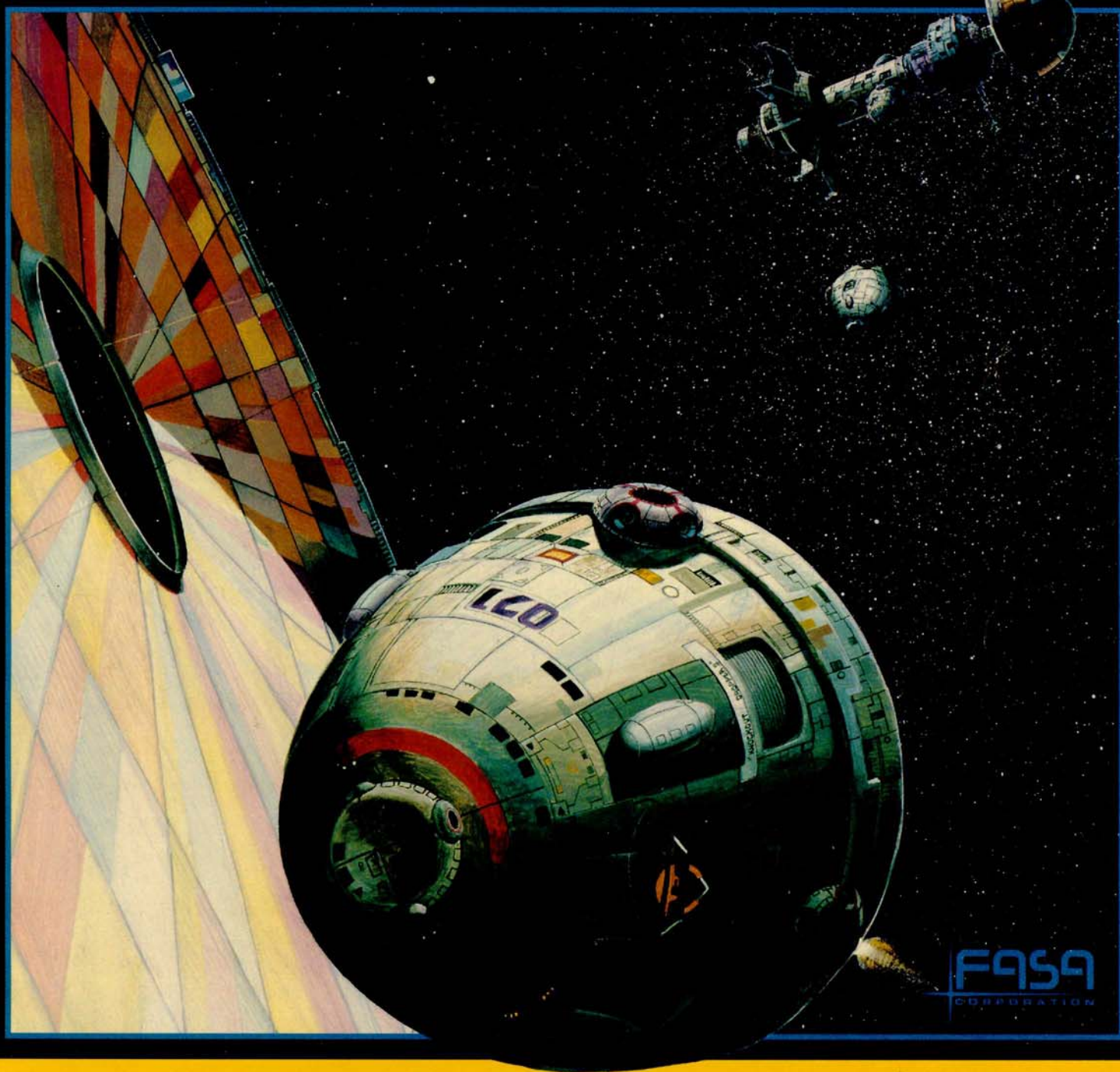


# DROPSHIPS AND JUMPSHIPS

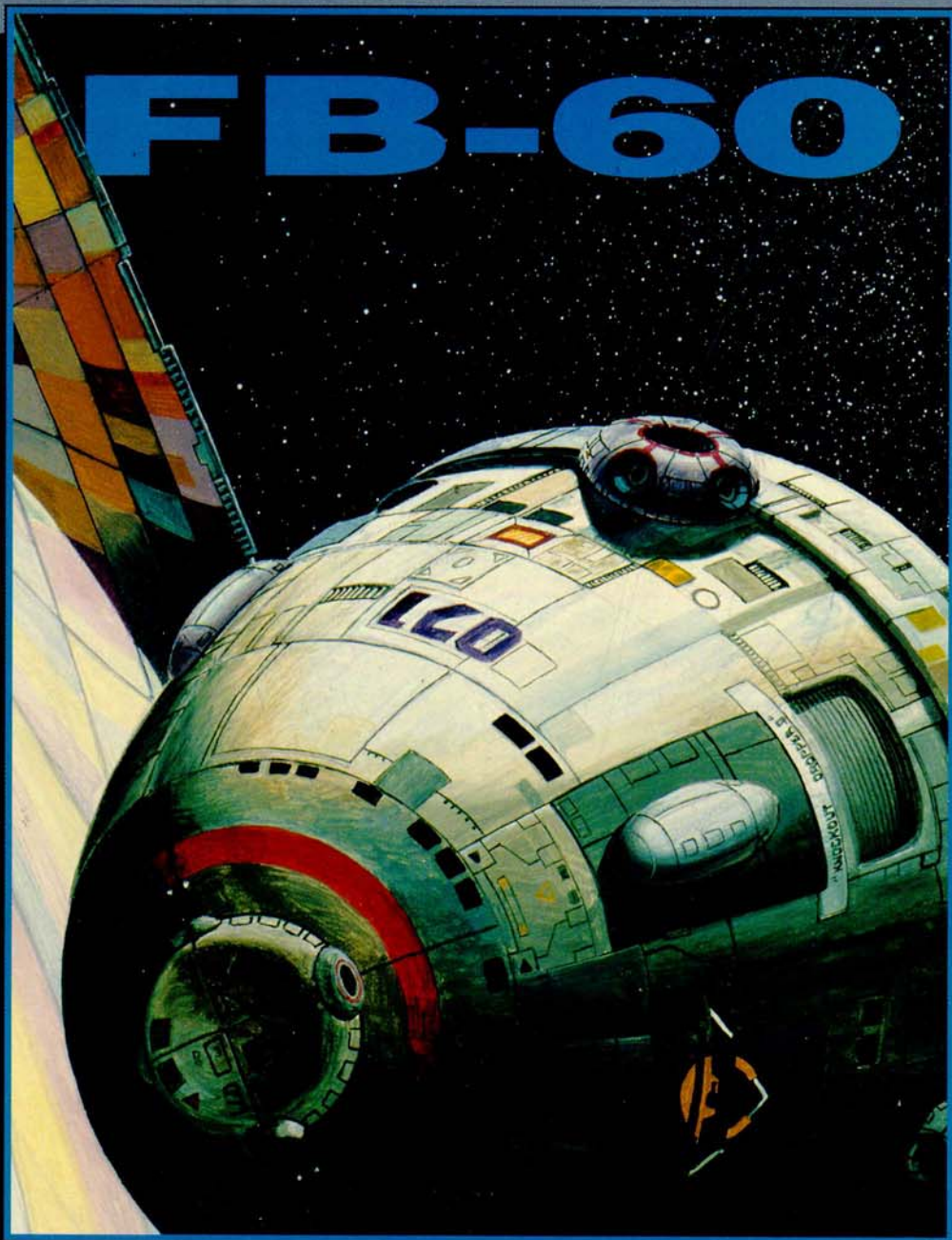


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COMSTAR INTELLIGENCE SUMMARY

# DROPSHIPS AND JUMPSHIPS

## **DROPSHIPS AND JUMPSHIPS** **ComStar Intelligence Summary**

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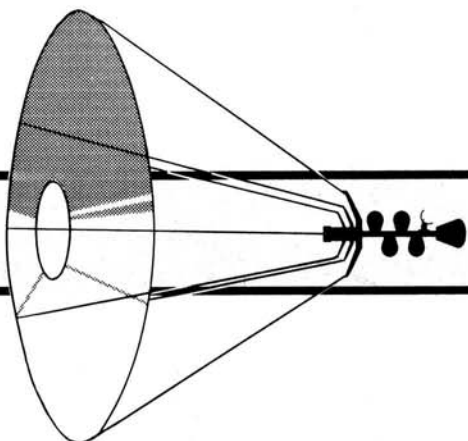
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# INTRODUCTION

## COMSTAR INTELLIGENCE SUMMARY - FB60

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## INTRODUCTION

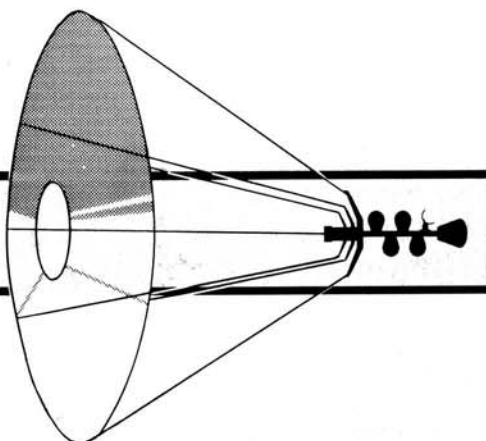
This document has been divided into five chapters. The first describes the history and development of modern space travel from the era of the early pioneers through the recent centuries of the Succession Wars. The scientific developments and events that occurred prior to the formation of the Star League have been given special emphasis.

The second chapter describes the modern JumpShip and its role in the Inner Sphere. Included are descriptions of the five major types of JumpShips currently operating in the Inner Sphere.

The third chapter describes 20 of the best-known DropShip types that are still in operation, most of which are still produced on a limited basis. These DropShips are grouped within five categories: 'Mech carriers, troop carriers, fighter carriers, assault DropShips, and civilian DropShips.

The fourth chapter discusses the role of the small craft and includes data on a number of small craft that often operate in conjunction with DropShips and JumpShips.

The fifth and final chapter outlines the role of space stations during the era of the Succession Wars and describes three major types of space stations still found throughout the Inner Sphere.



Over the centuries, space travel has become the lifeblood of the Inner Sphere, with so many worlds dependent on it to provide materials for industries, water for desert worlds, or food for agriculturally poor worlds. Indeed, without space travel, millions of people and entire worlds would perish.

This life giver is also the means for transporting the vast armies of men and BattleMechs from world to world, thus ensuring the continuation of the Succession Wars. As present facilities find it more and more difficult to produce sufficient numbers of JumpShips to replace losses, the Inner Sphere may yet see an end to the destruction that has been the hallmark of the Succession Wars. For the time being, however, the great vessels remain, space travel continues to be commonplace, and the Succession Wars rage on.

At the heart of space travel is the interstellar JumpShip. This vessel jumps from one star system to another through hyperspace, allowing it to travel faster than light. It is the Kearny-Fuchida drive, a pre-Star League discovery, that allows the ship to travel distances of up to 30 light-years almost instantaneously. JumpShips have a virtually unlimited endurance, as solar radiation is their primary source of power.

Upon entry into a system, the JumpShip immediately deploys an enormous circular "sail." Measuring just over one kilometer in diameter on the largest JumpShips, the sail is coated with a special energy-absorbing photochemical. The lightweight sail is so fragile that it requires a lot of time to be deployed. If deployed or retracted too quickly, the solar sail can become entangled in the power lines and stay cables, or worse, become damaged or torn.

While this giant vessel rests at a jump point, its large solar sail continually absorbs solar radiation and converts it into electrical energy, which is then stored within the Kearny-Fuchida drive. Within about one week, the drive is fully charged. The sail is then retracted, and the vessel is once again ready to make another jump.

The massive Kearny-Fuchida drive that makes up most of the JumpShip's tremendous mass provides the ship with its hyperspace-jump capability. Feeding on the stored energy provided by the ship's jump sail, the drive opens a passage through hyperspace and transports the ship to its destination point within about one standard minute.

As JumpShips are so massive, it takes a tremendous amount of force to move one. Though most are equipped with large fusion drives, these are primarily responsible for keeping the ship in position against the force of solar winds or the force of a star's gravity, whichever is greater. Even with the fusion drive's high thrust output, a JumpShip's acceleration rate is too low to make an interplanetary journey desirable. To move cargo to and from a system's jump point and its planets, a special vessel, referred to as a DropShip, is used.

DropShips normally weigh from 1,000 tons to 200,000 tons each. Except for the largest, all are capable of atmospheric entry, and thus are the workhorses of the Inner Sphere.

DropShips are equipped with large fusion drives that normally provide a constant one G acceleration for the entire journey from JumpShip to planet and back. Most are capable of sustained acceleration of two to three Gs for a few hours, and up to four Gs for bursts of a few minutes at a time. Certain military DropShips can maintain higher acceleration rates for longer periods, however. The most notable of these include the 'Mech-carrying *Leopard*, *Union*, and *Overlord* classes. These can generally maintain two or three Gs for several days, and up to four Gs for several hours.

### FROM SHUTTLE TO DROPSHIP

The term "DropShip" first came into use in the early days of fusion-powered space vessels. Because the designs of the JumpShips were relatively primitive, their superstructures could not withstand the stress of planetary excursions. The fusion-powered vessels thus required the assistance of smaller, conventionally powered space vehicles to load and unload their cargos.

Though originally called Shuttles, these conventionally powered craft were quite different from traditional shuttles, whose cargo capacities rarely exceeded 100 tons. The newer shuttles were enormous in comparison. They could ferry large loads of cargo in a few trips, while it would have taken standard shuttles more than a dozen round trips to do the same work. They were also quite capable of making long-duration space flights on their own, though without the speed and efficiency of the JumpShip.

In time, the crews of these newer shuttles had nicknamed the vessels "DropShips." The name refers to the fact that the ships were usually fully loaded with cargo while on the mothership, and then they would "drop" immediately upon the mothership's arrival in planetary orbit.

The term "DropShip" did not become official until well into the 25th century, however. By this time, the JumpShip had metamorphosed from a multi-purpose space vehicle to an interstellar transport with little interplanetary capability. It was designed primarily to transport a number of non-FTL drive-equipped interplanetary space vehicles. To get from one star system to another, these non-FTL vessels would attach themselves to docking collars on the JumpShip's hull. When it arrived at its destination jump point, the interplanetary vessels would then "drop" into the system.

— From *History Of The DropShip*, J. Mai, Professor of Technological History, NAIS Publications, New Avalon, 3024.



