance of the creature attacking when encountered. Always check to see if a herbivore will flee first, only checking to see if it attacks if it fails to flee immediately. Roll 1d20, if the result equals or exceeds the To Attack value, the creature will attack.

To Flee: The chance of the creature fleeing when encountered. Always check to see if any creature other than a herbivore will attack first, only checking to see if it flees if it fails to attack immediately. Roll 1d20, if the result equals or exceeds the To Attack value, the creature will attack.

Speed: This line gives the creature's tactical speed. If the creature wears armor that reduces its speed, this fact is given along with a parenthetical note indicating the armor type; the creature's base unarmored speed follows.

Armor Class: The Armor Class line gives the creature's AC for normal combat and includes a parenthetical mention of the modifiers contributing to it (usually size, Dexterity, and natural armor).

Attacks: This line gives all the creature's physical attacks, whether with natural or manufactured weapons. The first entry is for the creature's primary weapon. The remaining weapons are secondary and have -5 to the attack bonus, no matter how many there are. Creatures with the Multiattack feat suffer only a -2 penalty to secondary attacks.

Unless noted otherwise, natural weapons threaten critical hits on a natural attack roll of 20. Unless noted otherwise, creatures deal double damage on critical hits.

Damage: This line shows the damage each of the creature's attacks deals.

If any attacks also cause some special effect other than damage (poison, disease, etc.), that information is given here.

Natural weapons have types just as other weapons do. The most common are summarized below.

Bite: The creature attacks with its mouth, dealing piercing, slashing, and bludgeoning damage.

Claw or Rake: The creature rips with a sharp appendage, dealing piercing and slashing damage.

Gore: The creature spears the opponent with an antler, horn or similar appendage, dealing piercing damage.

Slap or Slam: The creature batters opponents with an appendage, dealing bludgeoning damage.

Sting: The creature stabs with a stinger, dealing piercing dam_age. Stings are usually envenomed.

Saves: This line gives the creature's Fortitude, Reflex, and Will save modifiers.

Abilities: This line lists the creature's ability scores. Str, Dex, and Con scores are determined via the Animal Sizes and Weaponry table. All animals have an Int score of 1-2, an Edu score of 0, and a Soc score of 0. Wisdom and Charisma are determined by rolling 2d6.

Skills: This line lists all the creature's skills by name along with each skill's score. An animal has anywhere from 10-15 (9 + 1d6) skill points

Feats: The line lists all the creature's feats by name.

Special Abilities: Any special abilities the creature might have. If it has no special abilities, this line does not appear.

Climate/Terrain: This entry describes the locales where the creature is most often found.

Cold: Arctic and subarctic climes. Any area that has winter conditions for the greater portion of the year is cold.

Temperate: Any area that has alternating warm and cold seasons.

Warm: Tropical and subtropical climes. Any area that has summer conditions for the greater portion of the year is warm.

Aquatic: Fresh or salt water.

Desert: Any dry area with sparse vegetation.

Forest: Any area covered with trees.

Hill: Any area with rugged but not mountainous terrain.

Marsh: Low, flat, waterlogged areas; includes swamps.

Mountains: Rugged terrain, higher than hills.

Plains: Any fairly flat area that is not a desert, marsh, or forest.

Underground: Subterranean areas.

Organization: Animals are found individually, in small groups (1d6), medium groups (2d6) or large groups (3d6+)

REFEREE'S NOTES

Initially, the Referee must prepare a blank encounter column for each terrain type on the world. The terrain modifiers chart indicates the general types of terrain which might be expected on the worlds to be visited. The Referee should determine if the encounter table will use one die or two; two dice tables are more complex, and should be selected for terrain or worlds that will be frequently used, while one die tables are for Worlds or terrain types which do not merit detailed representation. The examples of encounter tables shown indicate the predetermined sequences of animal categories should be used in most cases; these sequences varied by the Referee to fit specific situations or world conditions.



TRAVELLER CAMPAIGNS

A campaign is a linked series of adventures featuring (more or less) the same characters. Playing in a campaign allows for greater continuity and (often) better characterization. Many players like to see their character develop (in terms of persona as well as experience points). Campaign play also allows the background to be explored in more detail than a series of unconnected quick adventures.

A campaign may be planned years in advance, with a grand sweeping story arc and recurring villains. Alternatively, each episode may be created out of thin air by the Referee minutes before the game - or even during it. Most campaigns mix both approaches, especially if the players have a habit of wandering off at tangents whenever something interesting presents itself.

However, many players like to play a variety of characters, and to shift the style and setting of the game. A series of short minicampaigns may suit such players better. There is really no difference between planning a long, open-ended campaign and a short one with a definite end point, except that the expected time frames are shorter in terms of time spent playing; a minicampaign may still span years of game time.

Many long campaigns are subdivided into minicampaigns in a manner similar to an ongoing television series which features apparently unrelated episodes along with some that are critical to the meta-plot. Each series ends with a suitable finale, perhaps with just a few loose threads hanging over. Next series, the characters face new challenges and the return of some old adversaries. And so it is with a good Traveller campaign.

CREATING A TRAVELLER CAMPAIGN

The first question to ask when creating a campaign is - will the campaign tend more towards the Heroic or the Gritty style of play? That is, will the characters hurtle through freewheeling epic adventures where the stormtroopers always miss and the epic threats to galactic stability just keep on getting bigger, or will every tussle with the opposition be a scary and memorable event, with a serious chance of fatal injury?

Heroic and Gritty are opposite ends of a spectrum that allows infinite variation. Any given group of players will have their own preferences about where on this spectrum they like to be. The downside of a gritty campaign is that action scenes can be lethal, and can take out a critical character - or even the entire group! On the other hand, a game where heroes die and guns are deadly forces players to think more. They must consider ways of avoiding combat and of stacking the odds when they do fight. And of course, heroic actions mean a lot more where there is a very real chance of death than in a universe where characters have "plot immunity".

The other spectrum is detail - fine or coarse? Some players love to "live" the lives of their characters and vicariously experience the worlds they visit, spending hours haggling over a cargo of frozen prawns with Honest Akram while trying to make ends meet in a ramshackle free trader. Others like to gloss over the details and get on with the action. Again, a sensible balance must be struck. Ideally, there should be more detail presented to the players than just what's relevant to the plot. This not only keeps them guessing about what's important and what's merely colorful 'filler', but it makes the game experience richer too. And passing details can sometimes lead to new subplots or interesting diversions.

A campaign may well vary considerably in style and tone from episode to episode. Variety can keep a campaign fresh and exciting far beyond the point when players would have become burned out and lost interest in ever-more-titanic epic quests.

Next there is the question of advancement. Will the characters be generously rewarded with prestige and power (and experience points!) or will they develop slowly? A sensible balance needs to be struck here. Many players particularly like seeing their characters progress and will become bored if they feel they are stuck at whatever level of power they started with. There is always a skill or feat that a player wishes he or she had taken at character generation. Trying to attain it will motivate the player. Feeling it is unattainable will cause disaffection. On the other hand, if characters progress too fast then the experience is cheapened. If it is easy to obtain a patent of nobility, a small starship and a few million Credits - or twentieth level - then these things become worthless.

Some things should be hard to attain. Working out which ones simply requires a look at the game setting. What possessions or titles are rare, or considered impressive in the setting? What amount of money constitutes "rich"? A character may be able to achieve one of these things after a great deal of effort. A very experienced character may have two or even three of them (especially if she started with one of them). But it should not be possible for every character to have all the trappings of wealth and power. It is suggested that each of the following are considered as the mark of impressive success, and should be achievable by a character who works hard and takes a few risks - but they should not be achieved too quickly.


STEVE
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- Military Rank: Major, Colonel
- Naval Rank: Commander, Captain
- Civil Rank: Senior Civil Servant or Diplomat
- Small starship: Yacht, Free Trader, Scout/Courier
- Bank Balance: 1 Million Credits
- Minor Noble Title: Knight, Baron
- Scientific Recognition: Doctorate, Professor

The following are much more difficult to attain and should be life goals requiring either very high-level starting characters or long periods of smart play to achieve.

- Military Rank: General
- Naval Rank: Commodore, Admiral
- Civil Rank: Senior Ambassador, Powerful governmental official
- Military Starship: Patrol Cruiser or Similar
- Civilian Starship: Liner or similar
- Bank Balance: 20 Million Credits
- Major Noble Title: Marquisate, Count
- Scientific Recognition: Interstellar recognition as field leader

Character level and skills should also be carefully considered. Characters leaving generation at level 5-7 are already fairly exceptional individuals with either very high specialist skill levels or a broad range of competences. There is no reason why a talented character, after some experience and study, should not be better than a typical soldier at fighting, and yet also a learned scholar capable of holding his own in a debate with doctors and professors on at least one subject, or have truly amazing ability in a narrow field. If however, the party's computer geek is an Olympic fencer, has galaxy-class interpersonal skills and is renowned throughout Charted Space for her epic poetry - and has learned to do these things as a sideline to her main job as a hacker par excellence, then the level of character skills is too high.

A good rule of thumb is to compare the party to "expert" level NPCs. Each character should have a field where she will be respected by (but is not necessarily better than) the experts, or several fields where he is about as skilled as someone who does that thing for a living. This reflects the nature of player-characters, who are unusually talented people - but not superheroes.

Unless, of course, the needs of the campaign require a team of "better than the best of the best" superheroes. In which case, go for it!

CAMPAIGN TYPES

Some character types do not fit well with some styles of campaign, so it is important to choose a style that will suit the players, or is general enough to allow any character type. It is possible to work most character types into a campaign with a bit of imagination, however.

The four most common types of Traveller campaigns are listed below, with their basic requirements.

FREE TRADER

Probably the most popular (and flexible) Traveller campaign. Player-characters form some or all of the crew of a small merchant starship. Such vessels are usually old, and may be in poor repair or heavily modified. The crew is likely to comprise a diverse group of individuals. The only real requirement is that the characters must be able to operate their ship (perhaps with some help from NPCs). Some characters may be working passage or may be passengers aboard the ship, though as the campaign unfolds the team will usually find reasons to stick together.

Some bookkeeping is necessary for this kind of campaign. Usually one of the players (the one whose character is owner, captain or purser of the ship are logical choices) can be detailed to keep track of the ship's finances. A Free Trader must of course make ends meet, so it is usual for the characters to engage in a lot of trading. This can be glossed over using the trade rules or can give rise to many roleplaying opportunities.

Of course, Free Trader crews are renowned for getting into trouble. The need to make a living from trade is an excellent driving force, and the requirement for some hard-to-obtain spare - or the chance of scoring a large profit - can be used to tempt or drive the players into an adventure. Free Traders hear all the portside scuttlebutt, and may choose to chase down rumors or become engaged in illegal activity such as smuggling.

Just because the characters have a ship does not mean that they have to spend all their time aboard it. While the ship is in port awaiting cargo delivery or routine maintenance, the characters have a chance to explore the worlds of the charted space, and have no end of planet-based adventures.

It is best if the Referee prepares a few starport rumors and has some data handy about the nearby worlds. This makes choosing speculative cargo more realistic, and really brings the universe to life.

Character Skills: Starship Crew, Mercantile.

Adventure Hooks: Callup as naval auxiliary. Only ship in port at time of crisis. Rumor. Distress signal. Component failure needs rare spare part. Lucrative trade opportunity. Ship charter by individual with a mission.

Hazards: Piracy, Customs inspection, Local disturbance on-planet, Rival vessel, Conflict with larger corporate concern.

MILITARY

The military campaign is very popular with Traveller fans. Characters are usually ex-military personnel or "freelance



security experts", selling their skills and weaponry for a price. It is possible to run such a game with the characters as part of an organised military unit (perhaps even the Marines or Navy) but more commonly the players are part of a small merc outfit fighting other people's wars. Some of those wars can be very dirty indeed.

There are many, many opportunities for mercenary work in Charted Space. Commissions can be quite varied, ranging from training up the local militia or guarding a mining installation to launching a surgical strike on a rival corporation's base. The range of character types is of course rather limited in the type of campaign, and it will not suit all players. However, a fair amount of variation is possible, especially where the campaign features a "team of experts" rather than an army unit.

Military campaigns require rather less bookkeeping than Free Trader games, but they do require that the Referee understand how military operations are conducted in order that the opposition has a fair chance but still reacts realistically. There is no need to generate large areas of space, but details of the political and military situation are required. It is not usually enough to note down what forces the opposition has available; the Referee must take into consideration the political and social effects of any combat. Enemies will learn from defeat or become overconfident; they will obtain better weapons or run out of ammunition. Local people may rise up against their government, or may turn out as militia to aid it.

Military campaigning can be quite subtle. Adventures may focus on the politics of peacekeeping, or the difficulty of keeping a remote outpost supplied. Military personnel may be called in to help with disaster relief. A particularly interesting twist is to have a military team suddenly presented with an alien site or with a situation where they have to cooperate with the enemy in order to survive.

Character Skills: Military, Weapons, Leadership.

Adventure Hooks: Protect threatened civilians, Surgical strike against state preparing for war, Hostage rescue, Deal with riots, Disaster relief, Bodyguard/installation security, Supply arms or training to local forces.

Hazards: Government intervention, Natural disaster, Hostile locals, Faulty intelligence, Equipment breakdown, Flying lead.

INTRIGUE/POLITICAL

Some players like to play in campaigns where they must make decisions that affect the political situation surrounding them. This style of play does not suit everyone, since there tends to be more talk than action, and much of the action is actually carried out by subordinates.

The most obvious idea for a political campaign gives the players one or more nobles and the senior members of the nobles' entourage as characters. These characters may be involved in political maneuvering within the governmental system, perhaps in conflict with a rival noble house, or they may have been sent on a mission for the government, perhaps acting as a diplomatic "fire brigade" in a subsector. Their task in this case will be to deal with the many crises occurring within the campaign area. These can be varied - war, economic disaster, piracy, labor disputes, missing liners full of rich passengers, corruption in the system, etc. The characters will be quite powerful in this case, capable of calling in the Marines or the Navy at need - but also answerable for doing those things.

However, there are other ways to run a political campaign. The characters may be corporate officials or freelance advisors-for-hire working for a planetary government. They might be the senior officers of a Navy starship, perhaps also holding noble rank. Such individuals are charged with defending and maintaining the stability of the government, and have a great deal of responsibility. Direct firepower solutions are rarely the answer, so other means must be found.

The political campaign can be integrated with other types. For example, players may have two sets of characters - powerful government figures who make the big decisions and attempt to sell diplomatic solutions at formal receptions, and a team of sneaky spies or daring mercs to carry out the dirty work.

An intrigue campaign depends more on hints and roleplaying than on direct action. The Referee must prepare the "big picture" and keep track of who is doing what. A shifting web of alliances and conflicting influence is difficult to keep track of, but worth it. Who has how many of their fingers in which pie must be determined and updated as the campaign progresses.

Character Skills: Diplomacy, Leadership, Interpersonal

Adventure Hooks: Assassination, Trade dispute, Territorial claim, Offworld investment, Riots, Threat of war, Sudden diplomatic visit, Ally needs help, Market crash, Terrorist action.

Hazards: Government intervention, Assassination, Loss of position, Devaluation of holdings, Lynching by mob.

ADVENTURING

Many Traveller games follow the classic "adventuring" campaign model. The player-characters are a team of freelance experts or just a group of friends who travel from place to place having adventures. The group, or at least some of its members, must have a reason to visit each place they go to. Adventures can be quite varied.

The party may or may not possess a starship. If they do, it is likely to be a noble's yacht or a Scout ship. Free Traders also work well for this kind of campaign, of course. It is quite possible to disregard the whole trading system and assume that the characters make enough by trade to run their ship, but must engage in adventuring to gain any money for themselves.

A team of freelancers might spend some of their time in speculative operations, perhaps chasing rumors of alien relics or searching for a lost bullion-crammed liner. At other times they may be hired for mercenary, consulting or troubleshooting work by local governments or commercial concerns. They may occasionally be pressed into service by the authorities to help with some crisis.

An Adventuring campaign can be very varied. The characters could compete in an All-Terrain-Vehicle race one week, sneak into corporate offices to find evidence of corruption the next. For example, a mercenary job to protect a vital mining installation might be followed by an attempt to smuggle gemstones off planet.

Character Skills: Absolutely anything, but some combat skills desirable.

Adventure Hooks: Terrorist action, Bodyguard duty, Corporate intrigue, Ancient ruins, Service reactivation, Old friend or comrade needs help, Unmissable opportunity, Rumor.

Hazards: Hostile people/animals/plants, Environmental hazards, Almost anything.

THE TRAVELLER CAMPAIGN

A ***Traveller*** campaign can incorporate elements of all the above types. What follows is a brief outline for a campaign that would suit almost any taste.

CAMPAIGN CONCEPT

This campaign incorporates elements of the four major types. Depending upon how much the players like starship economics, trade and commerce may be integral to the game or might be assumed to be going on in the background. ("Okay, you made enough on that trip to earn you 500 Credits apiece and keep the backers happy. While Maran-the-NPC-Purser is handling cargo unloading, you hear these rumors...."). Adventure leads will take the characters to interesting places and the occasional firefight.

BACKGROUND

The Free Trader Hazard to Navigation is an elderly ship, and not in the best of working order. However, she is spaceworthy and, more importantly,



paid for. The Hazard is owned by a fledgling shipping company grandly titled Interstellar Commerce, LIC. She was acquired as part of a job lot of vessels (some of which were fit only for breaking for spares) and refitted to an acceptable standard with parts from some of the others.

Interstellar Commerce LIC began as a joint venture between three successful free trader captains and Hiller Yards LIC, a private refit-and-maintenance outfit. The line now operates six vessels; four on regular routes and two on speculative trade throughout the Ley Sector region. All vessels return to Hiller Yards for refit and annual maintenance. So far, the venture has been modestly successful.

Hazard to Navigation is the sixth vessel to enter service with IC. Her rebuild was fairly inexpensive as these things go, since parts were available from the derelicts and labour carried out between jobs at the yards. However, even without a bank mortgage to pay, it is about time she got out there and began making a profit.

Hazard to Navigation already has a captain (ex-first officer of one of the other IC ships) and a chief engineer (a talented Second Engineer promoted from another ship). These can be player-characters. The rest of the crew must be recruited from PCs and NPCs.

Hazard to Navigation has no expensive bank mortgage to pay, but her owners need to make their money back. To this end they have made available a sum of money to engage in speculative trade. To keep overheads down, the captain and crew have not been offered standard salaries. Instead they are entitled to a percentage of the ship's net profits at the end of each month. The ship's life support provides basic needs while in space of course, and is paid for out of the ship's overheads. But if the crew want to actually make any money they'd better get to work.



CHARACTERS

The ship is going to need a pilot, astrogator and engineer (the first two can be the same person) and whatever other crew are deemed necessary. A medic is required if passengers are to be carried, and gunners might be an idea. Characters with no shipboard skills might be hired as cargo handlers, security, stewards or maintenance technicians. The captain and engineer are assumed to be loyal to the parent company, and should have appropriate skills.

The big carrot here is the ship itself. It is owned by IC, but if the characters are successful, it is possible that they will be taken on as permanent crew and maybe even become partners in the firm, with the ship as their property.

The crew have a relatively free rein, so long as they make a profit for their parent company. That might mean charter or freighting work, passengers or speculative cargo. It certainly does not preclude side trips to undertake adventuring, but - of course - the ship must make a profit or a new crew will be recruited and the characters fired.

CAMPAIGN OUTLINE

The first cruise of the Hazard to Navigation is already planned out. She will make a circuit of the local star cluster, shaking down her crew and systems while hopefully turning a modest profit. The trip will visit seven worlds, taking roughly three to four months. Crew performance will be evaluated at the end, to see who gets kept on and who doesn't.

The seven worlds to be visited are worked up by the Referee, who makes a few brief notes about culture, conditions and local places of interest. If the players think to ask in the right places, they can learn a few facts about the worlds along the way that might help them buy and sell at a greater profit.

The majority of the campaign (actually, this is a mini-campaign serving as an introduction to a longer campaign

if the players wish it.) is about the life of a merchant crew. The characters will interact with one another and with NPC crewmembers while in jump, collect information in starport bars, and deal with the business of finding and buying appropriate trade goods.

Along the way, the characters will almost certainly want to get out of the ship whenever they are in port. (Starships are small and cramped, and characters are cooped up in them with the same people for weeks at a time.) In some cases, this means sampling the local cuisine and culture in restaurants, or visiting interesting places on-planet. This gives the Referee a chance to show the players that there is more to the Traveller universe than starports and the inside of a space vessel. Some of the local encounters will be more significant, however.

As the cruise progresses, various adventures take place.

- The Hazard to Navigation is diverted to join a search-and-rescue operation for a distressed freighter.
- A drive failure strands the ship for two weeks, during which time the crew are offered work carrying out mineral surveys in a remote area.
- A navigation error brings the ship out of Jump well off established routes. The crew detects a rogue asteroid and investigates, finding artifacts from the Rule of Man period in a small mining outpost.
- Terrorists attack the restaurant the characters are eating in.

There will be minor (and semi-random) obstacles along the way. Picky customs officials, unusual local laws, and the occasional brawl with local toughs or drunken spacers, will crop up from time to time. The ship has a number of minor (and a few serious) faults that will require the occasional stopover or emergency repair session. These will serve to divert and perhaps confound the characters.

The main story behind this mini-campaign will not be immediately apparent to the players. However, as their adventures continue they will start to hear rumors that will lead them into the story and to a final showdown. The opposition in this case is a rival free trader starship, the Bad Penny, which serves the same cluster of worlds. The Bad Penny is in deep financial trouble and has turned to illegal means to make a profit and to gain an edge over the competition.

At first the illegal activities of the Bad Penny and her skipper, Paulus Likhsaamsi, were limited to under declaration of customs fees and a little smuggling. As times have grown even worse, the crew have stooped to sabotaging other ships' operations in order to reach market first, and have finally made a deal with an organised crime group on one of the worlds in the cluster.

Early in the campaign, the characters should encounter the Bad Penny behaving like a normal Free Trader, which at that point she is. However, the characters should become suspicious when dock workers and local thugs are bribed to rough up other Free Trader crews, sabotage their ships and otherwise delay them (though all of these activities will be non-fatal at first). The crew of the Bad Penny may contrive to look like victims themselves, which may throw the characters off the scent. The deal is lucrative for the ship and for the gang, and for a time remains only slightly illegal.

But eventually, the deal goes sour. The crime gang decides to try its hand at piracy. The Bad Penny has a long history as a legitimate merchant, which makes her an ideal vessel - other Free Traders are not likely to suspect her until she opens fire. The crew are forced to operate their vessel by armed thugs put aboard for the purpose. After a Free Trader is taken in deep space (and her crew murdered) and a couple of outsystem installations are taken by surprise and plundered, the gang decided to make a last big raid with the ship before the authorities get wise.

Unfortunately for them, one of the crew has managed to escape. Having refused to work the ship after the first raid, the second engineer was shot and left for dead by the thugs. Somehow managing to survive and reach help, he contacts the crew of the Hazard to Navigation in port. The characters have been badly done-to by the Bad Penny crew, but may agree to help. If they don't, the engineer is sure (and he's correct) that the crew will be murdered to cover the gang's trail.

The engineer knows where the gang intends to strike next. A small mining outpost in the outsystem builds up quite large stockpiles of gold and platinum between monthly visits from the bulk freighters. The gang plan to approach the installation feigning distress, then take out the crew and clean the place out.

The characters have a difficult problem - how to stop the raid without killing the crew of Bad Penny (for some groups this may be less of a consideration than for others). Staging an ambush at the mining outpost is one option, though they will have to talk the miners into helping. One thing is certain. There is too little time to call in the authorities. The characters must act immediately or not at all.

Hopefully, the thwarting of the raid and rescue of the Bad Penny crew will make a dramatic finale to the mini-campaign as well as providing some answers as to why so much went wrong on the early cruise.

TRAVELLER ADVENTURES

The heart of any Traveller game is adventures. Good ones will captivate the players and stick in their memories. Mediocre ones will be quickly forgotten, and bad ones... well.

CREATING TRAVELLER ADVENTURES

The key to creating good adventures is preparation. This does not necessarily mean having reams of notes - in fact that can be counterproductive. Preparation in this case simply means being ready to run the game. At a minimum, the Referee should:

- Know the system well enough that the game flows without rules-consultation pauses.
- Have some idea about characters' surroundings and what is going on in them
- Have some interesting NPCs or situations for the characters to interact with

How much of the adventure is scripted in advance, and how much is created on the fly in response to what the players do is up to the Referee to decide. It is certainly impossible to predict every possible move the characters may make. A good way to get around this is to write adventures in the form of "scenes" or "nuggets" rather than a linear plot. Adventures in this style (and this is by no means the only way to do Traveller adventures) have the following components:

- Background information on the world and setting
- A loose timeline of events
- Details of critical scenes
- Stats for the opposition
- Relevant maps

A map of the surrounding stars and some data on the worlds there is also a good idea. The players may choose to have their characters look up library data on neighbouring planets, or may simply head for the starport and travel to another world.

Using the above format, the Referee knows what is going on around the characters and what the opposition is up to. Character actions may influence the order in which things happen, but some scenes will happen anyway. Whatever the characters choose to do on Twoday, they are going to find themselves in the middle of the "Hurricane hits the Starport" scene if they are around at the time. Even if they're in a nice coffee shop across town, they are still going to experience the hurricane.

However, less widespread events may simply not happen to the characters (though they may hear about or be affected by them later). If the characters are exploring the North Pole at the time, they are not going to experience the "Bank robbery on Fourday" scene at firsthand. The events still happen, but the characters are elsewhere (and the Referee is going to have to deal with what they do at the North Pole that day on the fly.).

Some scenes can be shifted so that the characters DO experience them. This is especially important for plot-critical events. It probably doesn't matter if the characters were caught in the hurricane and/or the bank robbery, so long as those things happen. But if "Boris intimidates the characters on Fiveday" doesn't happen, this may derail the plot. A loose format allows Boris to appear as and when he can. It seems a bit unlikely that Boris and his henchmen will come jumping out of an igloo as the characters take photos of the polar ice-sheet, so the event will have to rescheduled for when the characters are available for intimidation.

This format is flexible and easily adaptable, but is by no means the only way to do things.

STYLE AND TONE

Traveller is a hard-science game, which means that so far as possible, realism should be maintained. Objects and the setting itself should obey consistent physical laws. People and animals should also behave realistically. This does not mean that the fantastic has no place in Traveller. Far from it - it is this very grounding in the ordinary that makes the extraordinary so wondrous in Traveller. Some SF settings are so filled with the bizarre and unearthly that they dull the imagination. Not so Traveller. When a shadow falls over the characters and they look up to see an entire city floating overhead on antigrav modules, the event will have greater impact if the players understand that this really is an impressive achievement. Cities don't normally do that! If they do, the setting loses something.

Aliens, weird ecosystems and strange human societies should be tempered with a healthy dose of reality. "Psionics" or "Ancient Devices" can explain only so many bizarre occurrences. Similarly, however odd a society or ecosystem may be, it should still obey its own internal logic, even if it seems incomprehensible to the players.

Comedy is a difficult issue. All games benefit from light relief, but self-parody is a bad idea as pretty soon the whole game becomes a parody of itself and impossible to take seriously. The occasional "silly" adventure as a one-off is a reasonable idea, but care should be taken that events from the comedy game do not become in-jokes in the serious sessions. Better to avoid outright comedy altogether, or play an entirely different game for those silly sessions.


STEVE BRYANT
2002



OPPOSITION & DANGER

Without some kind of conflict or danger to the characters, adventures will tend to be rather boring. The most obvious source of opposition is NPCs actively opposed to the characters, or hostiles encountered randomly. However, there are more ways to confound the adventurers that just shooting at them.

The ***Traveller*** universe is - more or less - civilized, with laws and bureaucracy to contend with. Stubborn customs officials or tortuous local laws can present the characters with a major obstacle, which must be got around with good roleplaying or some sneaky maneuvering. Simply shooting the customs clerk is rarely an answer, as this kind of behavior usually leads to consequences of an unpleasantly fatal sort.

The environment around the characters can present all manner of danger. Adventures often take place in difficult environments: underwater or in hard vacuum; in the arctic or desert; up a mountain or in deep jungle. Troublesome animals can be shot, but an avalanche cannot. A torn vacc suit is a major crisis, which can turn a simple repair task into a dramatic rescue.

The Referee is encouraged to present a range of challenges to the players in this manner. Physical obstacles, environmental hazards and direct (shootable) threats can all be combined with one another and with relatively mundane activities such as driving an ATV or changing a coolant cylinder on the contragrav lifters to give the players a variety of hard times.

Bear in mind also that actions have consequences. Adventurers are bound by local laws, wherever they are, and some activities are illegal most anywhere in charted space. Players who use strongarm tactics all the time are going to get into trouble. Sometimes it may be possible to hide the evidence, but tech level 15 forensics as used by advanced investigation teams are pretty good - and several corpses in an unmarked grave are the sort of thing that will prompt a government to investigate.

Characters who flout local laws will run afoul of law enforcement. Depending upon local law levels, this will most likely just be a couple of police officers with sidearms. However, major crimes (shooting at the local police is often considered one!) will trigger a robust response from the equivalent of SWAT teams, militia, army units or even a team of Marines from the starport protection force. This is not to say that characters will go to jail for firing their guns. Self-defense is usually considered acceptable so long as locally-legal weapons are used. Many incidents (especially on frontier worlds) are never investigated at all.

If characters commit a crime on one world and manage to get off-planet, they may well escape justice. They will remain wanted on that world for the crime, and in some cases "unofficial" retribution may be attempted in the form of bounty hunters or "free police agents" sent out to harm or capture the characters and return them for trial. However, in most cases, local crimes can be left behind. This is not true of "high crimes" such as deliberate murder, which are illegal on most worlds. Such crimes will usually result in a warrant being issued.

The important consideration here is simply that pointlessly violent characters will eventually end up being pursued by legal agencies, and if the Ministry of Justice or the Imperial Marine corps is your enemy, you've had it.

RANDOM ENCOUNTERS

Adventurers, as they travel about on planets, also have random encounters with an unpredictable variety of individuals or groups. Such individuals will be engaged in performing various tasks which may complement, supplement, oppose, or be irrelevant to the goals of the adventurers themselves.

Some 'random' encounters are mandated by the Referee. For example, a band may encounter a guard patrol at a building while in the course of visiting (or burglarizing) it. The Referee is always free to impose encounters to further the cause of the adventure being played; in many cases, he actually has a responsibility to do so. Other random encounters are dictated by the random encounter process. Usually, a random encounter point with humans will occur once per day. There is a one third chance that a group will be met (throw one die: a result of 5 or 6 indicates an encounter). Encounters with persons are independent of the procedure for encounters with animals described in the animal encounter section.

If a random encounter occurs, consult the person encounter table to determine the identity or occupation of the person or group encountered. Throw two dice consecutively, and index the result to the table. Indicated on the table are a basic description or identity for the encountered individuals, a dice throw to determine their number, an indication of their vehicle, if any, and a description of their weaponry and armor.

RANDOM ENCOUNTERS

Die	Type	Qty	V	Weaponry	Armor
11	Peasants	1D	-	Clubs and cudgels	-
12	Peasants	2D	-	Clubs and cudgels	-
13	Workers	2D	-	Clubs	-
14	Rowdies	3D	-	Clubs	-
15	Thugs	2D	-	Daggers	-
16	Riotous mob	4D	-	Clubs and daggers	-
21	Soldiers	2D	-	Rifles and bayonets	Cloth
22	Soldiers	2D	V	Carbines	Mesh
23	Police patrol	1D	V	Automatic pistols	Cloth
24	Marines	2D	V	Revolvers and cutlasses	Mesh
25	Naval security troops	3D	V	Carbines	-
26	Soldiers on patrol	2D	V	Submachineguns	Jack
31	Adventurers	1D	-	Swords	-
32	Noble with retinue	2D	-	Foils	-
33	Hunters and guides	2D	-	Rifles and spears	Jack
34	Tourists	2D	V	Cameras	-
35	Researchers	2D	V	-	-
36	Police patrol	1D	V	Revolvers	-
41	Fugitives	1D	-	Clubs	-
42	Fugitives	2D	V	Blades	Jack
43	Fugitives	3D	-	Revolvers	-
44	Vigilantes	2D	V	Rifles and carbines	Jack
45	Bandits	3D	-	Swords and pistols	-
46	Ambushing brigands	3D	-	Broadswords and pistols	Cloth
51	Merchant and employees	1D	-	Daggers	-
52	Traders	2D	V	Blades	-
53	Religious group	2D	-	-	-
54	Beggars	1D	-	-	-
55	Pilgrims	5D	-	-	Jack
56	Guards	3D	-	Halberds and daggers	Jack
61					
62					
63					
64					
65					
66					

ADDITIONAL WEAPONS

	1	2	3
1	Laser rifle	Shotgun	Broadsword
2	Auto rifle	Carbine	Sword
3	-	Revolver	Halberd
4	-	-	Cutlass
5	-	-	Foil
6	-	-	-

Notes to Random Person Encounters

The code V in the V column indicates that the group has a vehicle appropriate to the technology of the world and the terrain of the area.