# SPACE TRAVEL IN THE SUCCESSOR STATES

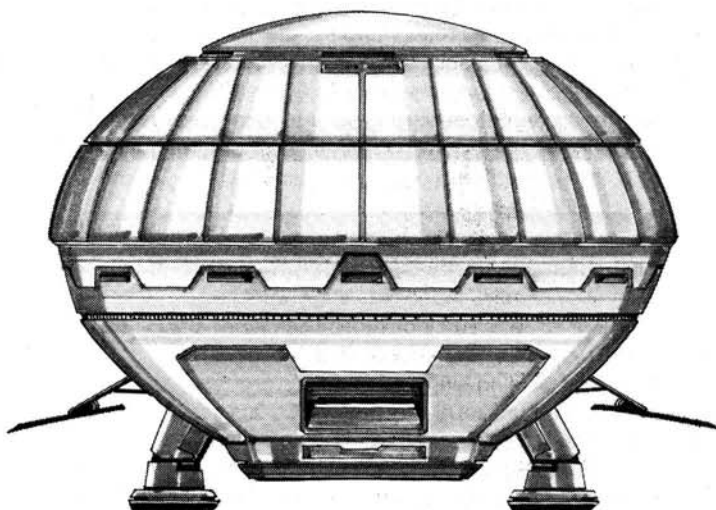
Because DropShips have no FTL capabilities, they rely completely on JumpShips to get from one star system to another. They accomplish this by hitching a ride on a JumpShip, usually for a moderate fee. The JumpShip's main function, therefore, is to carry DropShips from system to system, where they drop them off; hence, the name "DropShip".

## HISTORY

Modern space travel traces its roots back to Terra in the late 20th century, when scientists carried out numerous manned and unmanned space excursions. These were the days of space pioneers such as Yuri Gagarin, Neil Armstrong, and Norm McKenna, whose names are still honored. These early adventurers inspired others, and the struggle to reach the stars continued slowly but steadily. By the early 21st century, the practical use of space travel had begun.

In 2005, Crippen Station, the first industrial space station, was put into low Terran orbit. It was equipped with large scientific laboratories and factory modules to produce goods that could not be produced on Terra. These items included foam steel, numerous alloys and metallic compounds, and various antibiotics. Late in 2007, the station was fitted with a set of construction platforms for building the first solar-powered satellites and long-range vehicles for the manned Mars missions. Crippen Station also served as the central command center for the Western Orbital Defense Network.

Under the terms of a treaty signed by the major Terran powers in the late 20th century, each party could maintain a limited defense capability to protect against accidental missile launches or the threat of small nations with nuclear-strike capability. Though the station was a major step toward space travel, it would soon play an even more crucial role in events on Terra.



## CRIPPEN STATION

By 1994, a team of engineers from the United States and Japan had created a detailed set of blueprints for a joint, space-based ballistic missile defense system. Originally termed the SDI, or Space Defense Initiative, the project was later renamed WODeN, or Western Orbital Defense Network.

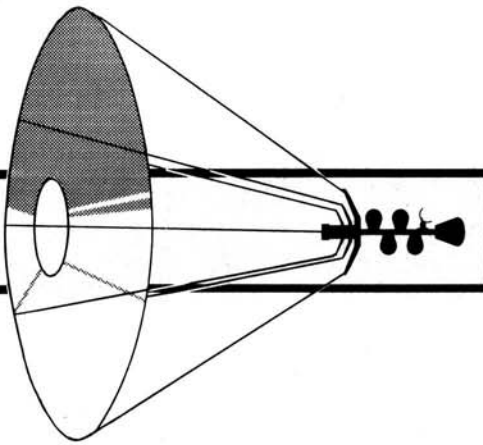
At the heart of this network was Crippen Station, a large, manned orbital space station. This slowly spinning complex was roughly 600 meters across and over 1.5 kilometers long. Housing for station personnel was located in a pair of long, thin, box-shaped structures attached at opposite sides of the station and running most of the station's length. These structures provided spacious living accommodations for up to 2,000 people. The station's slow spin created an environment of nearly one full G of artificial gravity in the living sectors.

Directly between the two living sectors was a central shaft, where most of the station's supplies and equipment were stored. Because of the zero-gravity conditions of this area, several labs, factories, and recreation areas were also located here. At one end of the central access shaft was a large, cylindrical module that had been added to the station in 2007. This module contained a number of platforms for construction and repair of defense network satellites (DeNS), solar-power satellites, and long-range ships for the manned Mars missions.

At the other end of the central shaft was the disc that contained the station's command center and docking facilities. Attached to this disc were a pair of 300-meter-long arms, each with a large defense pod at its end. These armored pods contained sophisticated electronic detection, tracking, and jamming systems, as well as a number of high-powered energy weapons. As part of WODeN's firepower, these weapons could knock down in-flight ICBMs; in fact, they did so during the second Soviet Civil War in the early 21st century.

Both the construction and the command modules remained stationary while the rest of the space station spun slowly, which solved any possible docking, firing, or construction problems that might have otherwise have occurred.

—From *Islands In The Sky*, by Margaret Van Buren, Pittsby Press, 2528



With the death of Soviet leader Oleg Tikonov in November 2011, power struggles within the Communist Party distracted the government's attention and gave captive nations a chance to rebel against Soviet rule. During the chaos that followed, the Soviet army collapsed under its own weight, and the civil war reached even bloodier intensity.

When certain Soviet commanders panicked and began to launch ICBMs at Western targets, Crippen Station played a pivotal role in preventing the massacre of millions of civilians. Satellites pinpointed the ICBMs, which were then systematically eliminated by the station's weapons systems. Meanwhile, forces of the Western Alliance intervened to end the Soviet Civil War. By March 2014, the war ended after nearly four years of hostilities.

## RISE OF THE WESTERN ALLIANCE

With tensions diminishing, the nations of Terra began to look toward the future again. The formal integration of the Western armies forged closer political and cultural ties among the members of the Western Alliance. Meanwhile, work at Crippen Station returned to scientific research and production.

In January 2016, the Alliance Space Command was formed, with its headquarters located at Crippen Station. Its first task was to develop the first permanent lunar settlement and then to establish its headquarters there. The project was quickly completed. By December of the same year, the base was fully operational, with a total of 112 resident scientists, engineers, and technicians.

Once established in its new home, the ASC authorized two manned Mars missions, while the construction of two new designs of space vehicles began immediately at Crippen Station. Each vehicle was designed to use conventional chemical propulsion, with electrical power provided by small fission power plants. To provide artificial gravity for the six-man team during their year-long round trip to Mars, each vessel was equipped with a spinning crew section.

The first of these vehicles, the interplanetary transport *AS Altair*, was launched in July 2017. Packed with scientific instrumentation and supplies, the ship began its nearly six-month journey to Mars. One month later, *Altair's* sister ship, the *Procyon*, was launched with additional supplies and fuel, to rescue the first ship's crew if it became necessary.

As the first reports were coming back from the Mars missions in January 2018, two scientists at Stanford University had begun to publish a series of papers on the existence of hyperdimensional motion within subatomic particles. These two men, Thomas Kearny and Takayoshi Fuchida, hypothesized that if an energy field of specified properties could be

## THE FUSION-POWERED MARVEL

The *Columbia's* hull was an open-architecture construction, which meant that the vessel consisted of a basic skeletal structure to which major components were attached. This modular design made it relatively easy to modify the vessel for her experimental trip to Mars.

When refitted, the ship's crew module was in front and the new drive section in the rear. Between these sections were the ship's large liquid hydrogen and oxygen tanks, cargo containers, and a large shield to protect the crew and cargo sections from the drive's radioactive emissions.

The *Columbia's* original crew module had been designed to provide comfortable accommodations for a crew of four. The new *Columbia's* crew of twelve, would, therefore, find their living space rather crowded. Along with crew accommodations, this module also contained the ship control center, an excursion vehicle hangar, electronic instrumentation, communications equipment, and supplies.

The ship's new drive section housed the FP-100D fusion power plant that General Motors Corporation had recently developed and constructed. Compared to the fusion-drive systems on 31st-century vessels, the *Columbia's* was relatively unsophisticated. It worked by pumping energy into a load of hydrogen fuel which then fused into helium, releasing a tremendous amount of energy. This surge of energy was then partially recovered to maintain the fusion process. The remaining super-hot plasma was vented out through an exhaust chamber in the ship's rear, which provided a great deal of thrust.

The *Columbia's* new cooling system was effective but also primitive by today's standards. The coolant passed through the reactor system and became superheated in the process. The explosively expanding gas was then ejected out through the drive exhaust system, along with thrust-producing plasma from the reactor core. Though the coolant was used at an extremely high rate, the *Columbia's* supply was sufficient for the *Columbia's* trip to Mars and back.

— From *A Concise History of Space Flight*, by V. King, Tharkad University Press, 3019



# SPACE TRAVEL IN THE SUCCESSOR STATES

generated, it would allow matter to be instantaneously transported between any two points in space. Unfortunately for these two pioneering scientists, they were ahead of their time. Because their hypothesis was based on unproven theories that conflicted with Einsteinian physics, the scientific community ridiculed the Kearny-Fuchida theories and hounded the two men from their positions as respected research scientists.

Meanwhile, as the world awaited the return of the Mars ships, the ASC had constructed robot probes at Crippen Station, and had sent them out to gather scientific data in the asteroid belt and on the Jovian moons of Ganymede, Europa, and Io.

In this era, the private sector was just as aggressive and successful in their achievements as the Alliance Space Command. Indeed, in 2020, General Motors Corporation developed the first self-sustaining fusion reaction, one of the greatest scientific advances of all time. The following summer, in 2021, the firm had already patented the first commercially available fusion power plant. Before the year was over, five fusion plants had entered commercial service.

Though these first units were too massive to be used in space, numerous refinements eventually reduced the power

plant's size. By April 2026, an Alliance research and engineering team developed the first working fusion drive. Though the engine was massive, Alliance engineers proved the feasibility of interplanetary space travel by constructing a spaceship large enough to be equipped with a fusion drive. The ship was the *AS Columbia*, a converted *Altair* Class transport. Originally the fourth ship of the *Altair* Class, the eight-year-old *Columbia* was refitted with an enlarged drive plant and drives.

On October 12, 2027, the *AS Columbia* left her berth at Crippen Station and began her maiden voyage. On the 26th of the same month, a mere 14 days later, she arrived in orbit around Mars. The journey took less than a tenth of the time taken by any previous ship, mainly due to the fusion drive's ability to sustain a moderate rate of acceleration for an extended period.

The previously used chemical reaction propulsion systems could attain high rates of acceleration, but burned up fuel too quickly. Standard procedure was to build up as much speed as quickly as possible, using a quarter of the ship's fuel. The ship would then coast for months until it neared its destination. At that point, it would burn another quarter of its fuel supply in deceleration.

## PROBING THE UNIVERSE

Authorized by the Western Alliance Parliament in 2028, the Magellan Project led to the development of the first probes to visit other star systems. A total of eight were constructed over a five-year period at the Challenger construction facility orbiting Terra's moon.

The *Magellan* probes were fusion-powered ships similar in design to the *Columbia*, the first fusion-powered vessel, except that their scale was significantly grander. Each probe vessel was some 300 meters long, at least twice the size of any other existing space vessel, making the *Magellan* probes the largest space vessels yet constructed.

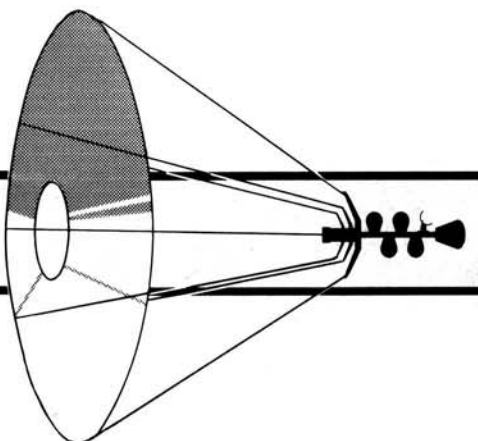
The payload of these ships was a set of four excursion vehicles, which were remotely commanded by a sophisticated master computer control system aboard the mothership. Equipped with a standard chemical propulsion system, each excursion vehicle was designed to land on the surface of a planet in the destination star system. These vehicles were carried on heavy-duty pylons near the bow of the ship. A large, heavy, parasol-shaped shield protected both vehicles and mothership from micrometeorites and the radiation that would strike the ship's front during its near-light-velocity journeys.

Located directly behind the payload section was the *Magellan's* eight enormous hydrogen fuel tanks. Each of these cylindrical tanks measured 90 meters long, 30 meters in diameter, and had a capacity for roughly 61,000 cubic meters of liquid hydrogen. Like the early multi-staged rockets, these disposable tanks were jettisoned after becoming empty, thus reducing the ship's total mass. This tremendous amount of fuel was channelled to the pair of GM FP-2000XE fusion power plants that drove the *Magellan*. The energy and thrust from these engines allowed each probe to maintain up to two Gs of acceleration for months at a time. This high level of performance was necessary if the probes were to reach the nearest stars in a reasonable number of years.

The journey of a ship began with a two G-acceleration out of the Sol system, which continued until the ship had used about half its total fuel tankage. By this time, the probe would have been under acceleration for a number of months, reaching a velocity approximately 68 percent that of light. At that point, the ship went into a semi-dormant state, sending a periodic signal back to Terra in the form of blasts from its fusion drives.

At a pre-calculated point in the journey, the ship would begin its deceleration burn. By the time that it had depleted its fuel, the probe would have arrived in the heart of the destination system. There, the ship deployed its interstellar communication gear to send data back to Terra. Most of the reports would not be received for at least a dozen years after the launching of the probe.

— From *A Concise History of Space Flight*, By V. King, Tharkad University Press, 3019



The fusion ship, on the other hand, could attain similar acceleration rates, but could also maintain them for days on a relatively small amount of fuel. Not only did this mean that the ship could make the trip in less time, but its constant, moderate acceleration also allowed the crew to live within artificial gravity.

The development of high-speed interplanetary travel led to the first great revolution in space exploration and exploitation. This era has since been referred to as the third industrial revolution.

## THE MAGELLAN PROGRAM

The number of Alliance-sponsored scientific projects grew just as rapidly. By 2050, the Western Alliance had succeeded in establishing major bases on Luna and Mars, and could boast of its scientific outposts on the Jovian moons, in Saturn's orbit, and in the asteroid belt. Several megacorporations also established themselves during the space boom, primarily in the mining of asteroids.

In 2028, a group of Alliance scientists sent a report to the Alliance Parliament that indicated the feasibility of sending fusion-powered probes to nearby star systems. After a short debate, Parliament established the Magellan Program, the most daring scientific experiment yet attempted. The project

called for the construction of eight fusion-powered interstellar vessels, each to be equipped with a number of survey drones to be dropped onto worlds that might be suitable for human habitation. The information gathered would be relayed to the mothership, and then beamed back to Terra. It would, of course, be years before anything would be heard from these ships.

The first interstellar probe ship was completed in 2029, only a year after Parliament had approved the program. For the first time, the design was a new one that would allow a starship to be built around the new fusion drives; it was almost all engine and fuel. Sandwiched between the fuel tankage and drive sections was a heavily shielded section for deep-space communications lasers, survey instrumentation, and four excursion modules.