Group numbers and their weaponry should be adjusted for law level, tech level, and balance where necessary.

After determining the number in the group, assign appropriate characteristics to the individuals. Generally, it may be assumed that most individuals in an encountered group have the same characteristics. Leaders may have somewhat higher skill levels or attributes.

In addition to the weapons indicated on the table, there is a possibility that one of the group's members will be armed extraordinarily. Consult the additional weapons table: throw 1d6 for column 1. If a weapon is shown, one person is armed with it; if a dash is shown, re-roll on column 2. If a weapon is shown, one person is armed with it; if a dash is shown, re-roll on column 3. If a weapon is shown, one person is armed with it; if a dash is shown, no extraordinary weapons are present.

Six entries in the person encounter table are left blank; initially, they may be interpreted as no encounter. Later, they may be filled in by the Referee for specific situations, as necessary.

Once an encounter occurs, a determination of attitude is made using the reaction table (later in this section). Combat may ensue. After an encounter has been resolved, there is the potential for small amounts of money to be on the persons (or bodies) of the vanquished. It is also possible to loot the vanquished of their equipment, vehicles, weapons, or armor.

PATRON ENCOUNTERS

	1	2	3	4	5	6
1	Arsonist	Cutthroat	Assassin	Hijacker	Smuggler	Terrorist
2	Crewperson	Peasant	Rumor	Clerk	Soldier	Shopkeeper
3	Shipowner	Tourist	Merchant	Police	Scout	Rumor
4	Diplomat	Courier	Spy	Scholar	Governor	Administrator
5	Mercenary	Naval	Marine	Scout	Army	Mercenary
6	Noble	Playboy	Avenger	Émigré	Speculator	Rumor

Note: Rumors are, in effect, absent patrons. They impart knowledge which may be acted on by characters if they so choose.

PATRON ENCOUNTERS

One key to adventure in Traveller is the patron. When a band of adventurers meets an appropriate patron, they have a person who can give them direction in their activities, and who can reward them for success. The patron is the single most important NPC there can be.

A patron will, if he decides to hire a band of adventurers, specify a task or deed to be performed, and then finance reasonable expenses for the pursuit of that task. Some tasks may be ordinary in nature, such as hired guards or escorts; other tasks may be for the location and procurement of items of great value. Generally, a patron's agreement with a band of adventurers will specify that the patron will receive the item he is seeking while all other goods or items acquired will belong to the adventurers.

In a single week, a band of adventurers may elect to devote their time to encountering a patron. They may frequent bars, taverns, clubs, perhaps the Travellers' Aid Building, or any other likely places. One throw is allowed for the entire band: a result of 5 or 6 on 1d6 indicates a likely patron has been found. Two d6s are then thrown consecutively, and the Patron Encounter table is consulted to determine the general character of the potential patron. If necessary, the patron's personal characteristics are generated at this point. The band then meets with the patron, and an interview takes place. Throw two dice on the reaction table to determine if the patron concludes that the band will be suitable. The patron then discloses his task, and the adventurers may accept or reject the offer of employment.

Once the patron and the adventurers have met, the responsibility falls on the Referee to determine the nature of the task the patron desires, the details of the situation (perhaps a map or some amount of information), and the limits of the patron's resources in the pursuit of the task.

Employees and Hirelings: When PCs themselves require employees, for any purpose, they must find them in the course of their activities. This may require advertising, visiting union hiring halls, or active efforts in barrooms or clubs. Hiring is done by stating a requirement to the Referee, who then describes any persons presenting themselves for employment. The interview consists of generating the person's characteristics and experience. While decisions to hire are made on qualifications, the number of persons applying for employment may be limited.

DESIGNING PATRON ENCOUNTERS

A patron encounter is usually written as a short paragraph to be read to the players, which briefly details the information available to them. This might include the location, a description of the patron, his or her name, the task or job being offered, and the payment that will be rendered for completing the job. Details should also be added that help establish opinions in the minds of the characters about the patron and/or the job which may or may not be true.

A list of three to six possible outcomes or rationales for the situation should be drawn up (for example: the patron is lying, the patron is crazy, the patron has been swindled, etc.). The true outcome or rationale should then picked by the Referee when the encounter occurs (or prepared before the game session). This allows a patron encounter to be used more than once with just a bit of changing and tweaking here and there.

A sample patron encounter follows on pg. 417.

AMBER ZONES

Amber Zone is a travel zone code issued by the Travellers' Aid Society to warn individuals of dangerous worlds. This same term is used for situations that present a danger to characters and warn them to use caution. Amber Zone adventures do not need to take place on an Amber Zoned world - they may be used on any world, asteroid or orbital habitat. Amber Zones present a problem, task, or predicament to the players and typically include a general outline for the Referee to follow. The Referee must provide deck plans, maps, and other information where called for,

SAMPLE PATRON ENCOUNTER

1. Mercenary, Courier **Required Skills:** None **Required Equipment:** None

Players' Information

While hanging around the starport between jobs, the characters are approached by a smartly-dressed young man who identifies himself as Jayme Hewitt. Hewitt is, he says, a courier for Brightland Packages, a security firm specializing in delivery of small packages across the sector. A check will show that the firm is real, and has a good reputation for efficiency and remaining within the law.

Hewitt is on-planet to pick up a case of documents for a regular client (he will not say who). He's carried out similar transfers between his client's offices on various worlds several times. They transfer sensitive information in hard copy only, in tamper-proof attaché cases, in order to be certain of security.

However, there have been no less than five attempts to intercept couriers working for this client in the past six months. Hewitt is concerned that there may be an attempt to prevent this delivery, or to steal the case. With two of his colleagues dead and one permanently out of the business, he's not inclined to take chances. He is becoming convinced that someone is stalking Brightland agents, and that he is next on the list.

Hewitt proposes that the group help him to confuse the issue and fool anyone trying to set him up. He will make the pickup as planned, but before he can reach the port, he will be "ambushed" by the group. In the ensuing scuffle the case will be stolen and he will be "hospitalized" (this is already set up). The characters will then immediately depart on a starship with the case. At the other end of their trip the characters should watch the local data net for a certain coded signal, and keep their heads down until it comes.

After a couple of days pretending to be in critical trauma care, Hewitt will quietly leave the hospital and follow the characters to their destination, where he will signal them to meet him and they will hand over the case in return for Cr 2500 each. Liner fares and hotel bills will all be charged to Hewitt's "discretionary expenses" account. He adds (with a chuckle that) the characters' expenses will be costing the client, not him, and that they should be able to get away with quite considerable (though justifiable) spending. He does suggest that the characters surrender their case if they do run into trouble - no fee is worth getting shot over.

Referee's Information

The situation is above board. Hewitt is pretty sure that someone will try to intercept him, and hopes either to evade interception or better still, to draw out his stalker (if there is one) and identify them. Of course, he is playing a double game, and the case he "loses" is not the real one. He doesn't think the characters will be in any real danger, since whoever is stalking him will not have time to switch targets.

The "ambush" goes well enough. Hewitt provides a couple of snub revolvers loaded with "stinger" training ammo; enough to burst the blood bag under his shirt but not sufficient to really hurt him. The characters can then snatch up the case and make for the starport.

Determine the outcome by rolling 1d6:

1. Everything goes well. Hewitt catches up to the group after a few days of hiding out. He expresses shocked disbelief at their expenses claims, but pays up.

2. As 1, but local law enforcement officials arrive on the scene as the characters grab the case. With no time to explain, the characters must flee.

3. The stalker is fooled, and follows the characters to their destination. He attempts to gain the dummy case by stealth. (He is alone, armed with a handgun and knives)

4. As 3, but the "stalker" is a team of thugs equal in numbers and armament to the characters. They attempt to take the case by force.

5. The stalker was partially fooled. Hewitt was murdered on the way to the hospital, and the stalker is now after the players, thinking that they have the real case. Subsequent events are up to the Referee.

6. The stalker was not fooled. Hewitt is dead, as in 5, and the stalker has the real case. He will not come after the characters, but they will not know that. Subsequent events are up to the Referee.

and must be prepared to deal with problems in background or reactions when it becomes necessary.

SAMPLE AMBER ZONE

Dismal Hole is an outsystem mining outpost situated on a gas giant moon, several days' travel from the mainworld. The moon has no air, no water, and little to recommend it but for some mid-level deposits of common metals such as iron and tin.

The outpost is run by several minor ore extraction and processing firms. A tiny spaceport serves the only community on-planet, numbering about 2000 people who mainly work in

the ore-processing and packaging works owned by Interstellar Minerals, LIC. The rest of the population work in service industries or at the spaceport as cargo handlers. About another 2-3000 miners and prospecting engineers work from temporary camps scattered about the planetary surface.

Dismal Hole is very much a frontier town, with little in the way of formal law or enforcement. Security personnel from the five mining companies and the processing works they all use keep order (in a fairly rough and ready way) and major issues are decided by a council of executives, one from each of the firms and a chairman, who represents the service workers.

The system is ad-hoc but it has always worked, at least until now. A major dispute has arisen, resulting in the processing works refusing to handle ore from Gashaskii Enterprises or Rockrip LIC. This will cripple the operations of these two firms unless the situation is resolved - and that seems unlikely. Fights between workers are becoming common, and the security personnel are being drawn in rather than remaining impartial.

In a bid to break the deadlock, Rockrip LIC has chartered a free trader ship to bring in a prefabricated ore-processing plant and to shuttle the ore back to the mainworld. This is an inefficient way to do things, but better than being choked out of business by the processing plant operators.

Referee's Information

The dispute is the result of a deliberate attempt by Interstellar Minerals LIC to force the mining companies to agree to a higher fee for processing. Similarly, IM wants to control the port, thus gaining a monopoly on all operations on Dismal Hole. Three of the five mine companies have caved in, and are now being coerced into fighting IM's battles for it in return for minor concessions.

In just a few weeks, the pressure will be too great and the remaining mine corps will have to either agree to the new deal or pack up and leave. But Rockrip's plan might just derail the operation. Interstellar Minerals will not tolerate this, and plans to move directly against Rockrip if necessary.

The characters may become involved in this situation in several ways. They may be the free trader crew, innocently thinking that all they have to do is to deliver equipment and shuttle ore from a remote location. They might be engineers or miners, caught in the middle, or they might be freelance security professionals brought in by one side.

Whatever part the characters play, tensions will rise steadily, violence will increase, and IM will eventually learn where the ore processing plant has been set up (it's hard to hide such things). Attempts will be made first to sabotage it, and if that fails, a direct assault by security personnel (armed mainly with SMGs and shotguns) will be made using ATVs and mine buggies. The fight will be a very nasty affair, fought in rugged airless terrain by vacc-suited miners and security personnel. Many improvised weapons such as seismic charges and laser drills can be brought into play.

Nobody will fight to the death, but there is a lot of anger on both sides, so the fighting will be very bloody.

Subsequent events are up to the Referee.

SHORT ADVENTURES

Unlike patron encounters and Amber Zones, a short adventure is a fully detailed scenario restricted only by its length, that focuses primarily on a single interesting situation or location, and provides relatively detailed background and data that will be need to run the scenario. This would usually include complete maps or deckplans, descriptions, detailed situations, animal encounters, and other similar information.

THE EPIC ADVENTURE SYSTEM

The problem with many adventures is that they are very 'linear' in design, in that encounter one typically leads to encounter two, which inevitably leads to encounter three, ad-nauseum. This is fine until you get player characters involved who always seem to want to go from encounter one, to encounter twelve, back to encounter three, then over the woods to an area you haven't developed yet, and general cause mayhem to the plot of an otherwise well-planned adventure.

The Epic Adventure System provides a new way to design and organize adventures, that allows the player characters the 'freedom to roam' without causing the Referee nightmares. An Epic Adventure is broken down into 6 parts:

THE CAST OF CHARACTERS

The Background - The background provides the Referee with the information needed to prepare himself, and lay the groundwork for introducing this adventure to the players.

Minor Scenes - Minor Scenes (usually just referred to as 'Scenes'), are encounters or events that involve the player characters in some form. Many are directly related to the adventure, and may provide clues, equipment, or other information and materials needed to eventually complete the adventure. Others are merely to provide diversion and amusement. Scenes, unless noted in their descriptions, do not need to be played in any particular order, and may be sprung upon the player characters when the Referee deems appropriate.

Plot Keys - Plot Keys (or simply 'Keys'), make up the

heart of the storyline for the adventure. They contain critical pieces of the plot and must be played for the adventure to make any sense to the players in the end. You may play any number of Scenes before and after each Plot Key, but each Plot Key should eventually be completed in their proper order.

Chapters - A Chapter is made up of one of more Plot Keys, and probably one or more Scenes. They outline the plot to the Referee, and provide tips and information for playing the Scenes and Plot Keys that are contained in the Chapter. In order to complete a Chapter, each Plot Key within must be completed. Each Chapter must be played in order to successfully run the adventure.

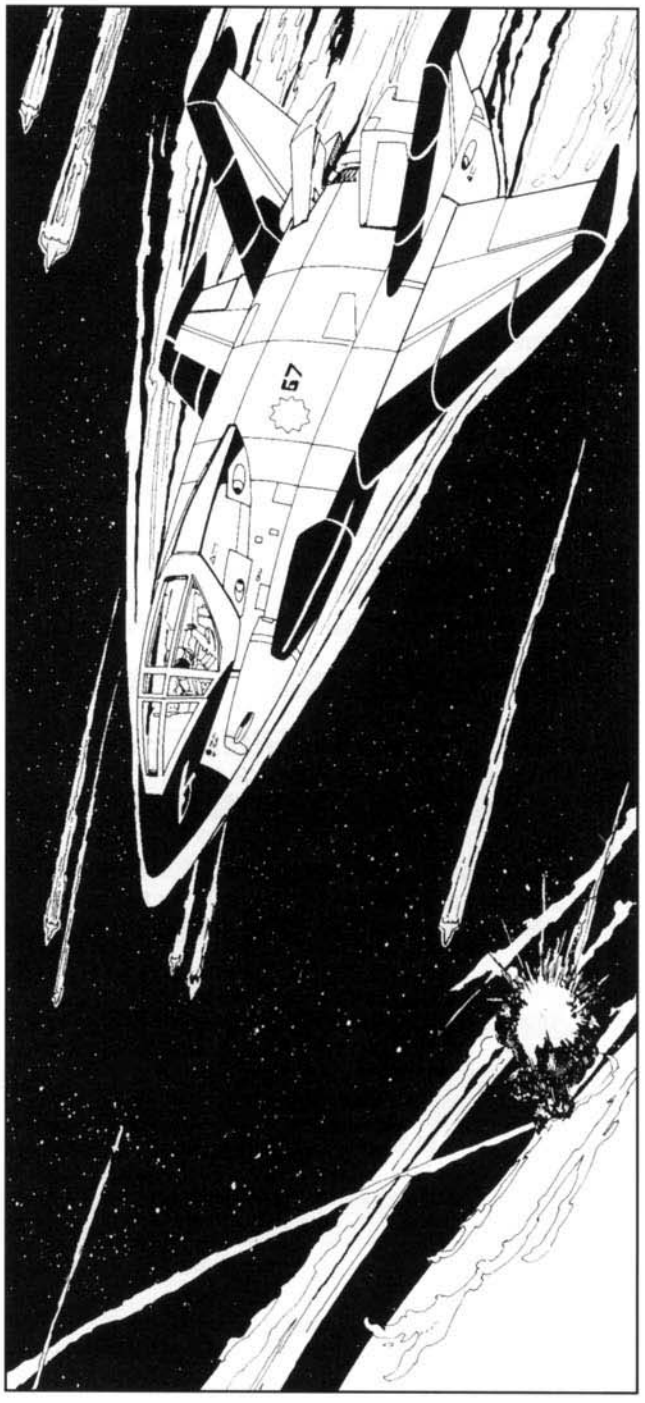
Because of the 'cinematic' nature of the Epic Adventure system, it is easy for the Referee to allow the characters to temporarily deviate from the current adventure storyline to follow a false lead or pursue another short adventure that has interested them. When the PCs are ready to return to this adventure plot line, simply pick up with the next Scene.