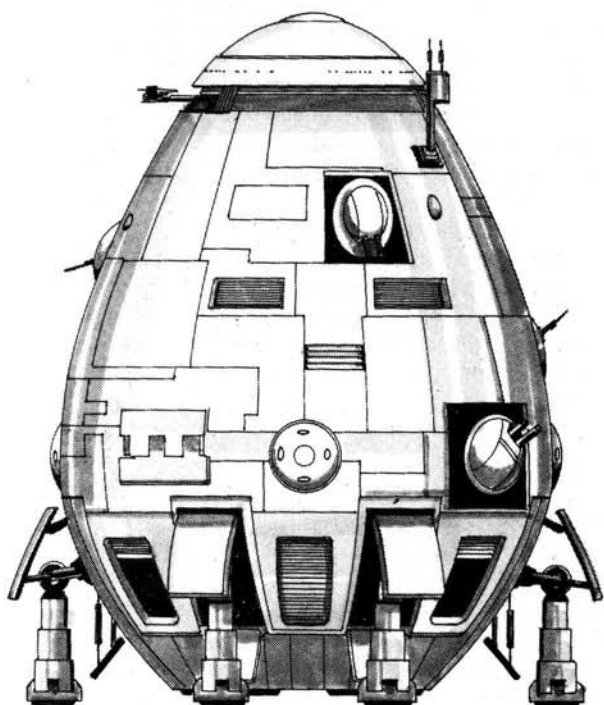
Christened *Magellan One*, the ship was launched from Crippen Station early in 2030. After accelerating at two Gs for four months, the ship reached 68 percent the speed of light. At this point, the on-board computer automatically shut down the ship's drives and coasted toward its destination, Tau Ceti. While maintaining this semi-dormant state for several years, the *Magellan One* sent signals back to Terra via directed blasts from its powerful fusion engines.

Upon approach to the Tau Ceti star system, the fusion drives once again fired their white-hot streams of plasma. Decelerating at a constant thrust of two Gs, the ship neared the habitable zone and launched its survey drones. Two dozen years after the departure of this first interstellar probe, scientists on Terra obtained evidence of a habitable planet outside the Sol system. The discovery was especially heartening because the Alpha Centauri and Barnard's Star probes had long ago reported no trace of habitable worlds.

Within the next few years, all the probes had reported back, except for *Magellan Six*, which had failed to decelerate and was never heard from again. Only three of the probes, *Magellan One*, *Four*, and *Five*, had discovered habitable worlds: at Tau Ceti, Epsilon Eridani, and Epsilon Indi, respectively.

At the time, this information was purely academic because travel times to these planets was still counted in years. The amount of food, life support, and crew required for manned journeys of such length was simply prohibitive. Though numerous organizations and scientific research groups submitted plans for the development of interstellar colony ships, the Alliance Parliament refused to sanction any of the projects, particularly because of pressure from its poorer nation-members to cut back expenditures.

During the next few decades, there was little progress in the realm of space travel. Humanity seemed to have reached an invisible barrier holding it within the Sol system, and the race turned its attention homeward. The late 21st century was marked by refinements of existing technology, with major discoveries in the fields of metallurgy, space vehicle construction, and medical science. By 2086, the Western Alliance had been renamed the Terran Alliance, reflecting the unification of the planet.





# SPACE TRAVEL IN THE SUCCESSOR STATES

## VINDICATION OF KEARNY AND FUCHIDA

The next major development in space travel did not occur until the beginning of the 22nd century, when a team of physicists conducted a series of experiments that proved the existence of hyperdimensional motion within subatomic particles. Realizing that this discovery had enormous practical implications, this same team of scientists dug out the Kearny-Fuchida papers, which had been published to such widespread scorn roughly 80 years before. Analyzing the early studies, the scientists put together the theoretical plans for a faster-than-light starship.

After the official Alliance science council verified the accuracy of these revolutionary theories, they approved the idea and forwarded the proposal to the Terran Parliament with a strong recommendation. In November 2103, after nearly 14 months of debate, the Terran Parliament authorized the Deimos Project, a crash program to build the first faster-than-light drive. (The project was named for the Martian moon where the program would take place.) Some of the poorer nations had strenuously opposed the plan because they thought that the trillion dollar price tag for the first prototype could be better spent to alleviate suffering closer to home. The steep outlay of funds to a project that offered little potential economic return had aroused serious civil unrest in these countries, particularly because funding the project meant raising per capita taxes.

Despite the protests and unrest, the project began immediately. Dozens of the Alliance's most brilliant scientists and engineers participated, led by the small research group that had formulated the original plans. After numerous initial failures, the first prototype JumpShip was ready for testing. The prototype was a needle-like ship, 200 meters long and only 10 meters in diameter. Though referred to as a ship, it was actually little more than the drive core with navigational instrumentation strapped on. There was no bridge, no cargo holds, and not even a power plant. The plan was that a fusion ship would charge the drive externally.

On August 28, 2107, the test ship was towed to a point roughly 7 AU directly above the north pole of Sol. Scientists had determined that being at a point any closer to the sun would place tidal stresses on the ship that would rip it apart during transit. The test ship's destination was a location exactly opposite its starting point, 7 AU below Sol's south pole. The points were referred to as the zenith and nadir jump points, respectively. Once the ship was in position, support personnel programmed the navigational computers from outside the ship, and a large fusion-powered space ship was used to charge the enormous drive core. It took a full ten days to complete the charging process, after which the JumpShip was finally ready to make its first journey.

The two dozen supporting ships cleared away from the JumpShip as other support ships began their observations near the nadir point. On September 3, 2107, at 12:00 AM GMT, the research flagship *Volga* transmitted the remote signal that would activate the hyperdrive. It took less than one minute for

## FUNDING FOR DEIMOS

Doctor Harrison,

Though I can understand your concern and desire for further testing of the new hyperdrive technology, pressures within the Alliance Parliament are at an extremely critical level. If we continue to increase funding for this project without seeing major results soon, I predict that the project will die prematurely.

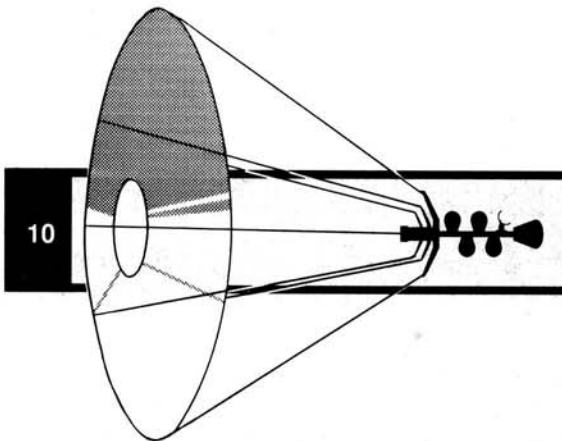
By major results, I am referring to the final goal of the Deimos Project: to send a manned space vessel to investigate evidence of a habitable world in the Tau Ceti star system.

I strongly recommend that you abandon plans for making a separate manned test flight. The added costs and delays to the project will undoubtedly make matters worse here. The first manned mission should, at the same time, be your test flight. There will be no problem finding volunteers for such a mission. If the mission should fail or if the program is cancelled, the Deimos Project will most likely come to an abrupt end.

I urge you to submit your final plans to the Science Council while I can still rally enough support to win further funding. Ambassador Areas of Brazil has already threatened to pull support for all non-domestic Alliance activities, and he has developed a rather substantial following. Despite a number of recent tax reform laws, the Alliance has already lost over a dozen member-nations already, with four more having recently filed for withdrawal.

Sincerely,  
Takeo Matsushita

— Excerpt of a letter dated April 18, 2106, from Ambassador Takeo Matsushita to Doctor Alan Harrison, Director of the Deimos Project.



10

the robot JumpShip to dissolve magically from view. Not knowing whether the ship had transported successfully or simply disintegrated, the observers at the zenith jump point awaited news from observers at the nadir jump point. Because the launch crew was located at a point directly opposite the nadir, they were the last to learn the results of the test. In a message relayed from Terra, they heard that the test ship had arrived at the nadir jump point "a little off target, but intact...Kearny and Fuchida should have lived to see the day." From that time on, what had originally been named the Deimos hyperdrive became officially recognized as the Kearny-Fuchida drive.

## TO REACH TAU CETI

The success of this experiment led to increased funding for the Deimos Project, with the long-term goal of building the first true FTL ship and manning it for survey of the habitable planet at Tau Ceti.

As the Terran Alliance appropriated the enormous expenditures necessary, the civil unrest once more broke out within the poorer nations, and even led to riots in some places. The wealthier nations maintained control, however, and continued to earmark hundreds of billions of dollars from the international economy to continue the Deimos project. They did not seem concerned about the growing rift between the richer and the poorer member nations.

The JumpShip tests continued, with engineers continually seeking to refine the navigation systems. To determine whether or not human life could survive the transit, the engineers performed another series of tests that showed no odd effects aside from a mild shift in gravitational forces and an internal temperature drop of one or two degrees. Jumps involving non-human passengers proved completely successful, and so in February of 2108, Raymond Bache became the first human to experience a trip through hyperspace. Though he reported dizziness and nausea immediately following the jump, Bache experienced no long-term negative effects. To evaluate whether the passenger's malaise was due to effects of the jump or to simple nervousness, scientists carried out further tests. Though they learned that such ill effects were unavoidably part of the experience of jump, some people reacted more than others. Considering what success of this experiment would mean to the future of the human race, some nausea and dizziness were judged acceptable, if regrettable, side effects.

The next stage of the Deimos project was to build an FTL vessel for a manned voyage. The *TAS Pathfinder* was constructed using the same basic engine design that had made the first hyperspace jump. Because it would have to rely on its own power to make the jump to Tau Ceti and back, the JumpShip

## NEW EARTH

The Terran Alliance Spaceship *Pathfinder* made its historic leap into hyperspace on December 5, 2108. Navigated by Mission Commander Norm McKenna, the long, slender vessel was based on the newly developed Kearny-Fuchida drive. The vessel was equipped with a powerful laser communications system, but it was never used to send messages to Terra. Those communications would have taken several years to arrive, while the *Pathfinder* would be back in its home system a little over a month after its departure.

Only moments after the *Pathfinder's* jump from the Sol system, it arrived safely more than three parsecs away at the edge of the Tau Ceti system. The longest stretch of the mission still lay ahead for the ship and her crew. Once they had established the ship's exact position, the crew fired up the enormous fusion drives that would power their week-long mission to Tau Ceti's inner system. As the fusion drives accelerated the ship toward its destination, they also began to slowly recharge the Kearny-Fuchida drive for the return trip home.

During the journey, scans were made of all of the detectable planets in the star system. Readings on the system's inner planets indicated an apparently Terra-like world in the center of Tau Ceti's habitable zone. These readings confirmed data received by *Magellan One*, which had been launched toward the Tau Ceti system almost 75 years earlier. Tau Ceti IV, later to be renamed New Earth, lay ahead, waiting...

— From *A Giant Leap*, by E.B. MacDonald, Bradstreet Books, 2302.





# SPACE TRAVEL IN THE SUCCESSOR STATES

was equipped with two fusion power plants and a large supply of hydrogen fuel. These, along with a set of power converters and an interplanetary maneuver drive, were enclosed in a large, box-shaped housing at one end of the ship. At the opposite end was a cylindrical structure containing the ship's bridge, crew section, and electronic systems, as well as a pair of excursion vehicles for planetary exploration. The *Pathfinder* would be crewed by twelve of the most experienced scientists and engineers of the Terran Alliance and two of its best pilots. In November 2108, the *TAS Pathfinder* was fitted and readied for its trial run.

The *TAS Pathfinder's* mission was the same as that of the first Kearny-Fuchida jump drive test. After several false starts and control adjustments, the ship was ready to set out on its long-awaited mission, the ultimate goal of the Deimos Project, the 3.46-parsec journey to Tau Ceti.

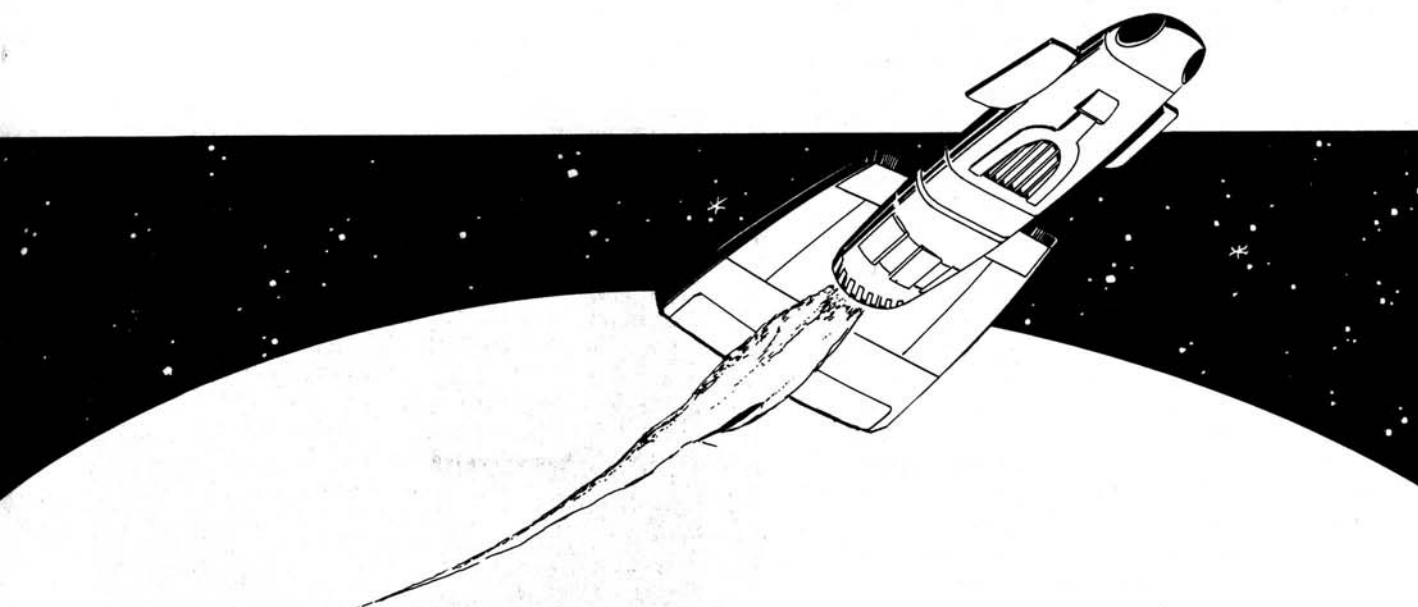
The ship made its historic interstellar journey to Tau Ceti on December 5, 2108. Though no one on Terra would know its fate until the *Pathfinder's* scheduled return 30 days later, the Jump-Ship arrived in the Tau Ceti system only seconds after her departure. Using the thrust from her enormous fusion drives, she maneuvered into orbit around the fourth planet. Two survey teams took the excursion vehicles down to the planet's surface, where they found conditions too good to be true. Tau Ceti's fourth planet was so much like Terra that it was immediately named New Earth. After collecting numerous plant and animal samples, the mission crew retrieved final proof of their mission's success: one of the *Magellan One's* survey drones, left behind more than a half-century earlier.

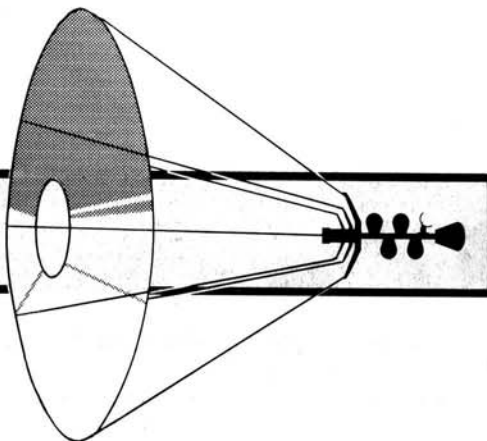
Upon return of the *Pathfinder*, the Terran Alliance declared the mission an unprecedented success. The crew's discoveries quieted some of the civil unrest that had plagued the Deimos Project; until, that is, the Alliance Parliament mandated the development of more starships and missions to other systems, and the colonization of New Earth. The level of tension among the nations of Terra had not reached such intensity for decades.