Adventure Checklist - The Adventure Checklist provides newer Referees a recommended guideline of the order in which various Scenes and Plot Keys in this adventure should be presented to the players. As the characters complete each Scene or Plot Key, the Referee simply checks it off the list. When every Plot Key in a Chapter has been played, that Chapter has been completed the Referee may begin the first Scene in the next Chapter.

You will note that not every Minor Scene is included in the Checklist. This allows Referees who would like to use the Checklist, but would like to change things a little bit to swap out scenes, or included their own custom scenes. If you feel comfortable in letting your characters stray from the order of the checklist, you may determine the 'cinematic' order of the scenes as you see fit, or use a weekly events chart like the one below to determine the course of events.

This weekly events chart has been created for an adventure in which the characters spend several weeks in the outback searching for lost ruins in the hope of finding historical artifacts.

2d6	*Weekly Event*
2-8	Play a Minor Scene/Find a Ruin
9-11	Starport Run. The Professor has some errand requiring the characters to go to the local starport for the week.
12	Plot Key



Play a Minor Scene - Select one of the Minor Scenes detailed later and run the scene as directed.
Starport Run - This is an excuse and an opportunity to bring in sideline encounters, patrons and scenarios unrelated to this adventure.
Play a Plot Key - Plots Keys should be played in the correct order for the adventure to make sense to the players. If you change the order of the Plot Keys, you should be

sure to adjust any of the other scenes to ensure the adventure flows properly and makes sense.

REWARDS AND ADVANCEMENT

Traveller enemies rarely have boxes of Credits lying around their lair to be picked up by victorious adventurers. Valuables can of course be taken from defeated enemies, but Traveller characters generally earn their wealth in other ways. Commonly, this is payment for a task undertaken. Governments, corporations and affluent individuals often seek to hire experts to solve their problems, and are generally willing to pay well for expertise (or deniability) that would not otherwise be available.

Payment (or reward) for a task is not always in hard currency, of course. Characters may receive their reward in terms of useful information, a favour, a preferential fuel price or the cancellation of a legal penalty. Alternatively, payment can be in kind. Characters may find themselves in part-ownership of a merchant cargo, entitled to a cut of the profits (if any). Shares or land deeds are not uncommon as rewards, too.

Finally, reward can take the form of positions and titles. The reward for a job well done may be a position as security advisor, or commander of a military unit. It may be a prestigious (but otherwise empty) title. Some worlds can grant characters titles within their local nobility, or a character may even be elevated to the Imperial nobility.

Naturally, the promised reward is not always delivered, nor is it always what was expected. That can spark a whole new adventure.

The other reward for success in the game is character advancement. Traveller does not reward 'hack & slay' adventuring and thus does not typically hand out experience points just for shooting people (however much they may deserve it).

The amount of experience earned by a party of characters upon completion of an adventure depends on the type of adventure and how difficult it was for the characters to complete it (successfully or unsuccessfully).

EXPERIENCE REWARDS AND ADVANCEMENT

Adventure Type	*XP Award*
Random Encounter	100-600XP or the XP value of any creature(s) fought whichever is greater.
Patron Encounter	1,000XP x the average party level
Amber Zone	2,000XP x the average party level
Short Adventure	3,000XP x the average party level
Full Adventure	4,000XP x the average party level

Difficulty	*XP Modifier*	*Example*
Trivial	x1/4	The characters could have completed the adventure in their sleep.
Minor	x1/2	The worst that might have happened is a character lost the keys to the vehicle.
Average	x1	A few characters may have been injured, or the party ran into some other fairly minor difficulties in getting the job done.
Hard	x1.5	There were a couple of times during the course of events that posed real challenges for the characters to overcome.
Difficult	x2	One or more of the characters was seriously injured, died, or other major difficulties were run into during the adventure.
Impossible	x3	The characters barely survive the ordeal; those still standing are in a state of shock.

Other Experience Awards

Per Week of Full-Time Work: 20XP. If a character is spending the majority of their time using s a skill or feat for gainful purposes during a given week, he or she is considered to have been working and earns 20xp. This does not include practicing, training, etc.

Per Week of Part-Time Work: 10XP. If a character uses a skill or feat for gainful purposes during a given week, he or she is considered to have been working and earns 10XP. This does not include practicing, training, etc.

Per Week Not Working: 5XP. If a character is specifically on shore leave, vacation, or otherwise does not use a skill or feat for gainful purpose during a given week they will earn 5XP.

Good Roleplaying: 10-50XP. At the Referee's discretion, he or she may award individual characters extra experience points (10-50) for good roleplaying on the part of the player.

APPENDIX I: FRIENDS AND ENEMIES

The d20 Game system requires a sizable number of stats for each character or creature during all combat encounters. This appendix provides referees with some sample/example stat blocks that they may use or reference, especially for encounters that occur "on the fly".

The character and animal stat blocks presented in this appendix are meant to be "Average". Each is therefore designed with average ability scores for race and average Stamina points for class. They may be adjusted as necessary for stronger or weaker encounters.

NPC Stats: Since the bulk of the NPCs that follow are human, most ability scores are set at either a 10 or 11 for first level and rise at the normal pace with experience levels. Non-humans' ability scores are adjusted by their race's ability modifiers, from the same base. For example, a human character at first level might be Str 11, Dex 11, Con 11 but a Vargr would be Str 9, Dex 13, Con 9 because of racial modifiers.

NPCs who have the Mercenary character class automatically have a starting Strength of at least 12. This is to comply with the entry requirements of the class. The examples of Imperial Marines given in the book have Str, Dex and Con of 12 each, due to the Marines' rigorous training regime and selective recruiting.

Because of the various possibilities for gaining experience, age has not been factored into the stats given for these characters. Furthermore, all the stats provided can be used for male or female NPCs interchangeably, except for the Aslan Marines who must be male for social and cultural reasons.

READING THE STAT BLOCKS

Here is a sample of the sort of stat block used in the book:

Main Block: The main block will list the name of the NPC or creature, the type or class(es), and all pertinent combat related information the referee may need to use this NPC or creature during an encounter.

Skill Line: The next line contains all of the character's skills and the total skill bonus, including skill ranks, ability bonuses, racial bonuses, and the feat bonuses that always apply. For example, a Skill Focus in a skill will always be included in the total, but the bonus from EW specialist will not because it only applies in certain circumstances.

Feat Line: The complete list of all feats the character possesses. Vessel, Armor, and Weapon Proficiency feats are each grouped together; so Vessel (grav, wheeled, ship's boat) means the character possesses Vessel: Grav, Vessel Wheeled, and Vessel: Ship's Boat.

Equipment: The noteworthy equipment that the character carries. For weapons that require ammunition, military characters are assumed to have 6 magazines for each (high energy and lasers excepted), and non-military characters to be carrying 3 magazines. Characters with arrows or black powder weapons are assumed to have a load of 30 shots.

Special Abilities: List for animals only, and then only if the creature has some form of special ability or attack. Details for such abilities will normally be detailed in the text description of the creature itself.

Climate/Terrain: The most common natural environments these types of animals are found in. List for animals only.

Organization: Listing the numbers and type of groups the creature normally organizes into for protection and socialization.

SECTION 1: CIVILIANS

The first section covers the non-military characters that the players might encounter on a world surface.

BANDITS/GUERRILLAS

These characters represent the average foot soldiers in bands of rural robbers or bandits, the flunkies of tribal warlords, guerrillas and peasant revolutionaries.

Regular Bandit: Human Rogue 4/Mercenary 2; TL 5+; Init +0; AC 12 (+2 jack); AR 2 (jack); Spd 9m (6 sq); St/Lb 37/12; Atk +6 melee (fist 1d4+1/20), +5 melee (machete 1d6+1/19), +5 ranged (rifle 1d12/x3), +5 ranged (assault rifle 1d12/x2); SV Fort +5, Ref +4, Will +3; SZ M; Str 12, Dex11 Con12, Int 10, Wis 10, Cha10, Edu 6, Soc 5.

Skills: Hide +11, Move Silently +11, Spot +11, P/Hunting +7, Listen +9, Driving +0

Feats: Vessel (wheeled), Weapons (marksman, combat rifleman, swordsman), Armor (light, medium, vac suit), Stealthy, Alertness, Tracker, Brawling, Spot Trouble, Sneak Attack (+1d6), Evasion, Point Blank Shot

Equipment: jack armor, rifle or assault rifle, machete.

BARBARIAN WARRIORS

These NPCs are used for the typical low-tech tribesmen that the players inevitably meet at some point in their adventures. At tech level 0 they are unarmored and carry only a spear. At tech levels 1-3 they will have padded armor (unless in a tropical locale) and a large wooden shield and perhaps a sword or axe as well.

Regular Barbarian: Human Barbarian 6; TL 0-3; Init +0; AC 13 (+1 padded, +2 shield); AR 0; Spd 9m (6sq); St/Lb 47/13; Atk +7/+2 melee (spear 1d8+2/20x2), +6/+1 melee (sword 1d8), +6/+1 melee (axe 1d6), +7/+2 melee (fist 1d4); SV Fort +6, Ref +2, Will +3;SZ M; Str 11, Dex 11 Con 12, Int 10, Wis 10, Cha 10, Edu 4, Soc 10.

Skills: Hide +9, Move Silently +9, Spot +7, Listen +6

Feats: Armor (light, shield), Weapons (archer, swordsman, armsman), Weapon Focus: lt. spear, Weapon Specialization (lt. spear), Alertness, Brawling, Run, Toughness

Equipment: light spear and if TL 1-3: padded armor and large wooden shield, some have sword or axe as well.

FUNCTIONARY

If 25 years of the unfolding of the Traveller experience has proven anything, it is that sooner or later somebody is going to try to shoot the clerk, kidnap the corporate official or beat the bureaucrat's head in. Here are the stats to help that process along. Most functionaries will be unarmed, but body pistol, sword and dagger stats are included in case they are needed. Mid-Tech functionaries will have Vessel (wheeled) and Driving skill, High-Tech functionaries will have Vessel (grav) and Pilot skill.

Regular Functionary: Human Professional 6; TL 5+; Init +0; AC 10; AR 0; Spd 9m (6sq); St/Lb 22/10; Atk -3 ranged (body pistol 1d6/20), -3 melee (sword 1d8/20x2), -3 melee (dagger 1d4/19), -3 melee (fist 1d3/20); SV Fort +2, Ref +2, Will +5; SZ M; Str 10, Dex 10 Con 10, Int 11, Wis 10, Cha 11, Edu 12, Soc 10+.

Skills: Pilot or Drive +9, P/Admin +13, Liaison +9, Appraise +9, T/Computer +10, T/Communications +10, K/Interstellar Law +12, Speak Language (choose).

Feats: Vessel (grav or wheeled), Armor (light), Connections (professional), Research, Barter, Trustworthy, Credit Line, Professional Specialty (choose), Carousing, Skill Focus Admin, Legal Eagle

Equipment: perhaps communicator, perhaps sword or dagger or body pistol

GUARDS (MIDDLE TECH)

These are typical security guards, bodyguards, starport guards and police patrolmen for tech levels 5 through 9. They are outfitted with flak jackets, as if expecting trouble, but this can be reduced to no armor in lower risk environments. Most will carry an auto-pistol and baton, but often will have a shotgun (riot gun) nearby as well.

Regular Guard: Human Mercenary 6; TL 5-9; Init +1 (+1 Dex); AC 15 (+1 Dex, +4 flak jacket); AR 4 (flak jacket); Spd 9m (6sq); St/Lb 33/11; Atk +7/+2 melee (baton 1d6+1/20), +8/+3 ranged (auto-pistol 1d10+2/20x2), +7/+2 ranged (riot gun 3d6/2d6/1d6/20), +8/+3 melee (fist 1d4+1/20); SV Fort +5, Ref +3, Will +3; SZ M; Str 12, Dex 12 Con 11, Int 10, Wis 10, Cha 10, Edu 10, Soc 10.

Skills: Driving +10, Listen +11, Spot +11

Feats: Vessel (wheeled), Armor (light, medium, vac suit), Weapon (marksman, combat rifleman, armsman), Evasion, Brawling, Alertness, Quick Draw, Defensive Roll, Weapon Focus: auto pistol, Weapon Specialization; auto pistol

Equipment: flak jacket, auto-pistol, baton, (access to riot gun).

GUARDS (HIGH TECH)

These are typical security guards, bodyguards, starport guards and police patrolmen for tech levels 10 and beyond. Unlike their lower tech counterparts, high tech guards are required to have extensive training in various tech skills. As a result, they are multi-classed professional/mercenaries. They are outfitted in combat environment suits for dangerous duty. Each guard carries a shock baton, snub pistol and a variety of ammunition. Guards in higher-risk situations will carry a Snub SMG too. The guns will be fitted with a Heads-Up Display giving an included +3 to hit. In rural situations they will often have a light ACR with HUD display.

Regular Guard: Human Professional 3/Mercenary 3; TL 10+; Init +1 (+1 Dex); AC 17 (+6 CES, +1 Dex); AR 6 (CES); Spd 6m (4sq); St/Lb 26/11; Atk +7 ranged (snub pistol 1d10/20), +4 melee (shock baton 1d6+1d6+1/20), +7 ranged (snub smg 1d10/20); +7 ranged (light ACR 1d12/20), +5 melee (fist 1d4+1/20); SV Fort +4, Ref +3, Will +5; SZ M; Str 12, Dex12 Con11, Int 10, Wis 10, Cha10, Edu 11, Soc 10.

Skills: Pilot +4, Spot +5, Listen +5, P/Security+6, T/Electronics +6, T/Communications +6, T/Computer +6, T/Sensors +6, K/Interstellar Law +8, P/Admin +8, Sense Motive +5

Feats: Vessel (grav), Armor (light, medium, vac suit), Weapons (armsman, marksman, combat rifleman), Alertness, Quick Draw, Professional Specialty (Security), Brawling, Interrogation, Legal Eagle, Skill Focus: Sense Motive

Equipment: Combat Environment Suit, Snub pistol with HUD, shock baton, access to Snub SMG with HUD or Light ACR with HUD.

STREET THUGS

The selection of Average Street Thugs below are best used as petty muggers, paid "muscle", enforcers and gunmen of urban criminal gangs. These aren't the smugglers, con men or forgers, just the simple goons that the players always seem to wind up running afoul of. These stats can also be used for bodyguards and minor henchmen to master villains.

Regular Thug: Human Rogue 6; TL 5+; Init +5 (+1 Dex, +1 Improved Initiative); AC 13 (+2 jack, +1 Dex); AR 2 (jack); Spd 9m (6sq); St/Lb 32/12; Atk +5 melee (fist 1d4/20), +4 melee (dagger 1d4/19), +4 ranged (shotgun 3d6/2d6/1d6/20), +4 ranged (revolver 1d10/x2), +4 ranged (auto-pistol 1d10/x2), +4 ranged (SMG 1d10/x2); SV Fort +2, Ref +6, Will +2; SZ M; Str 11, Dex 12 Con 11, Int 10, Wis 10, Cha 10, Edu 6, Soc 5.

Skills: Driving +10, Innuendo +9, Intimidate +9, Listen +11, Spot +11

Feats: Vessel (wheeled), Weapons (marksman, swordsman), Armor (light, medium), Alertness, Toughness, Brawling, Improved Initiative, Spot Trouble, Quick Draw, Point Blank Shot

Equipment: jack armor and 1-2 of the following: revolver, autopistol, shotgun, SMG, dagger.

SECTION 2: STARSHIP CREWS

The NPCs in this section are those likely to be found on the various types of starships and space vessels in the Imperium.

BELTERS

These are rough-and-tumble asteroid miners and deep-space workers, ubiquitous across Charted Space. Most belter ships will have a few snub pistols, shotguns and carbines on board for security purposes, and belters are known for an almost pathological reluctance to remove their vac suits.

Regular Belter: Human Belter 6; TL 12+; Init +0; AC 13 (+3 vac suit); AR 3 (vac suit); Spd 6m (4sq); St/Lb 22/10; Atk +3 ranged (snub pistol 1d10/20), +3 ranged (shotgun 3d6/2d6/1d6/20), +3 ranged (carbine 1d10/20x2), +4 melee (fist 1d4/20); SV Fort +2, Ref +2, Will +6; SZ M; Str 11, Dex 11 Con 10, Int 10, Wis 12, Cha 10, Edu 10, Soc 10

Skills: Appraise +9, K/Mining +10, P/Prospecting +10, T/Engineering +9, Demolitions +9, Gunnery +6, K/Geology +5, Search +5, Pilot +4.