In the meantime, the *Pathfinder* was resupplied and immediately launched to perform a series of general scientific surveys of all star systems within a 40-light-year radius of the Sol system. The mission took nearly two years to complete, but the *Pathfinder* succeeded in surveying a total of 35 star systems with over 50 worlds, many of which were at least marginally habitable.

It was not long before Alliance shipyards began to produce a fleet of FTL colony ships. The first of these, the *TAS Ark*, was scheduled for completion in 2114, but production problems would delay it for another two years. The push for the stars went on, however, as the *Pathfinder* was launched once again to New Earth to establish the first scientific outpost outside the Sol system. The outpost, manned by 35 civilian scientists, was officially put into operation in February of 2110.

In 2116, the *TAS Ark* was launched to the New Earth outpost with almost 500 colonists. These hardy souls established the first interstellar colony, under the authority of Martin Cabot, an Alliance-appointed governor who answered directly to the Alliance Parliament. A few colonists objected to being ruled by a non-elected official, but in these early years, they had so much else to concern them that no serious protest ever emerged.





Shortly after the establishment of this first colony, Alliance officials began to consider the potential problems of maintaining and protecting interstellar colonies. Thus, the Terran Space Navy was created through a special appropriation passed in 2120. The initial appropriation called for the construction of six military JumpShips over the course of ten years. These vessels were to form the backbone of a new interstellar space fleet to handle future contingencies. The first of these vessels, the *TAS Charger*, was completed in 2122.

## EXODUS

By 2123, progress in FTL engineering had brought down the costs of the Kearny-Fuchida hyperdrive by a factor of 100. JumpShips and interstellar travel suddenly became feasible for private organizations and corporations. Also, because FTL technology was developed in the public domain, any private corporation with sufficient resources could build a JumpShip. This led to the furious production of and demand for these massive interstellar transports.

As colonization fever seized Terrans of all races and places, the ancient phrase of "Manifest Destiny" rose as the most popular theme of the times. New colonies sprang up almost monthly, while existing colonies continued to attract new groups of hopeful Terrans on a regular basis.

This explosion of journeys to the stars showed no sign of abating until disaster struck in 2128. In April of 2128, the FTL colony ship *Liberator* jumped out-system, carrying hundreds of eager colonists to a new world. The vessel never arrived at its destination point and was never heard from again.

In the wake of the disaster, the Alliance Parliament passed a law restricting and regulating colonization activity. From that time on, all colony ships were required to have an escort from the newly formed Terran Space Navy. Also, all colonization efforts were henceforth placed under the control of the Alliance's foreign ministry. At the same time, Alliance-appointed administrators were sent to each colony and given ruling authority as colonial governors.

These actions stunted the outward growth of the Human Sphere, but the effect was only temporary. Once expansion began again, it increased at a pace even more rapid than before. By the middle of the century, new colonies were being established at an average of two per year. A survey made in the latter half of the 22nd century reported the existence of 108 registered colonies.

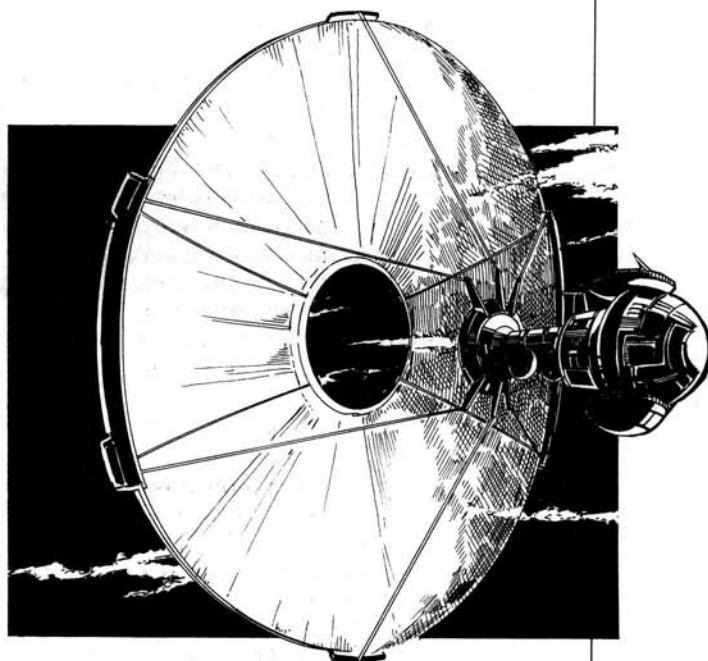
By this time, the tremendous growth of the Human Sphere was beginning to create other unexpected problems, the most serious being a critical shortage of fresh water among the colonies. Though water supplies existed on many colony worlds, it was often undrinkable, requiring expensive and bulky purification equipment that was difficult to maintain. A much-cheaper alternative came from Rudolph Ryan, a wealthy entrepreneur, who patented a special process for transporting huge asteroidal icebergs through hyperspace. Ryan's method called for a number of large hyperspace tankers to position them-

### THE JUMP SAIL

During the early 23rd century, there were a number of technological improvements on the JumpShip. The first of these refinements extended the range of the Kearny-Fuchida drive by over 50 percent and reduced its overall recharge time down to about one week. This development reduced interstellar communication lag-time, but the advances went nearly unnoticed because boundaries of the human expansion to the stars outstripped the advance of technology.

The second major improvement wrought major changes to both the operational characteristics of the JumpShip and its outward appearance. This new development was the energy-collecting jump sail, whose development was made possible by new polymer and advanced metallurgic technologies. The huge parasol-shaped sail was some 50 kilometers in diameter and constructed of high-strength material coated with a special energy-absorbing surface. These sails were extremely fragile, and had to be carefully furled and unfurled in between jumps. Even so, jump sail permitted an FTL-vessel to operate almost indefinitely without the need for refueling anything except its low-thrust station-keeping drive.

—From *A Concise History of Space Flight*, by V. King, Tharkad University Press, 3019.



# SPACE TRAVEL IN THE SUCCESSOR STATES

selves at specified points around an iceberg. With their navigation coordinates synchronized, they generated an overlapping hyperspace field that jumped the whole convoy in unison. As the ships entered hyperspace, the iceberg went with them. The method became the standard for providing colonies with fresh water.

A second problem created by the explosive growth of the Human Sphere was that of interstellar communications. Because traditional communications was limited to the speed of light, the fastest method to move information from one system to another was via JumpShip. During the early years of colonization, JumpShips did not make regular visits to most worlds, and so interstellar communication became a rather random event. To normalize communications between Terra and her colonies, the Alliance government assigned its space navy to maintain regularly scheduled message runs between the various star systems. The colonial expansion quickly outgrew the Navy's capacity to maintain this network, however. As a short-term solution, the Alliance Parliament commissioned and subsidized private organizations to fill the gaps in the circuit.

As borders of the Human Sphere pushed further outward, the effectiveness of the communications circuit was again strained. To keep the circuit and its costs under control, the Terran leaders reduced the communications circuit to serve only major worlds in each district. These worlds would, in effect, act as district capitals for the Alliance, with the authority and the responsibility to speak for the Alliance in all local matters. These, in turn, were answerable directly to the Alliance Parliament. The capitals were also given responsibility for maintaining a local communications circuit, which they were to finance and operate on their own. With this action, the Alliance inadvertently

became more isolated from all but the district capitals and the worlds closest to Terra.

Over time, the district capitals found that the funds needed to maintain communication circuits and local controls were taking a toll on their still-developing local economies. Thus, more authority was delegated to the colony worlds themselves. Though the system worked well on some colonies, many others felt alienated enough from the Alliance that they banded together and developed close ties. When the Alliance attempted to reverse the trend of decentralized authority in 2236, the colony on Denebola declared its independence from the distant Terran Alliance.

It was weeks before the Alliance Navy could muster an effective force and send it into the region. By the time the naval force arrived, the revolutionaries were well-prepared. Plagued by tenuous supply lines and lack of local support, the Alliance struggled to keep up the fight. After 18 months of battering by well-supplied and highly motivated local forces, the Alliance withdrew its task force and declared the police action a stalemate.

As a result of this fiasco, the ruling Expansionist Party on Terra received a vote of no-confidence in 2237. Upon taking power, the Liberal Party began its new rule with the immediate withdrawal of all Terran military forces from the colonies and the recall of all administrative personnel to within a 30-light year sphere around Terra. This region was to be the limit of Alliance holdings within the Human Sphere. Meanwhile, the Liberals granted independence to all frontier colonies, providing self-determination to some worlds, but robbing most of their Alliance ties and support. Because the Terran economy had grown dependent on colonial resources, economic and political turmoil followed in the wake of Terra's withdrawal. The repercussions of this action would continue to be felt for decades.

## FORMATION OF NEW STATES

The expansion of the Human Sphere continued into the early 24th century. By the end of this period, the Human Sphere had been expanded to a distance of 150 light-years from Sol. Unlike the earlier period of expansion, there was little scientific achievement during this time because most of Terra's resources were aimed at building more colony ships and populating the frontier worlds. It was not exactly a period of scientific stagnation, though it appeared so in contrast to previous periods of scientific achievements.

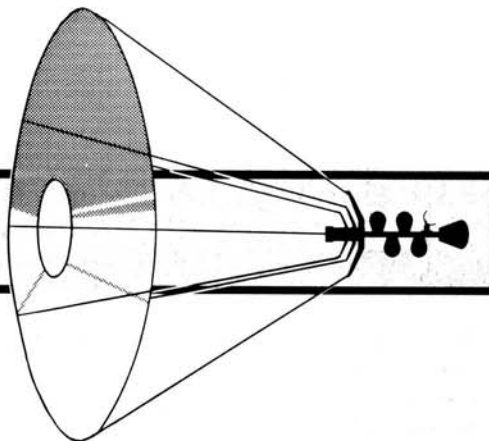
As the Exodus continued, the Alliance's resources and economy slowly bled away. Local discontent grew in direct proportion to the economic drain, and tensions between the Expansionist and the Liberal parties stretched beyond the breaking point. In September 2314, Liberal and Expansionist forces clashed on and in orbit around Terra. What might have become a disastrous civil war ended abruptly when Fleet Admiral James McKenna used Alliance military forces to intervene a week after the fighting erupted. By January of 2315, McKenna had forced the dissolution of the ineffective Terran Al-

The Age of War introduced many new developments in space combat, though most of the breakthroughs were in methodology rather than in science. The development of DropShips and the jump-capable transporter vessels are two examples. The DropShip was essentially a gigantic shuttle designed to dock with a JumpShip for travel from one star system to the next. This allowed the DropShip to concentrate its resources on maneuvering and fighting. By restricting the JumpShip to the role of transporter, its relatively delicate construction was protected from damage in battle.

Terran engineers implemented these new-style JumpShip-DropShip combinations in the Hege-mony's naval forces. It was not long before each of the other states of the Human Sphere also developed their own versions. The Capellan Confederation was actually the first to use this new technology during the Battle for Teng in 2496.

— Excerpt from *Battle Technology* by M.A. Bozulich, Donnel, Sephus, and Barrow Publishing, 2831.





### 'MECH DEPLOYMENT TECHNIQUES

The first 'Mech carrier was the *Manatee*, a converted cargo carrier that first deployed its 'Mechs on the planet Kentares in 2449. Though the 'Mechs proved their worth, the delivery vessels proved to be too vulnerable. More than one was shot down before it could deliver its 'Mechs.

This led to a rethinking of the deployment methods for BattleMech forces. One experiment used a small, armored aerospace vehicle to transport a single 'Mech down to a planet's surface. Because this method required an enormous amount of resources to carry out an assault landing, it seriously limited the number of 'Mechs that could be deployed at any one time. Another method would have to be found.

A new method was developed in 2453. Deploying 'Mechs like paratroopers, this method utilized a special landing device that was attached to the 'Mech prior to a drop. After the 'Mech had ejected from the transport DropShip, the device would activate, utilizing retro thrusters to slow the 'Mech's descent. In the same period, a ceramic and metal cocoon was developed that allowed 'Mechs to be dropped from low orbit, thus increasing the survivability of the transporting DropShip and the 'Mech force as a whole.

—From *Battle Technology* by M. A. Bozulich, Donnel, Sephys, and Barrow Publishing, 2831.

liance and taken control of a new state, which he named the Terran Hegemony. The Terrans received McKenna as a hero, and under his strongly charismatic leadership, Terra managed to regain control over dozens of former colonies. Using economic and political influence whenever possible and military force whenever necessary, the Terran Hegemony managed to regain much of the strength and stature it had enjoyed in the early days of the Terran Alliance.

When McKenna died of cancer in 2339, Michael Cameron became the Hegemony's new ruler. Cameron was a passionate advocate of government-sponsored scientific research, which resulted in a new wave of scientific development after such a long period of stagnation.

The 24th century was a time of consolidation, when numerous trade pacts, mutual defense agreements, and territorial agreements were made among the former colonies of the Terran Alliance. It was also in this period that the feudalism reemerged to take its place among the stars. As territorial leaders died or could no longer maintain their leadership, they handed their power over to members of the same family line.

Leaders no longer emerged from the ranks of the populace, but instead were born, bred, and raised among a new kind of elite.

Under these new rulers, ten major states emerged. Inevitably, these new nobles had ambitions for power and dreams of glory, which just as inevitably led to disputes. As confrontations became more intense, a military arms race began.

In 2398, the first major military confrontation within the Inner Sphere erupted when forces of the Capellan Confederation and the Free Worlds League battled for control of the Andurian system. Soon, the other states of the Inner Sphere were fighting wars for territorial gains. Following the implementation of the Ares conventions, war became commonplace, almost an adopted lifestyle among the states of the Inner Sphere. It had also become a more limited, stylized, and formal event than in the earlier, bloody times. Though these well-behaved battles solved many small disputes, they did not much affect the borders of the warring states. Thus, most of the states remained intact during this period, which lasted through the mid-26th century and became known as the Age of War.

The only major scientific advance of the Age of War occurred in the Terran Hegemony, where the first BattleMechs were being developed. The invention of these fearsome battle machines also spurred development of 'Mech deployment systems to move BattleMechs rapidly from a transporting DropShip down to the battlefield.

As the 26th century drew to a close, so too did the Age of War. Between 2556 and 2569, Ian Cameron, the 13th Director-General of the Terran Hegemony, negotiated a series of agreements among the Terran Hegemony and the five major states of the Inner Sphere. In 2571, these six states formed a new alliance under the name of the Star League. Cameron took the position of First Lord, while the leaders of the five other states formed the League's High Council. When the people of the Periphery refused to join the Star League, the League began a long and bloody war to gain control of those distant worlds. The Reunification War ended in 2597, when the last of the Periphery worlds fell to the invincible might of the League's military forces.

With the coming of peace, a new era of prosperity and scientific development began and lasted for a century. Among the many notable advances of this age was the development of the hyperpulse generator. Using the same principles that made the Kearny-Fuchida drive possible, this device was able to send messages across vast interstellar distances almost instantaneously. Indeed, the effective range of this system was twice that of a standard interstellar jump. The vast network of HPG relay stations established in the late 27th century replaced the now-outdated technology of the naval communications circuit. With the creation of this network, lag-time in communications between Terra and the outermost worlds of the Periphery was reduced to about four and one-half months. In an emergency, the system could be set up to relay messages across the same distances in a fraction of the time, but the cost and organization involved for such a task was prohibitively high.