Feats: Vessel (grav, ship's boat, starship), Armor (light, vac suit), Weapons (marksman, ship's weapons), Zero-G/Low-G Adaptation, Improved Zero-G adaptation, Brawling, Geological Survey, 3-D awareness

Equipment: Vac Suit-12, Snub pistol or shotgun or carbine, tool kit

VARGR CORSAIR CREW

These are the Vargr crewmembers of a piratical spacecraft.

Regular Corsair: Vargr Traveller 6; TL 12+; Init +1 (+1 Dex); AC 14 (+3 vac suit, +1 Dex); AR 3 (vac suit); Spd 9m (6sq); St/Lb 21/10; Atk +5 melee (claw 1d4-1/20), +5 melee (bite 1d6+2), +4 ranged (snub pistol 1d10/20), +4 ranged (laser carbine 3d8/20); SV Fort +2, Ref +4, Will +3; SZ M; Str 9, Dex 13, Con 10, Int 10, Wis 10, Cha 10, Edu 11, Soc 10, Pres 3.

Skills: Pilot +10, Gunnery +9, Gambling +9, Any 3 technical skills +9

Feats: Vessel (grav, starship, ship's boat), Weapon (marksman, laser, ship's weapons), Armor (light, medium, vac suit)

Equipment: laser carbine or snub pistol, vac suit TL-12, medium range communicator

MERCHANT CREW

These are typical crewmen on merchant space vessels, be it free traders or corporate liners. They are presented equipped to "repel boarders" and so are in vac suits, carrying snub pistols and makeshift weapons. Additionally stats for a shotgun are provided for when the merchant crew turns out to be a bit more heavily armed. In the skill and feat list for each level, there are several choices: one for bridge crew, one for technical crew and one for trade crew; gunners should be taken from the Navy stats. Merchant crew can be used for the crew of smuggler ships and the "less professional" pirate ships. Note that a "lead pipe" is a representative weapon - any heavy blunt object found lying around will do in a pinch.

Regular Merchant Crew: Human Merchant 6; TL 12+; Init +0; AC

13 (+3 vac suit); AR 3 (vac suit); Spd 6m (4 sq); St/Lb 22/10; Atk +1 ranged (snub pistol 1d10/20), +2 melee (fist 1d4/20), +1 melee (lead pipe 1d4/20), +1 ranged (shotgun 3d6/2d6/1d6/20); SV Fort +3, Ref +2, Will +3; SZ M; Str 10, Dex 10, Con 10, Int 11, Wis 11, Cha 10, Edu 12, Soc 10.

Skills: all: Pilot +9, P/Merchant +9, K/Trade Law +10, Appraise +9, Gather Info +9

a) Bridge Crew: T/Astrogation +10, T/Computer +10, T/Sensor +10

b) Tech Crew: T/Engineering +10, T/Mechanical +12, T/Electronics +12

c) Trade Crew: Trader +11, Broker +11, Liaison +9

Feats: all: Vessel (grav), Armor (light, vac suit), Weapons (Marksman), Barter, Brawling, Connections (merchant), Zero-G/Low-G Adaptation, First Aid

a) Bridge Crew: Vessel (ship's boat, starship), Hacker

b) Tech Crew: Jury Rig, Gearhead. Miracle Worker

c) Trade Crew: Steward, Calculating Eye, Chief Steward

Equipment: vac suit, snub pistol, lead pipe.

NAVAL CREW

Here are the crewmen of Imperial, Subsector and Planetary Naval Ships. All are equipped for hazardous or security duties in their vac suits, carrying a semi-automatic snub pistol or a laser carbine.

For lower tech Planetary navies you can change the tech-14 vac suit for a lower tech model, but everything else would remain the same. Under skills and feats, there are 3 options provided for each level: Flight Crew, Engineering Crew and Gunnery crew (which includes security). Naval gunnery crew stats can be used for gunners on merchant ships as well. The stats for Naval crewmen are also useable for the crew on the better Star Merc and Pirate vessels.

Regular Naval Crew: Human Navy 6; TL 14-15; Init +0; AC 12 (+2 vac suit); AR 2 (vac suit); Spd 6m (4sq); St/Lb 22/10; Atk +6 ranged (snub pistol 1d10/20), +6 ranged (laser carbine 3d8/20), +4 melee (fist 1d4/20); SV Fort +2, Ref +2, Will +5; SZ M; Str 10, Dex 10, Con 10, Int 11, Wis 11, Cha 10, Edu 12, Soc 11.

Skills: all: Pilot +9, T/Computer +10, P/Administration +9, Liaison +9

a) Flight: T/Astrogation +10, T/Communications +10, T/Sensors+10,

b) Engineering: T/Engineering +10, T/Mechanical +12, T/Electronics +12

c) Gunnery: Gunnery +11, Forward Observer +10, T/Sensors +10

Feats: all: Vessel (grav), Armor (light, vac suit), Weapons (marksman, laser), Brawling, Zero-G/Low-G adaptation, Zero-G combat, First Aid

a) Flight: Vessel (starship, ship's boat), Ship's Tactics

b) Engineering: Jury Rig, Damage Control, Gearhead

c) Gunnery: Weapons (ship's weapons), Skill Focus: Gunnery, Heavy Metal

Equipment: vac suit-14, combat snub pistol or laser carbine with HUD.

SCOUT CREW

These characters represent the typical crews of courier, express boat and survey vessels. They can also be used for crewmen on private yachts, science vessels and for pirates. Aboard ship they likely will carry a laser pistol, but while exploring a planet surface they may also carry a carbine.

Regular Scout: Human Scout 6; TL 14+; Init +1 (+1 Dex); AC 13 (+2 vac suit, +1 Dex); AR 2 (vac suit); Spd 6m (4sq); St/Lb 34/11; Atk +5 ranged (laser pistol 2d10/20), +5 ranged (carbine 1d10/20x2), +6 melee (fist 1d4/20); SV Fort +2, Ref +4, Will +3; SZ M; Str 10, Dex 12, Con 11, Int 10, Wis 11, Cha 10, Edu 10, Soc 10.

Skills: Pilot +10, T/Engineering +9, T/Communications +9, P/Survey +5, Gunnery +4, Survival +5, Gather Info +4

Feats: Vessel (grav, starships, ship's boat), Armor (light, vac suit), Weapons (marksman, laser, ship's weapons), Brawling, Jack of All Trades, Zero-G/Low-G adaptation

Equipment: vac suit-14, carbine or laser pistol, communicator, hand computer

SECTION 3: MILITARY

This section details the members of organized ground combat military forces.

LOW TECH INFANTRY

Low Tech infantry are guards, retainers and soldiers found on tech level 1-4 planets. These NPCs can be used interchangeably for military, police and private guards at these tech levels. Swords, shields and studded leather armor are available at all the tech levels, but at tech levels 2-4, a bow, musket, crossbow or halberd can be substituted for the shield.

Regular Trooper-Low Tech: Human Army 6; TL 1-4; Init +0; AC 15 (+3 studded, +2 shield); AR 1 (studded); Spd 9m (6sq); St/Lb 29/12; Atk +5 melee (sword 1d8+3/20x2), +4 melee (halberd 1d10+1/19), +4 ranged (crossbow 1d10/19), +4 ranged (war bow 1d8/20x2), +4 ranged (musket 1d10/20x2); SV Fort +2, Ref +4, Will +2; SZ M; Str 12, Dex11, Con 11, Int 10, Wis 10, Cha 10, Edu 8, Soc 10.

Skills: Spot +9, Ride +9, Gather Info +9, Survival +9, Gambling +9

Feats: Armor (light), Weapons (swordsman, armsman, archer or black powder), Weapon focus: sword Weapon Specialization: sword, shield proficiency, Mounted Combat, Toughness

Equipment: studded leather armor, large wooden shield, and sword. May replace shield with bow, crossbow, musket or halberd.

MIDDLE TECH INFANTRY

These are typical army troopers for tech levels 5 through 8. They can be used for infantry troops, spotters, scouts or artillery gunners. These NPCs can be used as gunners in vehicles firing cannon, mortars or machineguns as well.

Regular Trooper- Mid Tech: Human Army 6; TL 5-8; Init +1 (+1 Dex); AC 15 (+4 flak jacket, +1 Dex); AR 4 (flak jacket); Spd 9m (6sq); St/Lb 26/11; Atk +5 ranged (assault rifle 1d12+2/20x2), +5 melee (bayonet 1d8/20x2), +5 melee (fist 1d4/20); SV Fort +2, Ref +6, Will +2; SZ M; Str 11, Dex 12, Con 11, Int 10, Wis 11, Cha 10, Edu 10, Soc 10.

Skills: Spot +9, Driving +10, Survival +9, Forward Observer +9, Gunnery +9

Feats: Vessel (wheeled), Armor (light), Weapons (marksman, combat rifleman, armsman, field artillery), Weapon Focus (assault rifle, bayonet), Weapon Specialization (assault rifle), Brawling

Equipment: flak jacket, assault rifle, 2 HEAP grenades, 2 fragmentation grenades, bayonet, medium ranged radio

MIDDLE TECH VEHICLE CREW

These are typical army troopers assigned to ground or air vehicles for tech levels 5-8.

Regular Crew- Mid Tech: Human Army 6; TL 5-8; Init +1 (+1 Dex); AC 15 (+4 flak jacket, +1 Dex); AR 4 (flak jacket); Spd 9m (6sq); St/Lb 26/11; Atk +4 ranged (smg 1d10/20x2), +4 ranged (auto-pistol 1d10/20x2), +5 melee (fist 1d4/20); SV Fort +2, Ref

+6, Will +2; SZ M; Str 11, Dex 12, Con 11, Int 10, Wis 11, Cha 10, Edu 10, Soc 10.

Skills: Spot +9, Driving +10, Pilot +10, Forward Observer +9, Gunnery +9

Feats: Vessel (wheeled, and tracked or aircraft (choose)), Armor (light), Weapons (marksman, combat rifleman, heavy weapons, field artillery), Brawling, Heavy Metal, Vessel Specialization (choose)

Equipment: flak jacket, SMG or auto-pistol

SYDITE BRUTE SQUAD TROOPERS

Throughout the Trailing Frontier, Braknak Security LIC (a.k.a. "The Brute Squad") is famous for providing gunmen by the day, week or month in squads, platoons and companies. Recruited exclusively from the Sydite minor human race, these hulking four-armed humanoids are usually found working as guards and as light infantry on low to middle tech planets. Braknak arms its troops to TL-8 standards and so they pose no threat to Imperial interests, but are useful to corporations and local despots. On combat detail they usually are issued the heavy and intimidating Light Assault Gun with HE ammo, while on guard duty they are usually issued with military shotguns.

Regular Brute: Sydite Mercenary 6; TL 8; Init +2 (+2 Dex); AC 16 (+4 flak jacket, +2 Dex); AR 4 (flak jacket); Spd 9m (6sq); St/Lb 38/14; Atk +9/+4 melee (fist 1d4 +1/20), +8/+3 ranged (LAG-HE 3d10/20), +8/+3 ranged (shotgun 3d6/2d6/1d6/20); SV Fort +6, Ref +4, Will +1; SZ M; Str 13, Dex 14, Con 13, Int 8, Wis 8, Cha 8, Edu 8, Soc 9.

Skills: Driving +2, Spot +8

Feats: Vessel (wheeled, tracked), Armor (light, medium, vac suit), weapons (combat rifleman, marksman), Toughness, Point-Blank Shot, Brawling, Rapid Shot

Equipment: flak jacket, either light assault gun or military shotgun

HIGH TECH ARMY TROOPS

These represent army troopers at TL12, but are only different in some equipment details for higher-level army troops. They are useable as infantry, vehicle or artillery troopers. Infantry will have a gauss rifle, with one PGMP-12 per squad, but vehicle or artillery troops will usually have a lighter Snub SMG instead.

Regular Trooper- High Tech: Human Army 6; TL 12; Init +1 (+1 Dex); AC 20 (+7 combat armor, +2 chameleon, +1 Dex); AR 7 (combat armor); Spd 6m (4sq); St/Lb 26/11; Atk +8 ranged (gauss rifle 2d12/20x2), +8 ranged (PGMP-12 6d12/18x2), +8 ranged (snub smg 1d10/20), +5 melee (fist 1d4/20); SV Fort +2, Ref +6, Will +2; SZ M; Str 11, Dex 12, Con 11, Int 10, Wis 11, Cha 10, Edu 11, Soc 10.

Skills: Pilot +10 T/Sensors +9, Spot +9, Gunnery +9, Forward Observer +9

Feats: Vessel (grav), Armor (light, medium, vac suit), Weapons (marksman, combat rifleman, field artillery, high energy, heavy weapons), Weapon Focus (gauss rifle and pgmp-12 or snub smg), Heavy Metal, Brawling

Equipment: Combat Armor 12 plus Chameleon-12, gauss rifle or pgmp-12 with HUD displays. Vehicle crews have snub SMG. Infantry troops will have 1-8 grenades too.

VARGR MERCENARIES

These are typically encountered Vargr space mercenaries and can be used as the ship's troops on Vargr Corsair and merchant vessels as well as troops for hire throughout the Coreward areas of the Imperium.

Regular Vargr Merc: Vargr Mercenary 6; TL 12; Init +2 (+2 Dex); AR 19 (+7 combat armor +2 Dex); AR 7 (combat armor); Spd 9m (6sq); St/Lb 28/9; Atk +11/+6 ranged (laser rifle 3d10/20), +11/+6 ranged (snub smg 1d10/20), +4/-1 melee (blade 1d6+1/19), +9/+4 melee (claw 1d4+1/20), +9/+4 melee (bite 1d6+4/20); SV Fort +4, Ref +4, Will +3; SZ M; Str 12, Dex 14, Con 9, Int 10, Wis 10, Cha 10, Edu 10, Soc 10, Pre 5.

Skills: Pilot +11, Gunnery +9

Feats: Vessel (grav), Armor (light, medium, vac). Weapons (combat rifleman, lasers, marksman, field artillery, heavy weapons), Zero-G Combat, Point Blank Shot, Evasion,

Equipment: Combat Armor-12, blade and Laser Rifle or snub SMG with HUD

ASLAN SHOCK TROOPS

These are the shock infantry of Tech-12 Aslan clan and younger-son fleets. They can be seen guarding colonies, raiding their rivals and working as mercenaries throughout the Spinward Frontiers.

Regular Aslan Trooper: Aslan Marine 6; TL 12; Init +0; AC 19 (+7 combat armor, +2 chameleon); AR 7 (combat armor); Spd 12m (8sq); St/Lb 38/12; Atk +11/+6 ranged (gauss rifle 2d12/20x2), +10/+5 ranged (PGMP-12 6d12/18x2), +8/+3 melee (dewclaw 1d6+1/20); SV Fort +5, Ref +2, Will +4; SZ M; Str 13, Dex 10, Con 11, Int 10, Wis 8, Cha 10, Edu 10, Soc 10.

Skills: Spot +8, Demolitions +5, Pilot +4

Feats: Vessel (grav), Armor (light, medium, vac suit), Weapons (marksman, combat rifleman, swordsman, high energy), Weapon focus (gauss rifle), Zero-G Combat, Second Wind, Toughness, High Morale

Equipment: combat armor-12, chameleon-12, either gauss rifle or PGMP-12 with HUDS, personal medkit, communicator, 1-8 grenades.

IMPERIAL MARINES

This is the players' worst nightmare - the Marines, loaded for bear. Unlike other "average" characters the marines start with STR, DEX and CON of 12. Those described here are infantry troops from a regular Line or Fleet unit, not battle-dress armored heavy strikers.

Regular Imperial Marine: Human Marine 6; TL 15; Init +1 (+1 Dex); AR 23 (+8 combat armor, +4 chameleon, +1 Dex); AR 8 (combat armor); Spd 6m (4sq); St/Lb 44/14; Atk +11/+6 ranged (gauss rifle 2d12/20x2), +10/+5 ranged (FGMP-15 9d20/18x2), +8/+3 melee (cutlass 1d8+1/18x2), +8/+3 melee (fist 1d4+1/20); SV Fort +6, Ref +3, Will +5; SZ M; Str 12, Dex 12, Con 13, Int 10, Wis 10, Cha10, Edu 10, Soc 10.

Skills: Spot +9, Demolitions +6, Pilot +5, Forward Observer +5, Survival +4

Feats: Vessel (grav), Armor (light, medium, vac suit), Weapons (marksman, combat rifleman, swordsman, high energy), Weapon focus (cutlass, gauss rifle), Brawling, Zero-G Combat, Second Wind, Toughness, High Morale

Equipment: combat armor-14, chameleon-14, either gauss rifle or FGMP-15 with HUDS, personal medkit, communicator, 1-8 grenades, cutlass.

SECTION 4: ANIMALS

TALKAN'S GRAZER

Talkan's Grazer is one of those unlikely-looking creatures that nevertheless has made itself a big success on many worlds. This large, normally docile grazer is found on many worlds, wherever it has been transplanted by colonists seeking a food animal. Somewhat larger than a Terran cow, the beast is little more than an eating machine. Its tubby body and short limbs are covered in dowdy gray fur, which is long and grows thickly, giving rise to the

nickname "Steakhamster" among colonists of Solomani descent. The neck is quite long (though its proportions are normally hidden by fur) and the pointed, slender face can reach up and into bushes and even small trees to find edible shoots.

Talkan's Grazer normally moves in herds of 8-12 beasts, of which all will be female or immature. Defense of the herd is normally accomplished by flight or by the younger females of the group, which dash in from the sides of a predator and bite its flanks.

A Steakhamster bite can seriously injure a human, though normally they are extremely docile and thus make excellent herd-beasts. Talkan's Grazer is an incredibly stupid beast, however, and will occasionally try to eat something wholly inappropriate (for example cables, brickwork, or a herder).

The male of the species is completely untameable. Thus any world that has wild or domestic herds of Talkan's Grazers also has the odd wild male. These are territorial and solitary, driving off or killing rivals in vicious battles. Occasionally a Steakhamster male goes rogue and attacks humans. Hunters are sent out to bring down the beast in this case; a necessary task but one despised by most professional hunters. Some say this is because they respect the wild nobility of the beast, but the real reason is that hunters get faintly embarrassed at the prospect of hunting (and perhaps being killed by) a gigantic long-necked, feral hamster with an attitude problem.

Talkan's Grazer: Medium (400kg) Herbivore/Grazer; Init +0; Flee 4+, Attack 4+, Speed 30m; AC 9 (-1 large); AR 0; St/Lb 12/15; Atk +3 melee (bite 2d8/20); SV Fort +6, Ref +4, Will -1; SZ L; Str 13, Dex 11, Con 15, Int 2, Edu -, Wis 3, Cha 4, Soc -.
Skills: Balance +3, Jump +4, Spot +0
Feats: None
Special Abilities: None
Climate/Terrain: Deserts, Plains, Grasslands
Organization: Herds of 8-12 creatures.

AISK

The Aisk is a nasty little creature native to several worlds with a trace or very thin atmosphere. It resembles a large beetle (30-50cm long), with an armored shell. Within the shell are highly efficient lung/gasbags filled with a light gel-like substance.

The Aisk is a solitary scavenger, wandering its territory seeking organic matter to consume. Any kind of organic matter is acceptable - vegetable or animal, processed or raw. Thus careless travellers who throw trash about wherever they land may find one or more Aisk scavenging around their ship, or even trundling slowly up the boarding ramp in search of more edibles.

Aisk can survive quite extreme temperatures (high and low), but have little tolerance for pressure. Even a thin atmosphere will eventually kill one; standard and dense atmospheres will be fatal in a matter of hours.

Nevertheless, Aisk can and do get aboard ships and lay eggs, some surviving for several weeks on shipboard refuse. They can burrow into cable bundles and similar places, and their pincers can give a nasty nip if they are cornered. Aisk also pose two additional hazards - they are internally pressurized, and they burn well. If fire is used against one and its body is pierced, the gel from its lungs will catch fire and spurt out under pressure, turning the dying Aisk into a small ambulatory flamethrower. Treat as an area attack (3m radius) causing 1d6 Stamina and 1d4 Lifeblood damage to anything failing a Reflex save (DC15).

Aisk: Tiny (3kg) Scavenger/Reducer; Init +2 (+2 Dex); Attack 6+, Flee 7+, Speed 12m; AC 19 (+5 natural armor, +2 tiny, +2 Dex); AR 5 (natural armor); St/Lb 4/3 (1d8); Atk +2 melee (bite 1d3/20); SV Fort +0, Ref +16, Will -2; SZ T; Str 2, Dex 15, Con 3, Int 1, Edu -, Wis 5, Cha 2, Soc -.
Skills: Climb +4
Feats: None
Special Abilities: Fiery Death (see description)
Climate/Terrain: Any thin or trace atmosphere environment
Organization: Solitary

ZETTIL'S CUSS

This vicious and destructive aquatic beast is named for the xenobiologist who discovered it, and whose revulsion for such creatures is legendary. The Cuss is an eel-like creature, with manipulatory tentacles sprouting from under its "chin". It can grow to three or more meters long, though typical specimens are about a meter from jaw to tip of tail.

Cusses often swim in packs, and will chase down quite large prey (including humans), seizing their victim with teeth and tentacles before biting it to death. Packs often enter a feeding frenzy that becomes a berserk killing spree; long after the pack is sated its members will keep on attacking anything nearby, sometimes including one another.

There is no known reason for the mindless hostility of this creature. Travellers are advised to use extreme caution when in Cuss-infested waters.

Zettil's Cuss: Small (25kg) Aquatic Carnivore/Chaser; Init +2 (+2 Dex); Attack If more, Flee 10+, Speed 24m; AC 13 (+1 small, +2 Dex); AR 0; St/Lb 9/5 (2d10); Atk +6 melee (bite 1d4/20); SV Fort -2, Ref +14, Will +2; SZ S; Str 5, Dex 14, Con 5, Int 2, Edu -, Wis 5, Cha 4, Soc -.
Skills: Spot +1
Feats: None
Special Abilities: None
Climate/Terrain: Fresh or salt water coastlines
Organization: Packs of 3d4

PSEUDOSAUR

The pseudosaur is named for its close resemblance to certain types of Terran dinosaur. It is an upright biped, standing 3 meters or so, with a powerful jaw and tearing claws. Pseudosaurs normally hunt in family groups of 3-5 individuals (including semi-mature and immature young). They are warm-blooded and can reach high speeds over a short distance.

Pseudosaurs are often hunted by people seeking a challenge; they certainly provide one. Pseudosaur hide is an expensive trade commodity, and is used to create impressive clothing items. The hide is dark, almost black, but possessed of a multcolored sheen in the right light. It is also extremely tough, and prized by some travellers for its durability in the field.

Pseudosaur hunting is not limited by any law save those of nature; the beasts are large, fast, and vicious, and many hunters do not come back.

Pseudosaur: Large (400kg) Carnivore/Killer; Init +1 (+1 Dex); Attack 4+, Flee 8+, Speed 15m; AC 12 (-1 large, +2 natural armor, +1 Dex); AR 2 (natural armor); St/Lb 24/12 (4d10+2); Atk +3 melee (claw 1d4/20), +10 melee (bite 2d8/20); SV Fort +3, Ref +7, Will -2; SZ L; Str 14, Dex 12, Con 12, Int 2, Edu -, Wis 5, Cha 11, Soc -.
Skills: Spot +1
Feats: None
Special Abilities: None
Climate/Terrain: Plains, Grasslands, Woodlands
Organization: Family groups of 3-5.

The NPCs presented in this appendix are taken from 76 Gunmen, a forthcoming issue in the **Traveller's Aide** *PDF supplement series available through the TravellerRPG.com website. The Traveller's Aide is available for order as single issues, or may be obtained through a 6 or 12 issue subscription!*

APPENDIX II: GLOSSARY

2000 Worlds: A major power in Charted Space, the 2000 worlds is ruled by the K'Kree. It lies to Trailing of the Imperium.

Ability Check: A check of 1d20 + the appropriate ability modifier vs. a DC.

Ability Modifier: The bonus or penalty associated with a particular ability score.

Ablat: Ablative anti-laser armor.

AC: Armor Class.

Aca: Academic.

Ace: Ace Pilot.

ACR: An Advanced Combat Rifle

Advanced Combat Rifle: A sophisticated but conventional projectile weapon built at high tech level. ACRs are capable of automatic fire.

Air/Raft: A small gravitic (grav) vehicle often used as personal transport.

Agility: Agility refers to a vessel's ability to make violent maneuvers while remaining under control of the operator.

Aht: Army, high-tech.

Alt: Army, low-tech.

Amber Zone: A world where greater than usual caution is advised. Reasons for Amber Zoning vary from natural conditions to war, famine or plague.

Amt: Army, mid-tech.

Ancients: A mysterious species that once ruled Charted Space. All that remains of them are artifacts and the occasional ruin.

AP: Armor Piercing ammunition. Improves the odds of a round penetrating any armor protecting a target if a shot hits.

AR: Armor Rating.

Armed Merchant Cruiser: A civilian vessel fitted with armament for some purpose. AMCs are sometimes used as commerce guards. They are no match for a real warship, but may be able to beat off corsairs.

Armor Class: A number representing a creature's ability to avoid being hit in combat. An opponent's attack roll must equal or exceed the target creature's Armor Class to hit it.

Armor Rating: A number representing the number of damage dice that will be reduced if hit in combat.

Aslan: A major race of Charted Space, named by early explorers for a vaguely leonine appearance.

Aslan Hierate: A major power in Charted Space, the Hierate lies to Spinward of the Imperium.

Assault Rifle: A lightweight mid-tech weapon developed from the autorifle.

Assault Shotgun: A heavy shotgun capable of full-automatic fire.

Assault Transport: A troop transport vessel designed to deliver ground troops straight into planetary combat.

Attack of opportunity: A single extra melee attack per round that a combatant can make when an opponent within reach takes an action that provokes attacks of opportunity.

Attack roll: 1d20 + base attack bonus + Dexterity modifier + size modifier + range penalty. The attack hits if the result is at least as high as the target's Armor Class.

ATV: All-Terrain Vehicle: A rugged tracked or wheeled vehicle capable of traversing a variety of terrain.

Autopistol: Also automatic pistol, self-loading pistol or just pistol: a handgun fed by a removable magazine.

Autorifle: A mid-tech weapon capable of fully-automatic fire.

Auxiliary: A merchant ship in use by the Navy, normally to undertake routine transport operations.

Battlecruiser: A heavily armed and fast but lightly protected vessel. In some ways an alternative to a battleship, but very vulnerable to spinal weapon fire.

Battleship: A very powerful warship capable of standing in the line of battle and destroying opposing vessels.

Battle Dress: Heavy powered personal armor. The ultimate in personal protection.

Battle Rider: A powerful non-Jump-capable warship designed to be carried into action aboard a Tender.

Bayonet: A blade, knife or spike designed to be fitted on the barrel of a longarm, creating a spear-like weapon. Bayonets can be used in the hand as a fighting knife or as a tool.

Bbn: Barbarian.

Belter: An asteroid miner.

Bgh: Big Game Hunter.

Black Powder Weapon: A handgun, musket, shotgun or rifle in which the propellant is loose black powder. Unreliable and inaccurate.

Blade: Any blades weapon may be referred to as a "blade". A Blade specifically is a heavy machete or short-sword0like weapon, uses as a fighting or survival tool

Blinded: Unable to see. A blinded character suffers a 50% miss chance in combat, loses any Dexterity bonus to AC, moves at half speed, and suffers a -4 penalty on Search checks and on most Strength- and Dexterity-based skill checks. Any skill check that relies on vision automatically fails. Opponents of a blinded character gain a +2 bonus to

their attack rolls, since they are effectively invisible.
Blt: Belter.
Boat: A small craft. Also, a small defensive spacecraft (as in System Defense Boat).
Bombardment Ship: A vessel deigned to undertake planetary bombardment. This is typically a "cruiser" role.
Broadsword: A sword weapon designed for use in both hands.
Capital Ship: A major warship, for example a battleship, battlecriuser, fleet carrier or dreadnaught.
Carrier: A naval vessel whose main striking power lies in subordinate craft (typically fighters) carried aboard.
Centimeter: A metric measurement of distance or length; 10 millimeters or 1/100 of a meter.
CEV: Combat Environment suit.
Cha: Charisma.
Charisma: An ability. Charisma measures a character's force of personality, persuasiveness, personal magnetism, ability to lead, and physical attractiveness. It represents actual personal strength, not merely how others perceive one in a social setting.
Charted Space: The region of space inhabited by humans and thousands of other races, both major and minor. Charted space encompasses 128 sectors and more than 80,000 worlds.
Client State: An independent political unit (one or more worlds) that has the patronage of a larger power. The relationship is usually beneficial and is normally economic in nature, though political and defensive arrangements will normally exist.
Close Escort: A very small naval vessel optimized for the protection of other vessels.
Cloth: Ballistic cloth; a type of bullet-resistant armor.
cm: Centimeter.
Combat Armor: A sealed suit of heavy armor; the modern equivalent of plate armor. Very effective against weapons, and also provides protection against hostile environments.
Comm: A personal communicator. Many comms include other features like data and banking access facilities.
Commerce Raider: A legitimate warship attacking commercial traffic as part of military operations, and not for profit.
Con: Constitution.
Constitution: An ability. Constitution represents a character's health and stamina.
Contragravity, CG: The antigravity units used to life space vessels and grav vehicles.
Coreward: See Galactic Directions.
Corsair: A pirate vessel. Many Vargr consider piracy a respectable trade, and use the term "Corsair" to refer to themselves and their vessels.
Courier: A small, fast vessel designed for carrying messages.
Cr: Imperial Credit.
Cruiser: A major warship, capable of carrying a powerful spinal mount weapon. Cruisers undertake many tasks. Various types exist: strike, armored, light, heavy and battle to name but five. Each has a particular role. Also, the Imperial Navy sometimes designates some very small vessels as "cruisers". This refers to the long cruises they undertake while on patrol rather than their capabilities.
Cutlass: A heavy, curved sword weapon used in one hand. The traditional dress weapon of the Imperial Marine Corps.
Cutter: A 50-ton small craft with a detachable module bay.
Dazed: Unable to act normally. A dazed character can take no actions, but can defend against attacks normally.
Dazzled: Unable to see well because of over stimulation of the eyes. A dazzled creature suffers a -1 penalty on attack rolls until the effect ends.
DC: Difficulty Class.
Deafened: Unable to hear. A deafened character suffers a -4 penalty to initiative, automatically fails Listen checks, and has a 20% chance of spell failure when casting spells with verbal components.
Destroyer: A small to medium sized warship designed for independent and flotilla operations. Destroyers normally protect larger vessels, but may sometimes undertake operations in their own right.
Dewclaw: a retractable claw found under the thumbs of an Aslan.
Dex: Dexterity.
Dexterity: An ability. Dexterity measures hand-eye coordination, agility, reflexes, and balance.
Difficulty Class: The target number that a player must meet or beat for a check or saving throw to succeed.
Domain: A region of space containing 4 sectors, administered by an Archduke.
Downport: A starport situated on-planet, or the ground components of a port with both orbital and ground facilities.
Dreadnaught: The newest and most powerful battleships are termed Dreadnaughts.
Dromedary: A naval supply ship capable of delivering both fuel and dry stores.
Droyne: A major race of Charted Space, Droyne are found on many scattered worlds but have no major interstellar polities.
ECM: Electronic Counter-Measures.

Edu: Education.

Education: An ability. Education represents the accumulated general knowledge accumulated over the life of the character, either through formal or informal education.

Energy Points: A measurement of the amount of energy that must be supplied to an object for it to operate, or the amount of energy that is supplied by a given type of power plant.

Energy Weapon: A ranged weapon that uses energy rather than physical projectiles to cause harm. Examples include lasers, plasma and fusion guns.

Entangled: Entanglement impedes movement, but does not entirely prevent it unless the bonds are anchored to an immobile object or tethered by an opposing force. An entangled creature moves at half speed, cannot run or charge, and suffers a -2 penalty to attack rolls and a -4 penalty to its effective Dexterity score.

EP: Energy Points.

Escort: A small naval vessel designed for the protection of other vessels, patrol work and similar light tasks. Escorts cannot survive in battle with a major combat vessel.

Exhausted: Tired to the point of significant impairment. A fatigued character becomes exhausted by doing something else that would normally cause fatigue. An exhausted character moves at half normal speed and suffers an effective ability decrease of -6 to both Strength and Dexterity. After 1 hour of complete rest, an exhausted character becomes fatigued.

Far Trader: A small merchant ship capable of Jump-2 or more.

Fatigued: Tired to the point of impairment. A fatigued character can neither run nor charge and suffers an effective ability decrease of -2 to both Strength and Dexterity. After 8 hours of complete rest, fatigued characters are back to normal.