# SPACE TRAVEL IN THE SUCCESSOR STATES

## THE MODERN AGE

With the fall of the Star League in 2781, and the start of almost 250 years of almost continual combat known as the Succession Wars, science and technology have regressed. As the wars ravaged the achievements of man thus far, much of mankind's hard-won scientific and technological knowledge began to be lost. Industries and other strategic military targets were destroyed as each of the five leaders of the Successor States struggled for dominance.

At the present time, the Successor States possess a minute fraction of their original FTL ship construction capabilities. Estimates indicate that only about a dozen new JumpShips are produced each year among all the Successor Houses. This low

level of production can barely keep up with the annual number of JumpShips lost to war and age-related breakdowns. The remaining vessels number about 2,000, an amount that has remained fairly constant for decades.

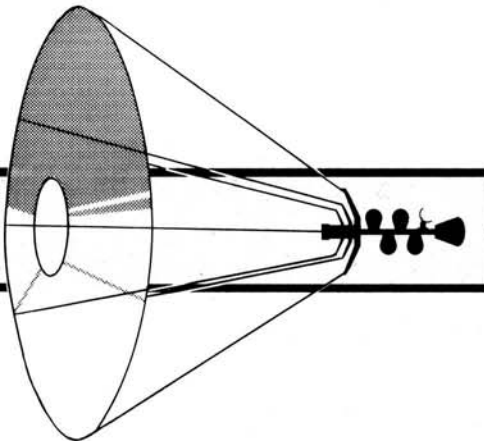
DropShip production has also suffered greatly from the ravages of the war. Whereas, at one time, thousands of DropShips were produced annually, now about only 30–45 come out of the few remaining construction facilities. Even so, the number of DropShips still operating in the Inner Sphere has held fairly steady and is still estimated at about 25,000 vessels of both civilian and military types. Though this may seem a large number, the figure does not reflect the operational status of these vessels. Many are very old and have parts that are no longer serviceable.

### JUMPSHIP AND DROPSHIP MANUFACTURERS

Vessel Type	Manufacturer
<b>JumpShip</b>	
Scout	Irian Technologies (M), Ioto Galactic Enterprises (S), Dharma HyperSpace (K)
Merchant	Stellar Trek (K), Rashpur-Owens Inc. (L), Ioto Galactic Enterprises (S)
Invader	Technicron (M), Stellar Trek (K), Rashpur-Owens Inc. (L), Ioto Galactic Enterprises (S), Universal Air (D)
Star Lord	SelaSys Inc. (M), Stellar Trek (K), Universal Air (D)
Monolith	Rashpur-Owens Inc. (L), Ioto Galactic Enterprises (S), Challenge System (D)
<b>DropShip</b>	
Fury	Brigadier Corporation (M)
Gazelle	Deller, Bingham, and Fouts (M), New Syrtis Shipyards (D)
Seeker	Tengo Aero-Space (L), Semler Data Tron (S), Salvatore Inc. (D)
Triumph	BBP Industries (K), Andurien Industries (L)
Condor	Nimakachi Fusion Products Ltd. (M), Hinsdale Elec (K)
Excalibur	BBP Industries (K), Andurien Industries (L), Semler Data Tron (S)
Leopard	Irian Technologies (M), Bowie Industries (S), Federated - Boeing Interstellar (D)
Union	Irian Technologies (M), Matabushi, Inc. (K), Earthwerks Ltd. (L), Bowie Industries (S), Federated - Boeing Interstellar (D)
Overlord	Matabushi Inc. (K), Earthwerks Ltd. (L), Shipol Company (S)
Avenger	Andurien Industries (L), Defiance Industries (S), Dynamico Ltd. (D)
Achilles	Galileo Instruments (K)
Intruder	Free Worlds Defense Industries (M), BBP Industries (K), TAG (S)
Fortress	None
Leopard CV	Irian Technologies (M), Bowie Industries (S), Federated - Boeing Interstellar (D)
Vengeance	Kallon Industries (M), Tomori Trans Industrial (K)
Buccaneer	Brigadier Corp. (M), Semler Data Tron (S), Dynamico Ltd. (D)
Mule	Tengo AeroSpace (L), TAG (S)
Monarch	Brigadier Corp. (M), Galileo Instruments (K), New Syrtis Shipyards (D)
Mammoth	Keller, Bingham, and Fouts (M), Tengo AeroSpace (L), New Syrtis Shipyards (D)
Behemoth	Brigadier Corp. (M), Galileo Instruments (K), TAG (S)

#### Key:

M: Marik  
K: Kurita  
L: Liao  
S: Steiner  
D: Davion



JumpShips provide the only means of transportation between the star systems of the Inner Sphere and the Periphery. Able to make interstellar leaps of 30 light-years at a time, JumpShips have practically unlimited range because they are powered by a solar energy sail. First developed in the early 23rd century, these sails are made from a high-strength, lightweight polymer and coated with a photochemical that absorbs solar energy and transfers it to the K-F drive core. These sails can recharge the ship's jump drive in about one week.

The JumpShip's primary mission is to transport one or more fusion-powered interplanetary space ships from one star system to the next. These ships, known as DropShips, carry cargo and passengers from the JumpShip to planet. Though most JumpShips have cargo facilities, they are used mainly to carry additional supplies for the JumpShip and its crew. Any extra space is used as an overflow area for DropShip cargo, allowing DropShips to take on additional cargo.

At the heart of the JumpShip is the massive Kearny-Fuchida drive, the long, thin cylindrical component that gives the JumpShip its capacity for FTL travel. The degenerated science of modern times has not been able to improve on the drive core's extremely complicated design. Only a handful of working versions of these complicated devices are manufactured each year.

More than a dozen JumpShip designs are still in existence, but the five described in this chapter are the types most commonly found operating in and among the Successor States.

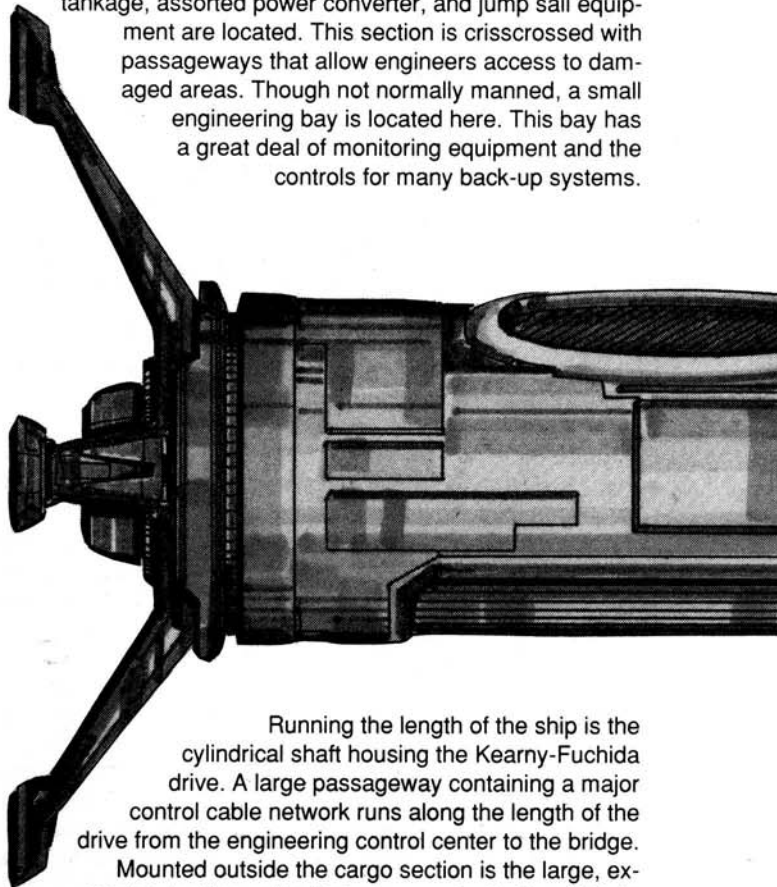
## SCOUT CLASS JUMPSHIP

The *Scout* is the smallest JumpShip still in use today. The ship masses 79,000 tons and can carry a single DropShip. Because its capacity is small, the *Scout* is a military vessel; maintenance costs and limited transport capabilities make it too inefficient for commercial use.

The *Scout* is approximately 273 meters long, with jump sail measuring 890 meters in diameter at full deployment. The *Scout*'s stubby shape is due to the fact that the ship's Kearny-Fuchida core is much shorter than on other JumpShips.

At the front of the ship is the bulbous command section, where the crew lives and works. It can accommodate up to 18 persons and is equipped with extensive recreational and medical facilities. The large bridge has an extensive computer network for making the critical calculations required in jump navigation. The ship's cargo section holds up 450 tons of supplies and equipment. Access to the *Scout*'s cargo bay is through a large airlock compartment located on the vessel's underside next to the DropShip docking hard points. On the side of the ship is a small craft bay housing a single shuttle or AeroSpace Fighter to ward off possible boarding attacks.

At the aft end of the ship is the engine section, where the ship's fusion engine core, a fusion power plant, hydrogen fuel tankage, assorted power converter, and jump sail equipment are located. This section is crisscrossed with passageways that allow engineers access to damaged areas. Though not normally manned, a small engineering bay is located here. This bay has a great deal of monitoring equipment and the controls for many back-up systems.



Running the length of the ship is the cylindrical shaft housing the Kearny-Fuchida drive. A large passageway containing a major control cable network runs along the length of the drive from the engineering control center to the bridge.

Mounted outside the cargo section is the large, extended docking collar that allows a single DropShip to attach to the *Scout*. This docking collar is reinforced to allow the JumpShip to accelerate with a DropShip of up to 25,000 tons attached. Though such an occurrence is rare, the *Scout* is one of the few JumpShips capable of it. At maximum thrust, the ship can achieve up to 0.1 Gs with a DropShip attached and 0.2 Gs without.

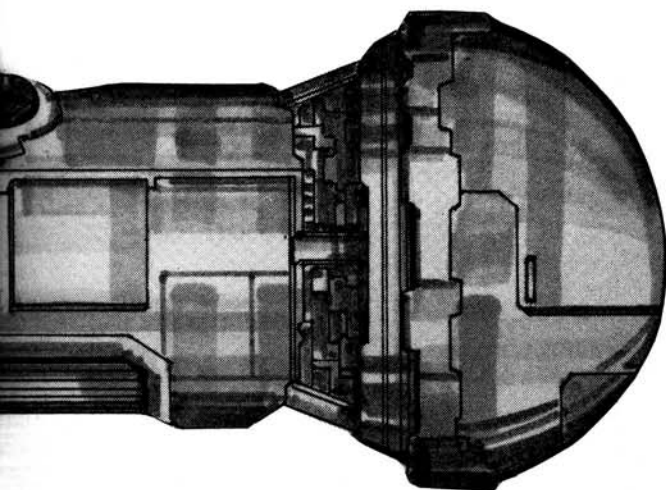
The *Scout*'s greatest advantage over other JumpShips is that its relatively small size and mass produces a small jump signature that is hard to detect. This makes it ideal for lone reconnaissance missions and surprise raids. Also, because of the *Scout*'s smaller Kearny-Fuchida drive, it takes only 80 percent of the time to quick-charge than that needed by a JumpShip of average size. Another advantage of the *Scout*'s small size is that its smaller jump sail requires about ten percent less time to furl and unfurl. The sail is also less susceptible to rips and other forms of damage.

Because the ship is designed for independent operations, it has an unusually well-equipped med bay. This facility can handle up to four emergency cases at a time, provided enough trained medical personnel are available.



# JUMPSHIPS

Unlike its larger cousins, the *Scout* does not have a grav deck. To get around this problem, the *Scout* often performs what is known as gravity maneuvering. In this maneuver, the JumpShip accelerates at full thrust toward a point in space that is usually about three or more days away. Once the ship reaches the midway point, it performs a turn-over and decelerates at the same rate. The ship then repeats this maneuver, heading back to its original location. The purpose of the maneuver is to give the crew a few days of minimal artificial gravity. Though it may appear to be a waste of fuel, the benefits



in crew health and morale make it worthwhile. JumpShips that regularly use gravity maneuvering often carry extra fuel tankage in the cargo bay. This maneuver cannot be attempted if the JumpSail is deployed.

No major variants of this ship exist, but there are numerous minor ones. One of the best-known is the *Quetzalcoatli*, operated by House Liao. Instead of the docking collar normally found on jump vessels, this variant has an AeroSpace Fighter launch and recovery facility with space for up to 20 heavy Fighters. The *Quetzalcoatli* is intended to provide fighter superiority at a system's jump point. Its cargo section carries the extra fuel. After the JumpShip became so damaged in a boarding attempt that it lost the ability to transport DropShips, it was converted into this design.

## SCOUT CLASS JUMPSHIP

**Tonnage:** 79,000

### Dimensions

**Length:** 273 meters

**Sail Diameter:** 890 meters

**Crew:** 17 crew, 1 AeroSpace Pilot

**DropShip Capacity:** 1

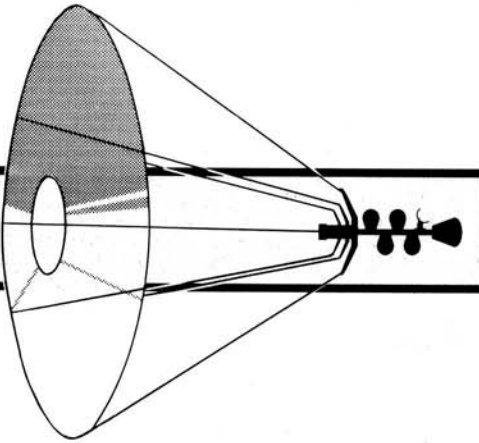
**Small Craft Complement:** 1

**Drive System:** K-F Mark IIb

**First Introduced:** 2712

**Frequency of Sighting:** Uncommon

Scout Class JumpShip	Tons
K-F Drive Integrity: 3	75,000
Energy Collector Sail Integrity: 3	40
Station-Keeping Drive: 0.2 Gs	1,930
Docking Hard Points: 1	1,000
Small Craft Cubicles: 1	150
Small Craft Bay Doors: 1	150
Grav Deck: None	
Fuel (4 Thrust Points/ton): 92	46
Consumption: 9.77 tons/burn-day	
Bridge:	198
Heat Sinks: 0 + 121	0
<b>Armor Factor (8 points/ton): 320</b>	<b>40</b>
<b>Command Section</b>	
Nose	40
Right Side	40
Left Side	40
<b>Cargo Section</b>	
Right Side	60
Left Side	60
<b>Engine Section</b>	
Right Side	30
Left Side	30
Station-Keeping Drive	20



## MERCHANT CLASS JUMPSHIP

The *Merchant* Class JumpShip is the smallest JumpShip used by independent traders, corporations, and mercenary units. It is the second smallest JumpShip still in use and can carry up to two DropShips. The ship's name was derived from its intended market at the time of its design.