Feat: A quality or special ability of a character.

Fighter: A small, maneuverable naval craft intended primarily for patrol and screening work.

Flat-footed: Especially vulnerable to attacks at the beginning of a battle. Characters are flat-footed until their first turns in the initiative cycle. Flat-footed creatures cannot use their Dexterity bonuses to AC or make attacks of opportunity.

FGMP: Fusion Gun, Man Portable.

Foil: A light cut-and-thrust weapon, somewhat similar to a rapier. The Foil is the traditional weapon of the nobility.

Fortitude save: A type of saving throw, related to a character's ability to withstand damage thanks to his physical stamina.

Free Trader: Any small merchant ship. Also a specific design of ship – small, with limited Jump capability. Personnel making their living aboard such a ship may also call themselves Free Traders.

Freighter: A large cargo-only starship. "Bulk Freighters" are characterized by very large cargo holds, and transport things like ore, grain etc.

Freightliner: A large mercantile vessel that carries cargo and passengers.

Frightened: Fearful of a creature, situation, or object. Frightened creatures flee from the source of their fear as best they can. If unable to flee, they may fight, but suffer a -2 morale penalty to all their attack rolls, weapon damage rolls, and saving throws.

g: gram.

G: Gravity.

Galactic Directions: North and South do not work when referring to direction within the galaxy. Instead, the following conventions have achieved widespread acceptance when referring to astrographic directions. Toward the galactic core is coreward; away from it, in the direction of the rim, is rimward. In the direction that the galaxy is rotating is spinward, while the opposite direction is trailing.

Garden World: An Earthlike planet where humans can thrive unaided.

Gauss Weapon: A pistol, rifle or support weapon in which a projectile is accelerated to extreme velocities by an electromagnetic field.

Gas Giant: A huge, Jumpier-like planet.

Gram: A metric measurement of weight, 1/1000 of a kilogram. One pound (US) is equal to roughly 450 grams.

Grav Vehicle: A vehicle that uses contragravity lifters rather than wheels or tracks.

Gravitics: The science of manipulating gravity. Also the contragravity units of a vehicle may be referred to as "the gravitics".

Gravity: Use in reference to either the gravitational pull of a stellar body or the acceleration rate of a smallcraft or starship in normal space.

Gunship: A large craft, similar to an SDB, but carried aboard certain types of carrier or tender for offensive and escort operations.

Handcomp: A hand computer

Handgun: A revolver, autopistol, gauss pistol etc.

HE: High Explosive ammunition.

HEAP: High Explosive, Armor Piercing ammunition.

HEAP: High-Explosive Dual-Purpose (HE and fragmentation) ammunition.

HEV: Hostile Environment suit.

High-Energy Weapon: Particularly powerful energy weapons, such as Plasma and Fusion guns.
Highport: An orbital starport, or the orbital component of a starport with both orbital and ground facilities.
Hive Federation: A major interstellar power lying to rimward-trailing of the Imperium.
Hivers: A major race of Charted Space.
Humaniti: The current spelling of humanity, used when referring to humans in a general sense. The term refers to the human species and subspecies rather than the quality of being humane, which can be applied to any sentient species.
Iceball: A cold, normally airless world.
Imperial Credit: The mostly commonly used form of currency used in the Traveller universe.
Imperium: In the OUT, the main human interstellar civilization, the 3rd Imperium, is usually just referred to as the Imperium.
Int: intelligence.
Intelligence: An ability. Intelligence determines how well a character learns and reasons.
IR: Infrared.
Jack: A padded, resilient jerkin providing some protection against melee weapons.
k: Kilometer.
K'Kree: A major race of Charted Space. K'Kree are militant herbivores descended from herd animals.
kg: Kilogram.
KCr: Kilocredit. One thousand Imperial credits.
Kilogram: A metric measurement of weight; 1000 grams or approximately 2.2 pounds (US).
Kilometer: A metric measurement of distance or length; 1000 meters or approximately 0.62 miles (US).
Kph: Kilometers per hour.
LAG: A Light Assault Gun.
Launch: A 20-ton small craft used for passenger and cargo transfers, and as a lifeboat.
LI: Light Intensifying.
Lifeblood: A measure of the amount of lethal (impaling, cutting, etc) damage a character can take before dying.
Lighter: A large cargo transfer craft, normally or more than 100 tons displacement, may be termed a Lighter.
Liner: A large passenger vessel, which may sometimes carry a small amount of cargo in addition to its passengers.
LMG: A Light Machine Gun.
Logistics Ship: A transport vessel designed to carry dry stores for the support of ground or naval units.
Longarm: A firearm designed to be used in both hands.
m: Meter.
Mar: Marine.
mm: Millimeter.
Mainworld: The most important planet in a system, normally the source of the system name.
Major Race: A species that developed the Jump Drive independently; sometimes used to describe a powerful race that did not.
MCr: Megacredit. One million Imperial credits.
Mct: Merchant.
Megacorporation: A huge, Imperium-wide corporation. Megacorporations have their own private military forces and wield powerful political influence.
Merchant Ship: Any commercial starship.
Mesh: Metal or ceramic mesh woven into a tough garment, providing good protection against melee weapons.
Meson Gun: A powerful but short-ranged variant of the particle accelerator, often used as a main starship armament.
Meter: A metric measurement of distance or length; 100 centimeters or approximately 3 feet (US).
Millimeter: A metric measurement of distance or length; 1/1000 of a meter.
Minor Race: A race that did not develop the Jump drive independently but learned of it from outsiders (or has never achieved interstellar flight). Also, a race without any real power or influence.
Monitor: A large and powerful spacecraft designed for system defense.
Mry: Mercenary.
Musket: A low-tech smoothbore weapon muzzle-loaded with black powder and ball.
Nauseated: Experiencing stomach distress. Nauseated creatures are unable to attack, cast spells, concentrate on spells, or do anything else requiring attention. The only action such a character can take is a single move (or move-equivalent action) per turn.
Nav: Navy.
Nbl: Noble.
Noble: A member of the planetary or Imperial nobility.
Nonintelligent: Lacking an Intelligence score. Mind-affecting spells do not affect nonintelligent creatures.
OTU: An acronym for the Official Traveller Universe.
Panicked: A panicked creature must drop anything it holds and flee at top speed from the source of its fear, as well as any other dangers it encounters, along a random path. In addition, the creature suffers a -2 morale penalty on saving throws. If cornered, a panicked creature cowers and does not attack, typically using the total defense action in com-

bat.

Paralyzed: Unable to move or act physically. Paralyzed characters have effective Dexterity and Strength scores of 0 and are helpless.

Particle Accelerator: A powerful energy weapon with a longer range than a meson gun, often used as a main starship armament.

Pinnace: An aerodynamic 40-ton small craft.

PGMP: Plasma Gun, Man Portable.

Portacomp: A powerful but portable computer unit.

Prf: Professional.

Prone: Lying on the ground. An attacker who is prone has a -4 penalty to melee attack rolls and cannot use a ranged weapon (except for a crossbow). Melee attacks against a prone defender have a +4 bonus, and ranged attacks against a prone character have a -4 penalty.

Pres: presence.

Presence: A special ability applied to Vargr only. Presence measures the status of a Vargr among their racial peer.

PSI: Psionic Strength.

Psionic Strength: The measure of a character's potential psionic ability. Normally unknown until tested at a Psionics Institute.

Q-Ship: An armed vessel disguised as a merchant or similar harmless craft.

RAM: Rocket Assisted, Multi-Purpose grenades.

Red Zone: A world to which access is prohibited for a variety of reasons. Examples include worlds under sanction, highly dangerous planets and prison worlds.

Reflec: Reflective anti-laser armor.

Reflex save: A type of saving throw, related to a character's ability to withstand damage thanks to his agility or quick reactions.

Revolver: A handgun fed from a revolving internal cylinder, typically containing six rounds.

Rifle: Any longarm with a rifled barrel is a "rifle". Specifically, a Rifle is a mid-tech bolt-action or semi-automatic weapon fed from an internal magazine, or loaded singly.

Rifle-Musket: A rifled black powder weapon; more accurate than a musket.

Rift: An area of space where stars are very sparse. Rifts can be major obstacles to navigation.

Rimward: see Galactic Directions.

Rockball: A planet that is little more than a ball of rock. Typically Rockballs have very thin, trace or no atmosphere, and no life. They may be hot or cold.

Rog: Rogue.

Save: Saving throw.

Saving throw: A roll made to avoid (at least partially) damage or harm.

Sct: Scout.

Scout/Courier: A small vessel designed for a variety of roles, including messenger and exploration craft.

Sector: A region of space 4 by 4 subsectors in size, normally forming an administrative region.

Ship's Boat: A small, fast 30t small craft used for personnel and cargo transfers.

Shotgun: A smoothbore weapon that normally fires pellets or flechettes. Various types exist but the standard is a pump-action weapon fed by a 6-round internal magazine.

Shuttle: Any cargo or passenger–carrying small craft can be termed a Shuttle, but the term us normally reserved for craft or around 100t.

SI: Structural Integrity.

Sidearm: A light weapon carried for self-defense. Typically a handgun but may also be a melee weapon.

Skill: an ability or area of knowledge or expertise which can be improved over time.

Slow Boat: A cheaper and less maneuverable version of the Ship's Boat.

Slow Pinnace: A cheaper and less maneuverable version of the Pinnace

Smallcraft: A small space-going that is not equipped with a Jump drive and is incapable of interstellar travel.

SMG: A Submachine Gun.

Soc: social standing.

Social standing: An ability. Social standing represents the status of a character in common society. A social standing score of 16 or higher is considered nobility.

Sophont: A sentient being.

Solomani: One of the races of Humaniti, originating on Terra. Also, a person from a culture strongly influenced by old Terran traditions.

Solomani Confederation: A powerful interstellar state lying to Rimward of the Imperium.

Solomani Hypothesis: The generally accepted idea that all Humaniti originated on Terra, and was transplanted throughout the universe by the Ancients, for reasons that remain unclear.

Spacecraft: Any vessel capable of interplanetary flight but not Jump. See also smallcraft.

Spaceport: A minor port that deals mainly with interplanetary rather than interstellar vessels.

Speeder: A fast version of the Air/raft.

Spinal Mount: A starship weapon mount running along the entire length of a ship, allowing for a very powerful weapon system to be installed.

Spinward: see Galactic Directions.
Subsector: A region of space 8 by 10 parsecs in size, normally forming an administrative region.
Subsidized Merchant: Any trade ship can obtain a subsidy and operate as a subsidized merchant, but the term normally refers to a specific type of vessel - a smallish starship carrying both cargo and passengers. "Subbies" normally ply a set route.
Stamina: Equivalent to Hit Points, Stamina is a measure of how much non-lethal damage a character can take before collapsing.
Starport: A port serving interstellar travel; also the main spaceport on a planet.
Starship: Any space-going vehicle of 100 tons displacement or greater, and equipped with a Jump drive.
Startown: The town, village or city adjacent to most starports. Startowns have a reputation for being somewhat rough and ready; not all of them deserve this.
Str: Strength.
Strength: Strength measures a character's muscle and physical power.
Stunned: A stunned creature can't take actions and loses any positive Dexterity modifier to AC. Each attacker gains a +2 bonus to attack rolls against that creature. In addition, stunned characters immediately drop anything they are holding.
Sword: Any bladed hilt weapon used in one hand; swords come in many specific types.
System: A star system includes one or more stars, orbited by other bodies including planets, asteroids and comets.
Take 10: To reduce the chances of failure on certain skill checks by assuming an average die roll result (10 on a 1d20 roll).
Take 20: To greatly reduce the chances of failure for certain skill checks by assuming that a character makes sufficient retries to obtain the maximum possible check result (as if a 20 were rolled on 1d20).
Talent: A specific Psionic ability.
Tanker: A naval vessel capable of skimming and refining fuel, and supplying it to other vessels.
TAS: Travellers' Aid Society.
Tender: A naval vessel designed to support the operations other vessels. Examples include Xboat Tenders, which support Jump-Capable express boats, and Battle Tenders, which transport Battle Riders into action.
Tfr: TAS Field Reporter.
TH: Thrust.
TL: Tech(nology) Level.
Ton: When used in reference to a smallcraft or starship, this refers to displacement tonnage or roughly 14 cubic meters of space. When referencing weight, this refers to metric tonnage (1000kg) unless otherwise noted.
Trailing: see Galactic Directions.
Traveller's Aid Society: An organization that supports and assists Travellers in the Imperium and some neighboring regions. TAS offers news, information and discounted accommodation to its members.
Travellers' Aide: A regular gazette published by QLI, providing information on specific aspects of Travelling and Charted Space. Travellers' Aide has been the subject of some legal questions on the part of TAS, but has retained its distinct identity.
Trv: Traveller.
USP: Universal Ship Profile.
UWP: Universal World Profile. A shorthand notation of the raw basic details of a world.
Vac Suit: A sealed suit designed to protect the wearer from hostile environments or vacuum.
Vargr: A major race of Charted Space, Vargr are descended from Terran canines.
Vargr Extents: A region of space lying to Coreward of the Imperium, divided between several Vargr states.
Vilani: One of the races of Humaniti, originating on Vland. Also, a person from a culture heavily influenced by Vilani traditions.
vl: Volume.
Volume: A unit of measure used when designing vehicles and starships under the T20 rules.
Will save: A type of saving throw, related to a character's ability to withstand damage thanks to his mental toughness.
Wis: wisdom.
Wisdom: An ability. Wisdom describes a character's willpower, common sense, perception, and intuition. While Intelligence represents one's ability to analyze information, Wisdom is more related to being in tune with and aware of one's surroundings.
Xboat: An express message boat. Xboats have Jump but no maneuver drives, and rely on tenders to support and retrieve them.
Zhodani: One of the races of Humaniti, whose culture embraces psionics.
Zhodani Consulate: A powerful interstellar state lying to Spinward-Coreward of the Imperium.

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CHARACTER		PLAYER NAME	
CLASS		LEVEL	RACE
HOMEWORLD		GENDER	DATE OF BIRTH
HOMEWORLD LOCATION	HOMEWORLD UWP	ACTUAL AGE	APPARENT AGE
HEIGHT	MASS	HAIR	EYES
HANDEDNESS	RANK	TITLE	TAS MEMBER? ❑ Yes ❑ No

TRAVELLER T20 CHARACTER RECORD SHEET

ABILITIES

		ABILITY MODIFIER	TEMP SCORE	TEMP MODIFIER
STR STRENGTH				
DEX DEXTERITY				
CON CONSTITUTION				
INT INTELLIGENCE				
EDU EDUCATION				
WIS WISDOM				
CHA CHARISMA				
SOC SOCIAL STANDING				
PSI PSIONIC STRENGTH				

STAMINA

CURRENT STAMINA

LIFEBLOOD

CURRENT LIFEBLOOD

Stamina Dice

LIFT	LIFT OVER HEAD	LIFT OFF GROUND	PUSH OR DRAG
	= MAX LOAD	= 2 × MAX LOAD	= 5 × MAX LOAD

ARMOR CLASS

= 10 + ARMOR (AR)

SHIELD	RACE	DEX	SIZE	MISC	TEMP	PENALTY

ARMOR WORN

SAVING THROWS

	TOTAL	BASE	MODIFIERS ABILITY	MODIFIERS MISC	MODIFIERS TEMP
FORTITUDE CONSTITUTION					
REFLEX DEXTERITY					
WILL WISDOM					

INITIATIVE

TOTAL	DEX	MISC

SPEED	METERS	HEX/SQ

ATTACK ROLLS

	TOTAL	BASE	MODIFIERS DEX	MODIFIERS SIZE	MODIFIERS MISC	MODIFIERS TEMP
MELEE						
RANGED						

WEAPONS

Weapon	Att Bonus	Damage	Critical	Range	Type	Size	ROF
Notes			AMMO				
Weapon	Att Bonus	Damage	Critical	Range	Type	Size	ROF
Notes			AMMO				
Weapon	Att Bonus	Damage	Critical	Range	Type	Size	ROF
Notes			AMMO				
Weapon	Att Bonus	Damage	Critical	Range	Type	Size	ROF
Notes			AMMO				
Weapon	Att Bonus	Damage	Critical	Range	Type	Size	ROF
Notes			AMMO				