The *Merchant* masses 120,000 tons and is just over 320 meters long. At full deployment, the jump sail is just under a kilometer in diameter. The vessel's two docking hard points are located along a reinforced portion of the cargo section, about midway down its length. Also located on the long, cylindrical cargo section are a pair of doors, each facing one of the docking hard points. Behind each door is an airlock leading to three independent cargo bays, each capable of holding 200 tons of cargo. On either side of the cargo section is a small craft bay. These bays are completely independent and are not connected except by standard passage corridors.

Just forward of the cargo section is a cylindrical section known as the grav deck. This deck rotates independently of the hull of the ship and provides occupants with a simulated sensation of gravity. The grav deck is approximately 5 meters wide and 40 meters in diameter. Crew or passengers can use the grav deck only when the vessel's drives are shut down or simply at station-keeping mode. Any greater acceleration puts too much stress on the motor bearings and can cause the deck to malfunction or rotate with a great deal of noise or vibration. The deck itself is essentially a gigantic lounge and recreation center. On some vessels with smaller crews, this section is partitioned into independent rooms for use as crew quarters. Because the *Merchant* normally carries a crew of only 20, the grav deck seems especially spacious.

At the front end of the *Merchant* is the unusually roomy bridge. Ringing the walls of this large, dome-shaped area are a set of large viewports. At the center of the bridge is a raised platform mounting the captain's command chair and monitoring consoles. Surrounding the captain on the deck below are the pilot's positions, engineering monitoring stations, various tracking monitors, and so on.

The *Merchant* is one of the oldest JumpShip designs still in use. The original ship had twice the crew, and now a portion of the cargo section occupies the former crew quarters. The original bridge was designed for six crew plus the captain. The bridge of the current version has been re-wired so that two people can operate the ship; one person at the pilot's station and the other at the navigator's station.

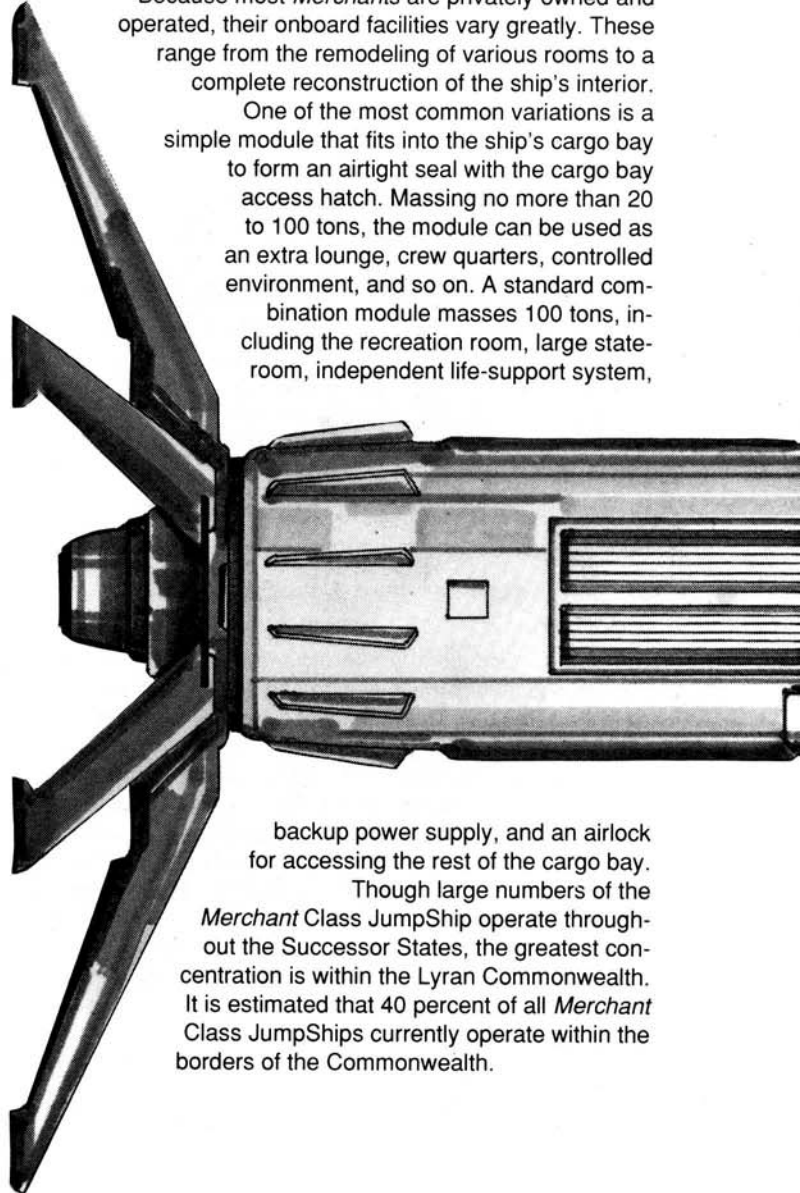
A problem that has plagued the *Merchant* since the days of the First Succession War is the lack of replacement parts for the JumpShip's power converters. This makes the average *Merchant*'s recharge time 10 to 20 percent greater than that of any other JumpShip, and delays both the solar energy collection process and the quick-charge process.

Because most *Merchants* are privately owned and operated, their onboard facilities vary greatly. These range from the remodeling of various rooms to a complete reconstruction of the ship's interior.

One of the most common variations is a simple module that fits into the ship's cargo bay to form an airtight seal with the cargo bay access hatch. Massing no more than 20 to 100 tons, the module can be used as an extra lounge, crew quarters, controlled environment, and so on. A standard combination module masses 100 tons, including the recreation room, large state-room, independent life-support system,

backup power supply, and an airlock for accessing the rest of the cargo bay.

Though large numbers of the *Merchant* Class JumpShip operate throughout the Successor States, the greatest concentration is within the Lyrn Commonwealth. It is estimated that 40 percent of all *Merchant* Class JumpShips currently operate within the borders of the Commonwealth.



# JUMPSHIPS

## MERCHANT CLASS JUMPSHIP

**Tonnage:** 120,000

### Dimensions

**Length:** 320 meters

**Sail Diameter:** 950 meters

**Crew:** 18 crew, 2 Small Craft Pilots

**DropShip Capacity:** 2

**Small Craft Complement:** 2

**Drive System:** KF Mark V

**First Introduced:** 2503

**Frequency of Sighting:** Common

## Merchant Class JumpShip

*Tons*

K-F Drive Integrity: 3 11,000

Energy Collector Sail Integrity: 3 45

Station-Keeping Drive: 0.1 Gs 1,440

Docking Hard Points: 2 2,000

Small Craft Cubicles: 2 300

Small Craft Bay Doors: 1 0

Grav Deck: 1 50

Fuel (1 thrust point/ton): 85 85

Consumption: 19.75 tons/burn-day

Bridge: 300

Heat Sinks: 0 + 98 0

**Armor Factor (8 points/ton):** 240 30

### Command Section

Nose 20

Right Side 30

Left Side 30

### Cargo Section

Right Side 45

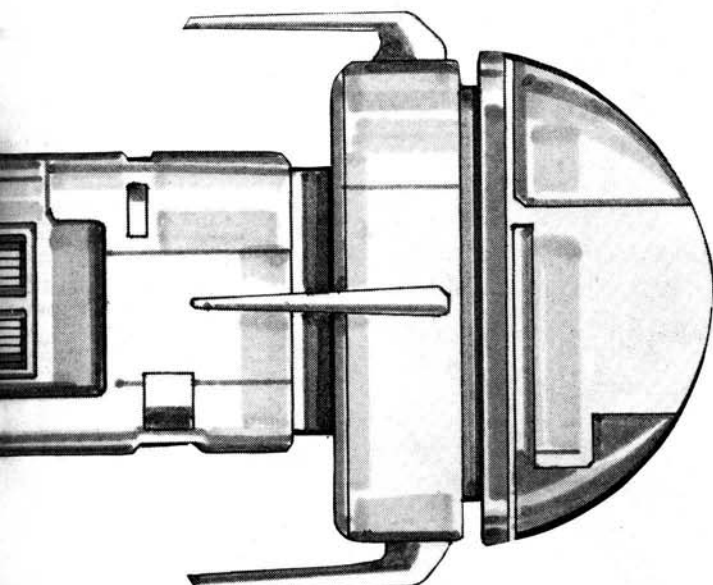
Left Side 45

### Engine Section

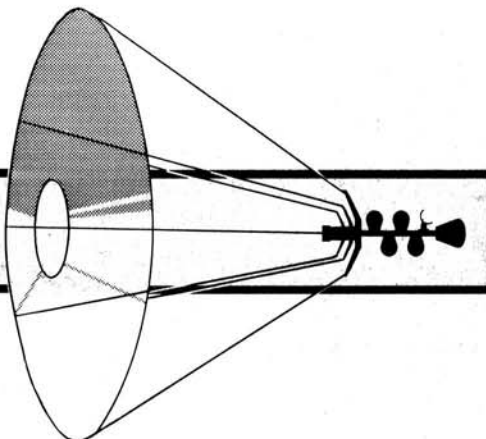
Right Side 25

Left Side 25

Station-Keeping Drive 20







## INVADER CLASS JUMPSHIP

The *Invader* is the most common JumpShip operating in the Successor States. Designed to transport up to three DropShips, the *Invader* has a cargo capacity of close to 1,000 tons. Its availability and efficient design make it well-suited for both commercial operations and for large mercenary units. The *Invader* is also the JumpShip most commonly used by the regular armies of the Successor States.

The *Invader* masses roughly 152,000 tons and is 505 meters long. When fully deployed, the ship's jump sail is just over a kilometer in diameter. Its appearance is similar to the familiar needle-like shape of many other JumpShips. Measuring 65 meters in diameter and 6 meters wide the spacious centrifugal grav deck provides artificial gravity for offduty and visiting personnel.

The JumpShip's most notable feature is the pair of large domes mounted on either side of the command section. These large structures contain hydroponic gardens that provide fresh food and oxygen for the ship's crew and yield surplus large enough for distribution to its DropShips or to be stored for future use. Plant care is fully automated on about 70 percent of all *Invaders*, while the remaining 30 percent require that crewmembers handle daily maintenance.

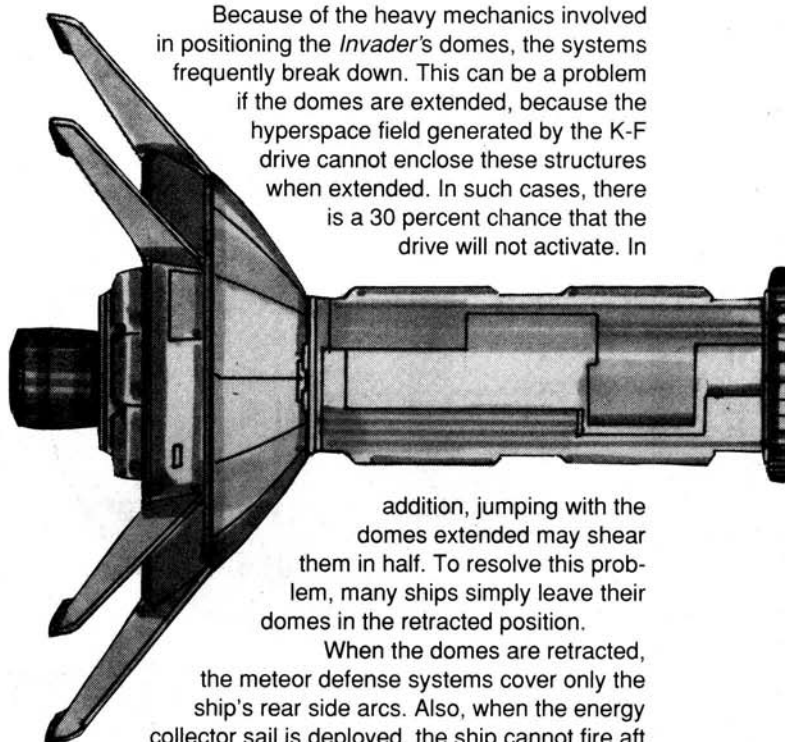
Though the hydroponic gardens take up most of the space of these domed constructions, a portion is reserved for a meteor defense system. The system originally consisted of a set of delicate long-range lasers that required a great deal of maintenance. Most *Invaders* now carry either one or two particle projection cannons or a pair of large lasers, identical to those on BattleMechs. Although the radar systems on many *Invaders* can no longer easily identify objects as small as a meteor, the PPCs or lasers are still useful for repelling boarding attacks.

Another feature of these domes is that their decks are oriented differently from the rest of the ship's decks. To alleviate problems that might occur when the ship is under acceleration, the domes are mounted on large traversing arms. Before the ship's station-keeping drives are fired up, these arms swivel out, aligning the domes so that the decks run perpendicular to the line of acceleration.

Deep within the *Invader*'s command section is a large bridge filled with communications consoles, electronic plotting boards, deep-space tracking displays, planetary map boards, and video display panels. This bridge makes the *Invader* a good choice for coordinating major merchant ship operations and task force operations.

Though designed to be operated by a staff of twelve the bridge has stations for up to 20 people. A person could operate many of the systems by himself, though many capabilities would be tremendously reduced. At full capabilities, the bridge can maintain simultaneous communications with up to ten transmitting stations, monitor up to four planet-based battles, unit movements, or combat fronts, and monitor a full-scale space battle.

Because of the heavy mechanics involved in positioning the *Invader*'s domes, the systems frequently break down. This can be a problem if the domes are extended, because the hyperspace field generated by the K-F drive cannot enclose these structures when extended. In such cases, there is a 30 percent chance that the drive will not activate. In



addition, jumping with the domes extended may shear them in half. To resolve this problem, many ships simply leave their domes in the retracted position.

When the domes are retracted, the meteor defense systems cover only the ship's rear side arcs. Also, when the energy collector sail is deployed, the ship cannot fire aft without hitting the sail.

Though no Successor State has any notable concentration of *Invader* Class JumpShips, reliable estimates indicate that approximately 46 percent of all JumpShips within the Inner Sphere are *Invaders*. Of these, Successor State armies operate nearly 51 percent, merchants own 32 percent, and mercenary companies operating within the Inner Sphere own 17 percent.

# JUMPSHIPS

## INVADER CLASS JUMPSHIP

**Tonnage:** 152,000

### Dimensions

**Length:** 505 meters

**Sail Diameter:** 1,024 meters

**Crew:** 22 crew, 2 Small Craft Pilots

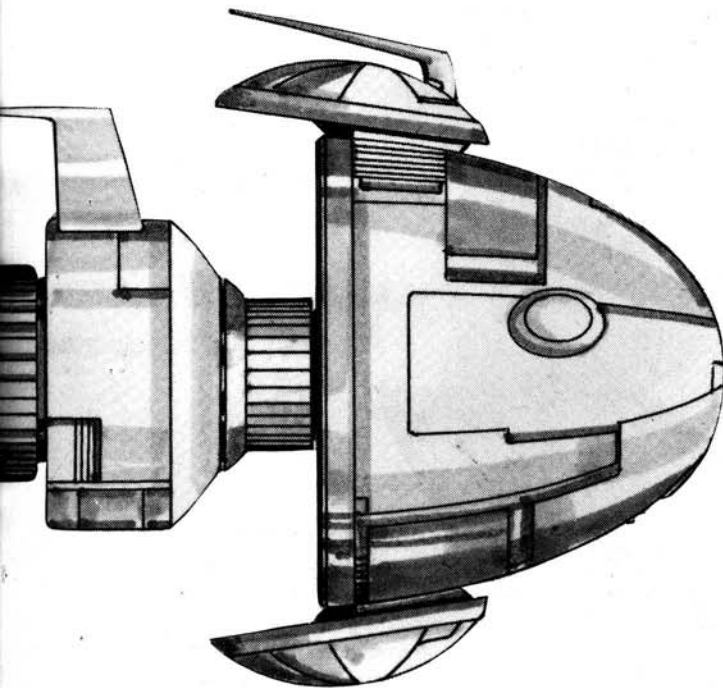
**DropShip Capacity:** 3

**Small Craft Complement:** 2

**Drive System:** KF Mark VIIa

**First Introduced:** 2631

**Frequency of Sighting:** Common



## Invader Class JumpShip

*Tons*

K-F Drive Integrity: 4 145,000

Energy Collector Sail Integrity: 4 50

Station-Keeping Drive: 0.1 Gs 1,836

Docking Hard Points: 3 3,000

Small Craft Cubicles: 2 300

Small Craft Bay Doors: 2 0

Grav Deck: 1 100

Fuel (1 Thrust Point/ton): 50 50

Consumption: 19.76 tons/burn-day

Bridge: 383

Heat Sinks: 0 + 116 0

**Armor Factor (6 points/ton):** 360 60

### Command Section

Nose 50

Right Side 45

Left Side 45

### Cargo Section

Right Side 60

Left Side 60

### Engine Section

Right Side 35

Left Side 35

Station-Keeping Drive 30

### Weapons:

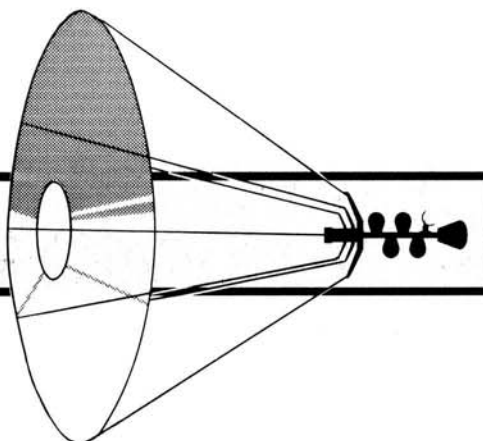
PPC 14

PPC 14

or

Large Laser 10

Large Laser 10



## STAR LORD CLASS JUMPSHIP

The *Star Lord* is the second-largest JumpShip class ever constructed. The vessel masses 274,000 tons and its large Kearny-Fuchida drive makes it capable of transporting six DropShips across interstellar distances. Because the vessel is expensive to purchase and to maintain, very few *Star Lords* are found outside of the armies of the Successor States, a few large mercenary units, and the largest megacorporations.

The *Star Lord* has the classic long, narrow core commonly associated with the JumpShip. Mounted onto the vessel's long cargo section are six structures, each containing a cargo bay able to hold 500 tons of goods. At the end of each structure and facing away from the ship is a docking hard point for DropShip attachment.

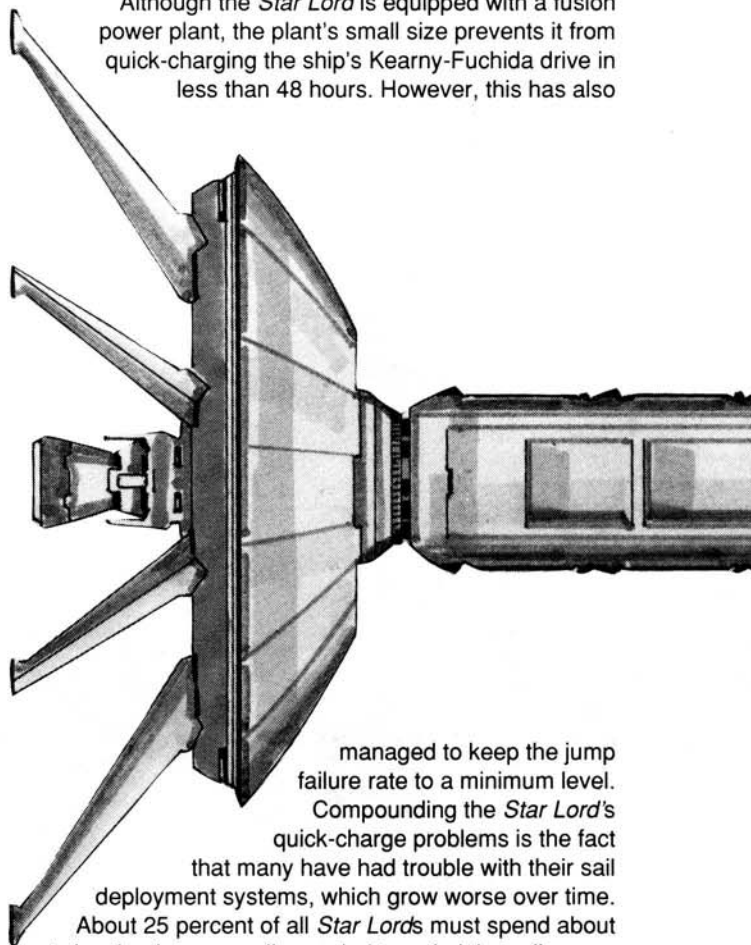
Unlike the hard points on many smaller JumpShips, the *Star Lord's* are equipped with a special grappling system. This system operates by firing a set of large electromagnetic grapples when a DropShip approaches to within close range. These grapples assist in keeping the approaching vessel in line for docking. When used on vessels of 10,000 tons or less, these high-strength grapples and cables can actually reel in the DropShip. The electromagnets are not strong enough to tow larger vessels, however. Small control booths located near each of the ship's six docking hard points operate the docking equipment. Next to each booth is a large cargo airlock leading into one of the ship's cargo bays. Each airlock has enough room to contain approximately 100 tons of cargo.

To aid in the transfer of personnel and cargo to and from undocked vessels, the ship carries four small craft in its small craft launch and recovery bays located on either side of the command section. Each bay is equipped with a complete set of small craft repair equipment, which allows the simultaneous repair of up to two craft within a pressurized, zero-G environment. As *Star Lords* generally carry enough DropShips to provide themselves with defensive firepower, they almost never carry AeroSpace Fighters. Instead, the *Star Lord's* small craft complement normally consists of shuttles and space buses.

The *Star Lord's* command section can accommodate up to 30 crew members in single-occupancy rooms, which are considered to be among the finest crew quarters in the Inner Sphere. Each room is furnished with a bed, closet, desk, and chair, a lounge chair, and a small automated food-processing system, as well as a private washroom.

In addition to standard crew accommodations, the *Star Lord* has 50 additional rooms intended to give DropShip crews a break from their cramped and uncomfortable living conditions. Sometimes, additional junior crew members are assigned to extra rooms, whose accommodations are more limited than the standard crew quarters.

Although the *Star Lord* is equipped with a fusion power plant, the plant's small size prevents it from quick-charging the ship's Kearny-Fuchida drive in less than 48 hours. However, this has also



managed to keep the jump failure rate to a minimum level.

Compounding the *Star Lord's* quick-charge problems is the fact that many have had trouble with their sail deployment systems, which grow worse over time. About 25 percent of all *Star Lords* must spend about twice the time normally needed to unfurl the sail.

Mostly because of the *Star Lord's* high maintenance costs and low rate of production, there are few *Star Lords* still in service in the Inner Sphere. For some reason, the vessel is a favorite of the Free Worlds League, where an estimated 40 percent of all *Star Lords* now operate. House Marik's production of the vessel creeps along at a rate of about two per year, with about one per year coming out of the Draconis Combine.



# JUMPSHIPS

## STAR LORD CLASS JUMPSHIP

**Tonnage:** 274,000

### Dimensions

**Length:** 660 meters

**Sail Diameter:** 1,140 meters

**Crew:** 26 crew, 4 Small Craft Pilots

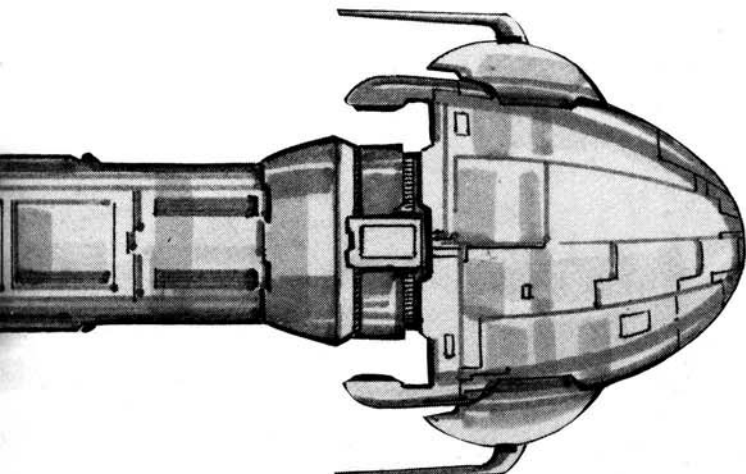
**DropShip Capacity:** 6

**Small Craft Complement:** 4

**Drive System:** KF Mark VIII a-1

**First Introduced:** 2590

**Frequency of Sighting:** Rare



## Star Lord Class JumpShip

	<i>Tons</i>
K-F Drive Integrity: 5	250,000
Energy Collector Sail Integrity: 4	65
Station-Keeping Drive: 0.1 Gs	3,300
Docking Hard Points: 6	6,000
Small Craft Cubicles: 4	600
Small Craft Bay Doors: 2	0
Grav Deck: 1	100
Fuel (1 Thrust Point/2 tons): 50	100
Consumption: 39.52 tons/burn-day	
Bridge: 383	
Heat Sinks: 0 + 130	0

## Armor Factor (4 points/ton): 300

### Command Section

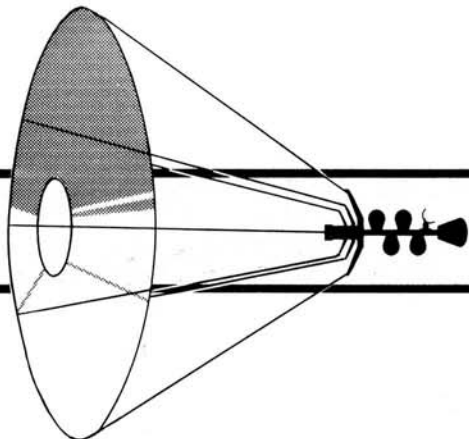
Nose	40
Right Side	40
Left Side	40

### Cargo Section

Right Side	50
Left Side	50

### Engine Section

Right Side	30
Left Side	30
Station-Keeping Drive:	20



## MONOLITH CLASS JUMPSHIP

The *Monolith* is the largest JumpShip Class still in existence in the Successor States. With its massive Kearny-Fuchida drive, the ship is capable of transporting up to nine DropShips and over 7,000 tons of cargo. Like the smaller *Star Lord* Class ship, the *Monolith* is expensive to build and to maintain, and so is found exclusively within the armies of the Successor States. Only a small number of these tremendous vessels still exist, but the abundance of spare repair parts means these giant vessels are likely to be around for quite some time.

The *Monolith* is perhaps the most well-recognized JumpShip in the Inner Sphere today. Besides being the largest jump-capable vessel, the ship also has a unique DropShip docking system, consisting of a number of heavy structural arms that can be extended out from the hull of the vessel. Standard docking collars are located at the end of the arms, which are located on the *Monolith's* cargo section in groups of three. Within each trio, the arms are spaced apart equally in a ring around the cargo section. The longest arms are located in the front ring and in the back ring, and the center group is made up of short docking arms. This arrangement allows any size DropShip to dock safely with the JumpShip.

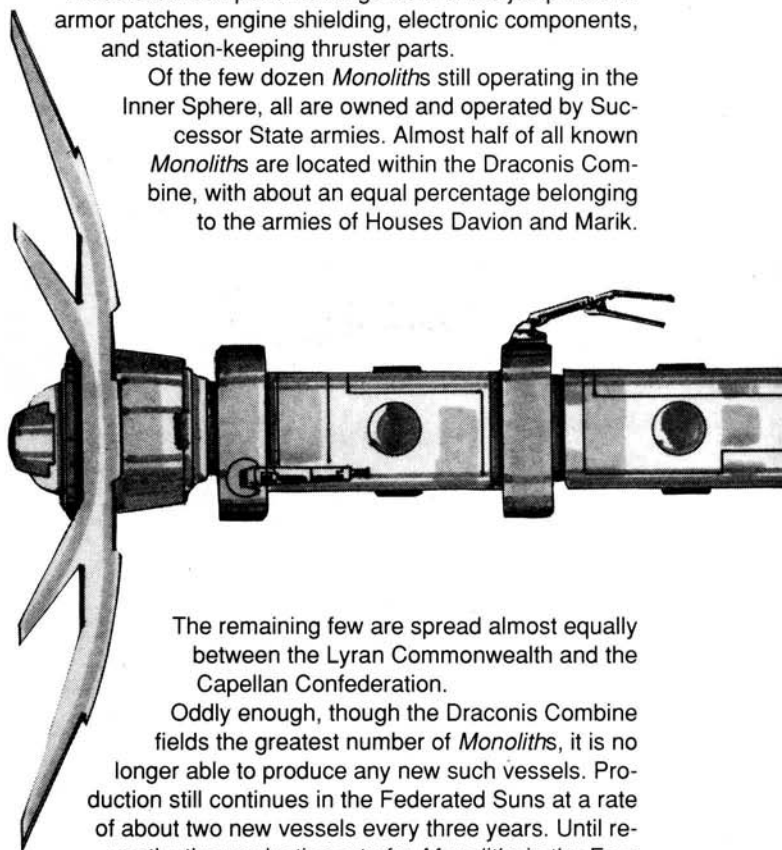
Having been designed for use in major military operations, the *Monolith* carries a number of battle-oriented systems. The first of these is a set of fuel tanks that are separate from the ship's main tanks. This extra set is to refuel DropShips during extended-range combat missions. Another feature is the combat operations control center located in the crew module at the ship's bow. This large room is filled with banks of communication stations, computer-controlled strategic display wall maps, plotting tables, and numerous other special-purpose devices. At one end of the center is the commander's control booth, which has a large pressure-proof window overlooking the activity of the operations center. Inside the commander's booth is a single large panel equipped with numerous monitors that can echo any active display in the operations center. From this panel, the mission commander can stay up-to-date on the status of his operations staff, the JumpShip, his troops, and possibly even enemy troops.

Because JumpShips are generally fragile, the *Monolith* is protected by armor that is relatively heavy for a JumpShip, though almost minor in comparison to that of some major combat DropShips. For a JumpShip, the protection is quite significant, as the vessel is not intended to enter the heart of combat.

Another feature that makes the *Monolith* less vulnerable than other JumpShips is the large on-board store of spare parts. When the *Monolith* was first constructed, an unusually large number of spare components were built at the same time.

These extra components range from entire jump sails to armor patches, engine shielding, electronic components, and station-keeping thruster parts.

Of the few dozen *Monoliths* still operating in the Inner Sphere, all are owned and operated by Successor State armies. Almost half of all known *Monoliths* are located within the Draconis Combine, with about an equal percentage belonging to the armies of Houses Davion and Marik.