SKILLS

CROSS CLASS	MAX RANKS = LVL+3(/2)	TOTAL	MODIFIERS RANKS	MODIFIERS MISC	MODIFIERS ABILITY	KEY ABILITY
❑						
❑						
❑						

EQUIPMENT CARRIED

Item	Location	Wt	Item	Location	Wt
Current Load			Total Weight Carried		

OTHER POSSESSIONS

FEATS & SPECIAL ABILITIES

CREDITS

EXPERIENCE

Total Experience

XPs Needed For Next Level

LANGUAGES

BACKGROUND

NOTES

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PRIOR HISTORY WORKSHEET

Service	Skill Points per Level	Terms Served	Years Served
Discharge Age	Final Rank	XP Earned	

❑ Honorable Discharge? ❑ Retired? Retirement Pay Cr _____ per year

UNIVERSITY

❑ Admitted? ❑ Graduated? (4000 XP, 12 EDU) ❑ Honors Graduate? (1000 XP, +1 EDU) | YEARS | AGE

NOTES

❑ OTC? (1000 XP)

GRADUATE

❑ Admitted? ❑ Graduated? (2000 XP, 14 EDU) ❑ Honors Graduate? (500 XP, +1 EDU) | YEARS | AGE

NOTES

DOCTORATE

❑ Admitted? ❑ Graduated? (2000 XP, 16 EDU) ❑ Honors Graduate? (500 XP, +1 EDU) | YEARS | AGE

NOTES

TERM 1

ASSIGNMENT | YEARS | AGE | RUNNING XP TOTAL

❑ Survival (4000 XP) ❑ Commission (2000 XP) ❑ Promotion (1000 XP) ❑ Decoration (_____ XP)

❑ Cash Bonus Cr _____ ❑ XP Bonus (1d4 × 1000 XP, _____ XP)

RANK

DECORATION

TERM 2

ASSIGNMENT | YEARS | AGE | RUNNING XP TOTAL

❑ Survival (4000 XP) ❑ Commission (2000 XP) ❑ Promotion (1000 XP) ❑ Decoration (_____ XP)

❑ Cash Bonus Cr _____ ❑ XP Bonus (1d4 × 1000 XP, _____ XP)

RANK

DECORATION

TERM 3

ASSIGNMENT | YEARS | AGE | RUNNING XP TOTAL

❑ Survival (4000 XP) ❑ Commission (2000 XP) ❑ Promotion (1000 XP) ❑ Decoration (_____ XP)

❑ Cash Bonus Cr _____ ❑ XP Bonus (1d4 × 1000 XP, _____ XP)

RANK

DECORATION

TERM 4

ASSIGNMENT | YEARS | AGE | RUNNING XP TOTAL

❑ Survival (4000 XP) ❑ Commission (2000 XP) ❑ Promotion (1000 XP) ❑ Decoration (_____ XP)

❑ Cash Bonus Cr _____ ❑ XP Bonus (1d4 × 1000 XP, _____ XP)

RANK

DECORATION

TERM 5

ASSIGNMENT | YEARS | AGE | RUNNING XP TOTAL

❑ Survival (4000 XP) ❑ Commission (2000 XP) ❑ Promotion (1000 XP) ❑ Decoration (_____ XP)

❑ Cash Bonus Cr _____ ❑ XP Bonus (1d4 × 1000 XP, _____ XP)

RANK

DECORATION

TERM 6

ASSIGNMENT | YEARS | AGE | RUNNING XP TOTAL

❑ Survival (4000 XP) ❑ Commission (2000 XP) ❑ Promotion (1000 XP) ❑ Decoration (_____ XP)

❑ Cash Bonus Cr _____ ❑ XP Bonus (1d4 × 1000 XP, _____ XP)

RANK

DECORATION

TERM 7

ASSIGNMENT | YEARS | AGE | RUNNING XP TOTAL

❑ Survival (4000 XP) ❑ Commission (2000 XP) ❑ Promotion (1000 XP) ❑ Decoration (_____ XP)

❑ Cash Bonus Cr _____ ❑ XP Bonus (1d4 × 1000 XP, _____ XP)

RANK

DECORATION

TERM 8

ASSIGNMENT | YEARS | AGE | RUNNING XP TOTAL

❑ Survival (4000 XP) ❑ Commission (2000 XP) ❑ Promotion (1000 XP) ❑ Decoration (_____ XP)

❑ Cash Bonus Cr _____ ❑ XP Bonus (1d4 × 1000 XP, _____ XP)

RANK

DECORATION

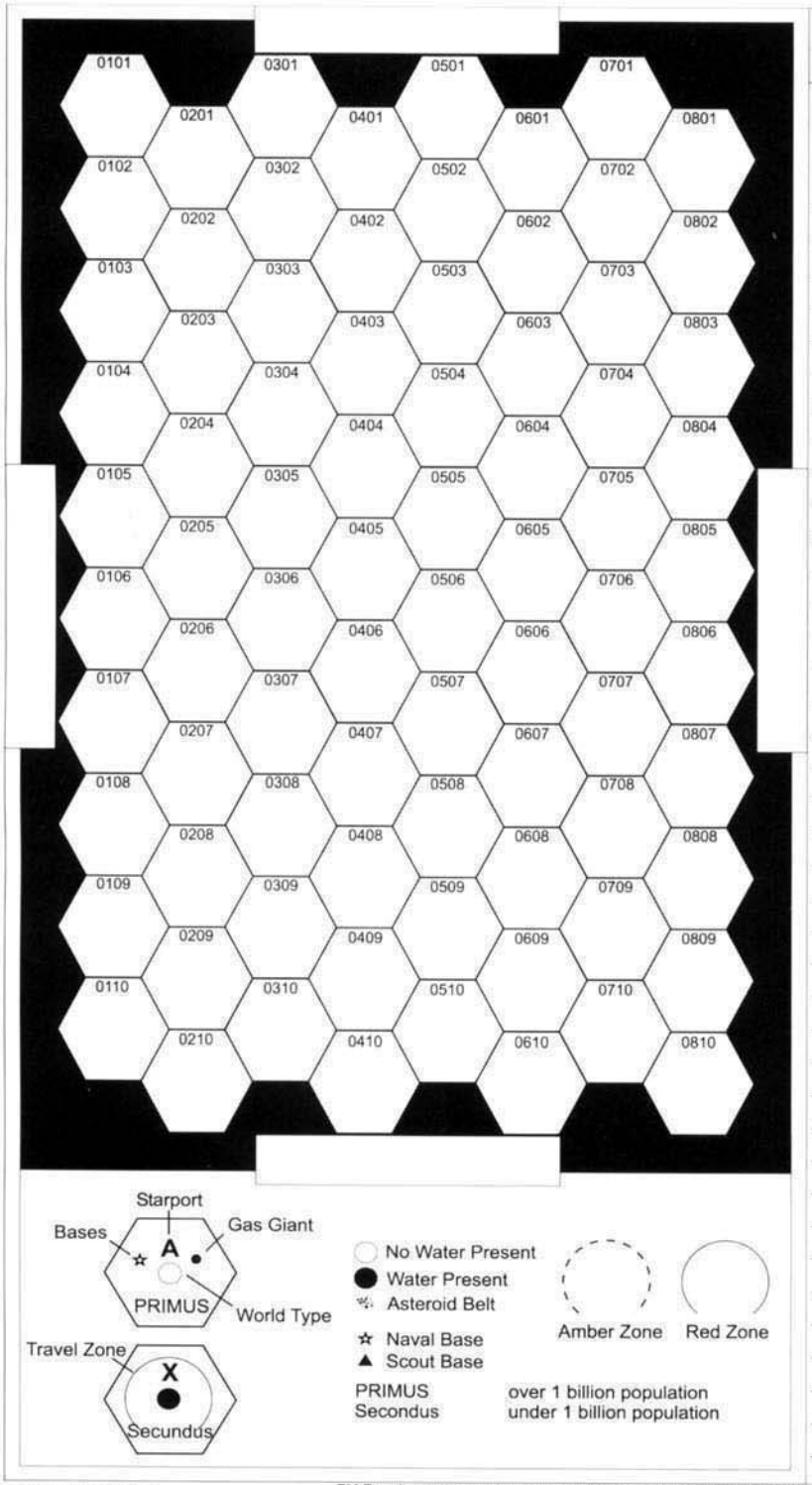
CASH BENEFITS

MATERIAL BENEFITS

DECORATION EXPERIENCE VALUES

Purple Heart	1000 XP
Meritorious Conduct Under Fire, DC+ (MCUF)	2000 XP
Medal for Conspicuous Gallantry, DC+5 (MCG)	4000 XP
Starburst for Extreme Heroism, DC+10 (SEH)	8000 XP

NOTES



A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P

SUBSECTOR

Domain: _____

Sector: _____

WORLD UWPs

TAS Form 6.1

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Subsector Map

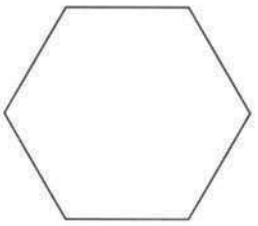
STAR SYSTEM WORKSHEET

System Primary

Star Type and Size | Color and Spectral Class

Orbit		GG	PB
1	-	○	○
2	-	○	○
3	-	○	○
4	-	○	○
5	-	○	○
6	-	○	○
7	-	○	○
8	-	○	○
9	-	○	○
10	-	○	○
11	-	○	○
12	-	○	○
13	-	○	○
14	-	○	○
15	-	○	○
16	-	○	○
17	-	○	○
18	-	○	○
19	-	○	○

Star System Name



Domain

Sector

Subsector

Hex Number

Mainworld ■

Mainworld Trade Classification

Bases Present

IS Form 8.1 Star System Worksheet

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Binary Companion

Star Type and Size | Color and Spectral Class

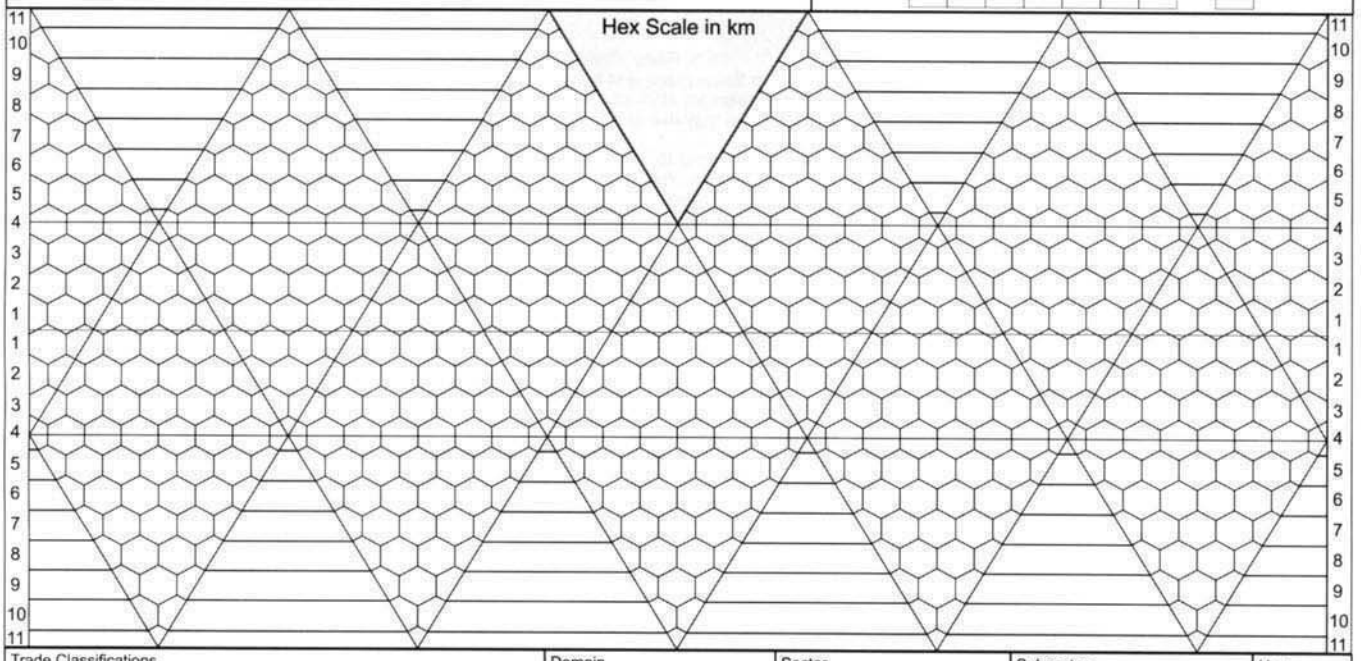
Orbit		GG	PB
1	-	○	○
2	-	○	○
3	-	○	○
4	-	○	○
5	-	○	○
6	-	○	○
7	-	○	○
8	-	○	○
9	-	○	○
10	-	○	○
11	-	○	○
12	-	○	○
13	-	○	○
14	-	○	○
15	-	○	○
16	-	○	○
17	-	○	○
18	-	○	○
19	-	○	○

Trinary Companion

Star Type and Size | Color and Spectral Class

Orbit		GG	PB
1	-	○	○
2	-	○	○
3	-	○	○
4	-	○	○
5	-	○	○
6	-	○	○
7	-	○	○
8	-	○	○
9	-	○	○
10	-	○	○
11	-	○	○
12	-	○	○
13	-	○	○
14	-	○	○
15	-	○	○
16	-	○	○
17	-	○	○
18	-	○	○
19	-	○	○

World Name	UWP



Trade Classifications	Domain	Sector	Subsector	Hex

Travel Zone Classification	Primary Star Type	Binary Star Type	Trinary Star Type	Orbit	Year Length	Gas Giants	Planetoid Belts

Starport Type		Bases Present	
Size		Gravity G	Natural Resources
Atmosphere		Climate	Max Temp. / Night Temp.
Hydrographics		Biodiversity	Biodiversity
Population		PopX	Total Population
Government		World Trade Balance	
Law Level		Description	
Tech Level			

IS Form 8.2 World Worksheet

SATELLITES

	-
	-
	-
	-
	-
	-
	-
	-
	-
	-
	-
	-

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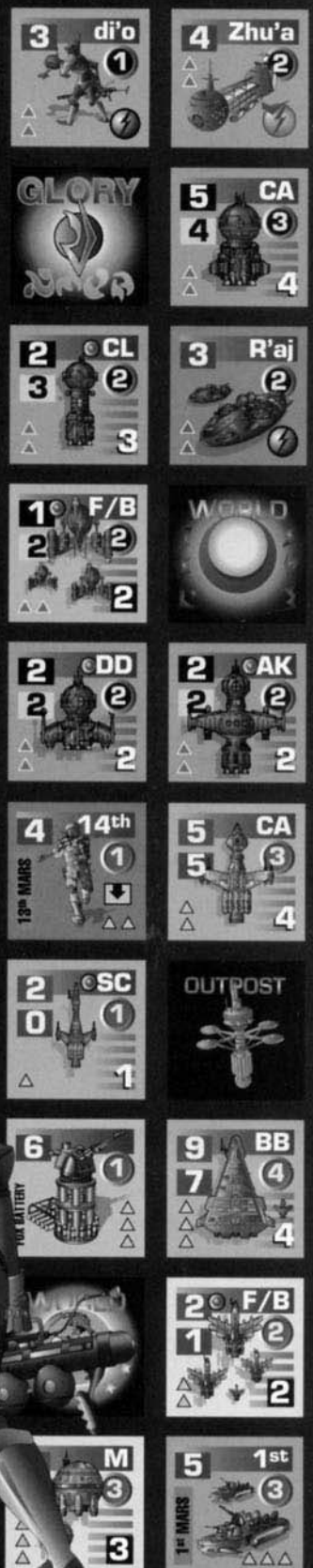
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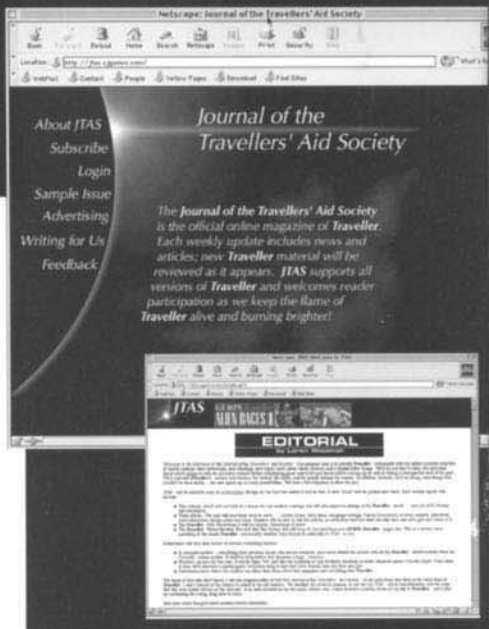
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