The remaining few are spread almost equally between the Lyran Commonwealth and the Capellan Confederation.

Oddly enough, though the Draconis Combine fields the greatest number of *Monoliths*, it is no longer able to produce any new such vessels. Production still continues in the Federated Suns at a rate of about two new vessels every three years. Until recently, the production rate for *Monoliths* in the Free Worlds League was one every two years. It is now believed that House Marik has lost the production facilities to manufacture these starships.

# JUMPSHIPS

## MONOLITH CLASS JUMPSHIP

**Tonnage:** 380,000

### Dimensions

**Length:** 750 meters

**Sail Diameter:** 1,270 meters

**Crew:** 26 crew, 4 Small Craft Pilots

**DropShip Capacity:** 9

**Small Craft Complement:** 6

**Drive System:** KF Mark X

**First Introduced:** 2776

**Frequency of Sighting:** Rare

## Monolith Class JumpShip

	<i>Tons</i>
K-F Drive Integrity: 7	355,000
Energy Collector Sail Integrity: 5	80
Station-Keeping Drive: 0.1G	4,440
Docking Hard Points: 9	9,000
Small Craft Cubicles: 6	900
Small Craft Bay Doors: 2	0
Grav Deck: 2	200
Fuel (1 Thrust Point/2 tons): 30	60
Consumption: 39.53 tons/burn-day	
Bridge:	925
Heat Sinks: 0+137	137

**Armor Factor (4 points/ton):** 600 150

### Command Section

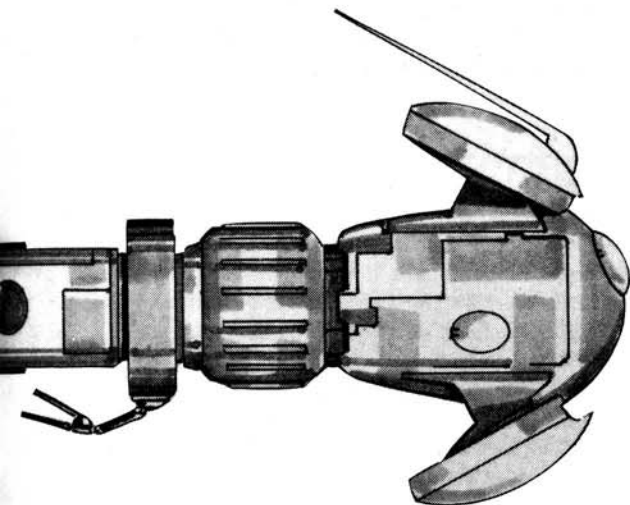
Nose	80
Right Side	70
Left Side	70

### Cargo Section

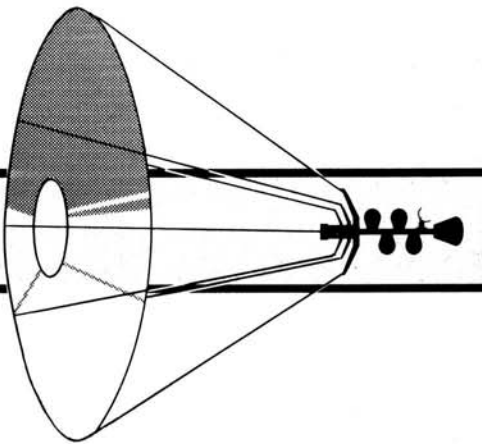
Right Side	90
Left Side	90

### Engine Section

Right Side	75
Left Side	75
Engine	50







Though the JumpShip is the rarest and, therefore, the most critical link in space travel, this vessel would be next to useless without DropShips. Often referred to as the work horse of the Inner Sphere, DropShips range from under 2,000 tons to 100,000 tons in mass.

There are two basic DropShip types, defined by their atmospheric flight capabilities. The first type is capable of atmospheric flight due to its aerodynamic design. These aerodynes are generally the smallest of the DropShips. Like aircraft, most require prepared surfaces to land and lift off safely, making the aerodyne more dependent on pre-landing support and preparation. However, many combat DropShips have adopted this design because of the higher degree of maneuverability.

The second category is composed of all ships incapable of aerodynamic flight and that must rely on the force of their drive thrust to keep them aloft. This group is called spheroids, referring to the spherical shape of these ships. Spheroids are very unstable in the atmosphere. Though their drive thrust does allow them to hover in mid-air, spheroids can be in serious danger if their drives or attitude thrusters malfunction. The overall design of the spheroid hull is very solid, however, and can be built to much larger proportions than an aerodyne can, and at much lower costs.

Nearly all modern DropShips are powered by tremendous fusion drives. These systems provide thrust by venting off superheated plasma from the vessel's engine core. The high-pressure gases can accelerate these vessels at rates exceeding one G. Extremely efficient in operation, the fusion drives can maintain sustained acceleration at this rate for weeks. This capability allows DropShips to make the journey from planet to jump point in a matter of days.

DropShips are constructed at the moderate rate of 30–45 per year. Just as the Kearny-Fuchida drive is the critical component of a JumpShip, the DropShip's is the engine core and power plant. These units are still in moderate supply; a large number are constructed annually, and old Star League stockpiles provide the rest.

## TROOP CARRIERS

### FURY CLASS DROPSHIP

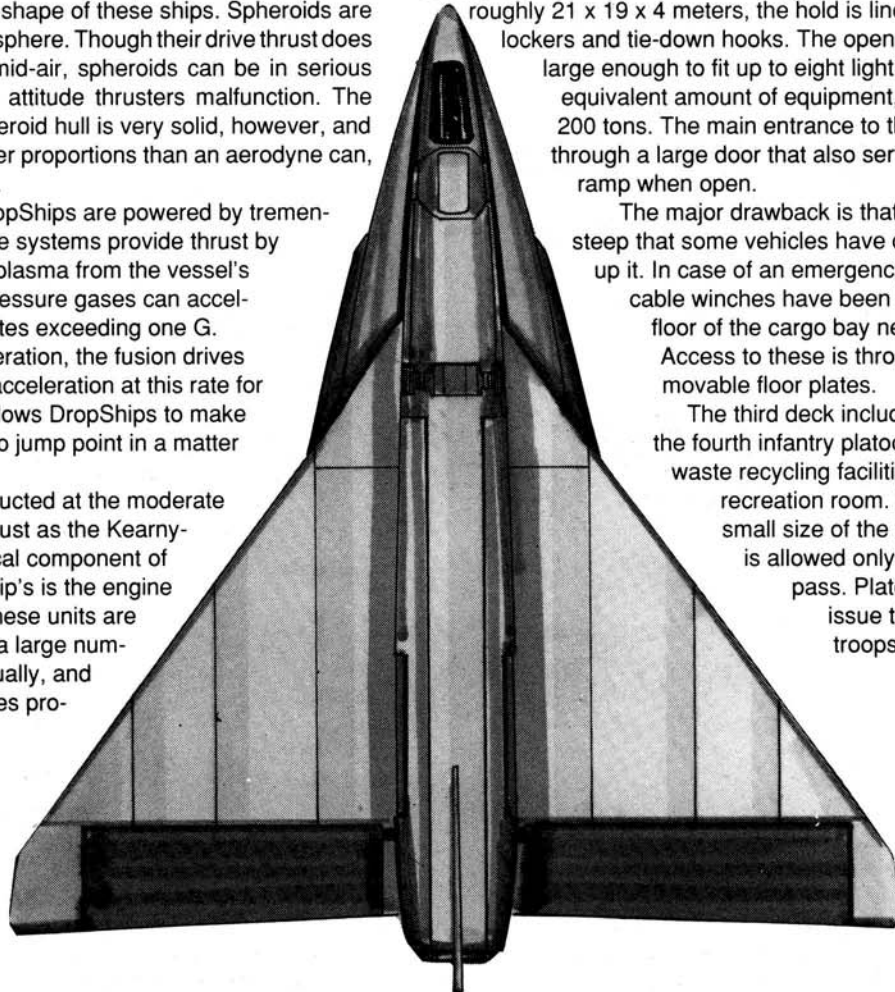
The *Fury* Class DropShip is one of the smallest DropShips operated by the armies of the Successor States. Massing 1,850 tons, this agile craft is designed to carry four platoons of infantry onto the battlefield.

The ship's interior is divided into five major decks. The lowest deck is taken up almost exclusively by the ship's drives and fuel tankage. At the forward end and beneath the ship's nose is a long ramp for loading and off-loading personnel and equipment. Access to this forward-facing ramp is from a second ramp on the deck above. When not in use, the lower ramp retracts behind a pair of heavy, hull metal doors, and the upper one raises flush with deck two.

In addition to housing the inner excursion ramp, the second deck is the main troop deck. It contains the bunkrooms for three of the four infantry platoons carried aboard ship. Also located on this deck is a large ready room and a separate mess facility. Behind the crew section is the large cargo hold. Measuring roughly 21 x 19 x 4 meters, the hold is lined with storage lockers and tie-down hooks. The open central deck is large enough to fit up to eight light vehicles, or an equivalent amount of equipment, massing up to 200 tons. The main entrance to the cargo hold is through a large door that also serves as a sturdy ramp when open.

The major drawback is that the ramp is so steep that some vehicles have difficulty driving up it. In case of an emergency, a set of steel cable winches have been mounted in the floor of the cargo bay next to the ramp. Access to these is through a set of removable floor plates.

The third deck includes quarters for the fourth infantry platoon, the laundry, waste recycling facilities, and a small recreation room. Because of the small size of the rec room, entry is allowed only to those with a pass. Platoon lieutenants issue these passes to troops on a rotational basis.



# DROPSHIPS

The four infantry platoons are divided up into four troop bays, one for each platoon. Bunks are stacked up three-high along the walls of each bay, and each bunk has a small storage locker and a number of drawers for personal effects. Each bay also provides washroom and gear storage facilities. Lieutenants each have fold-away desks and chairs for handling administrative business. The unit's Company Commander and First Sergeant share a tiny room on deck four.

Because of the limited amount of space aboard ship, the crew shares a small bunkroom. The accommodations are slightly better than for the troops. Each person shares a double-bunk and has a large personal storage locker with a built-in dresser. Each bed has a built-in reading lamp and personal-effects drawers. The crew washroom is slightly roomier than the ones used by the troops. The DropShip's command pilot and first pilot share a tiny bunkroom also located on deck four near the crew's quarters.

Three *Fury* vessels normally operate in conjunction with armor-carrying *Gazelle* Class DropShips. Though it lacks adequate protection for raids or planetary assaults, it is often used for such missions. Larger vessels, such as the *Condor* and *Triumph*, are too valuable and too vulnerable to risk in such roles. At least one *Leopard CV* or other Fighter carrier usually escorts *Fury* ships to make up for the latter's lack of Fighter-carrying capacity.

*Fury* DropShips are normally deployed in a tight formation 20,000 to 50,000 kilometers behind a DropShip assault group. This formation allows all three *Fury* DropShips to concentrate their firepower on the attacking group. If the formation is disrupted, enemy Fighters can single out one ship at a time.

## FURY CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 1,850

### Dimensions:

**Length:** 79 meters

**Height:** 28.1 meters

**Width:** 73.2 meters

**Crew:** 8

**Cargo Complement:** 200 tons, 8 light vehicles, 112 troops

### Armament:

1 PPC

2 LRM-20 Racks

1 AC/10

7 Medium Lasers

2 Small Lasers

6 Tons LRM ammunition

2 Tons AC/10 ammunition

**Drive System:** Hyperdyne 211

**First Introduced:** 2638

**Frequency of Sighting:** Uncommon

## Fury Class DropShip

Thrust: 4

Overthrust: 6

Structural Integrity: 7

Engine:	Tons
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Fuel (10 thrust points/ton)1400	400
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Consumption: 1.65 tons/burn-day

Bridge:	15
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Heat Sinks: 56 + 22	56
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<b>Armor Factor (16 points/ton):</b> 480	30
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<b>Nose</b>	90
-------------	----

<b>Right Wing</b>	80
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<b>Left Wing</b>	80
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<b>Fuselage</b>	150
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<b>Engine</b>	80
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### Weapons:

#### Nose:

PPC

Medium Laser

Medium Laser

#### Wings:

LRM-20

Medium Laser

Medium Laser

Small Laser

#### Aft:

AC/10

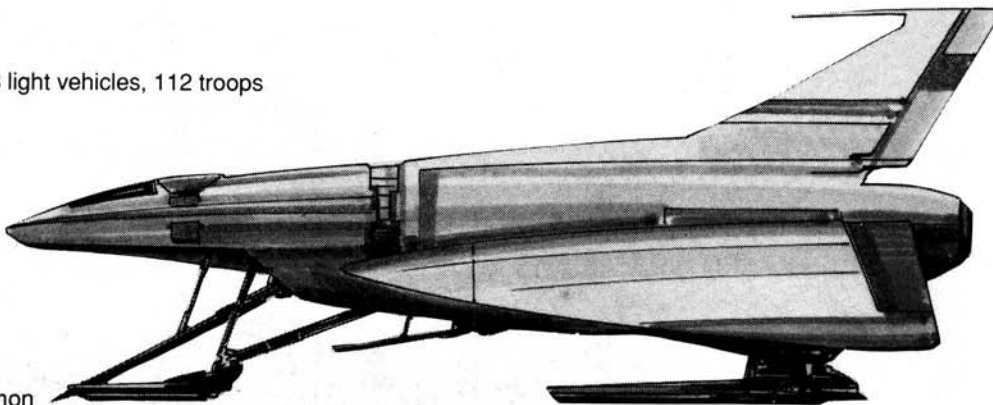
Med Laser

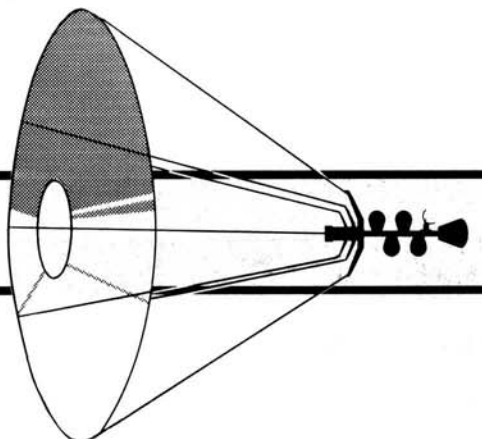
### Fire Factors:

Nose: 2

Wings: 3

Aft: 2





### GAZELLE CLASS DROPSHIP

The *Gazelle* Class is one of the smaller DropShip types operating within the Successor States, though it is not as small as *Fury* or *Leopard* Class vessels. Designed to transport a single armor company onto the battlefield, the ship has a reinforced vehicle bay able to hold 15 tanks, with a total mass of 950 tons. The cramped personnel facilities accommodate as many as 55 people, including the troops and the ship's crew.

The *Gazelle*'s interior is composed of three major decks. The bottom deck houses the ship's large vehicle bay, which is roughly 18 meters at its widest point by 59.5 meters long. Entrance into this section is through a heavy retractable ramp located in the DropShip's nose. Originally designed for the smaller armored vehicles of the past, the bay had to be enlarged later to accommodate larger, heavier vehicles. To gain extra space, the personnel accommodations and the aft cargo section were reduced. The personnel lift also had to be removed from this deck, and was replaced by a retractable ladder.

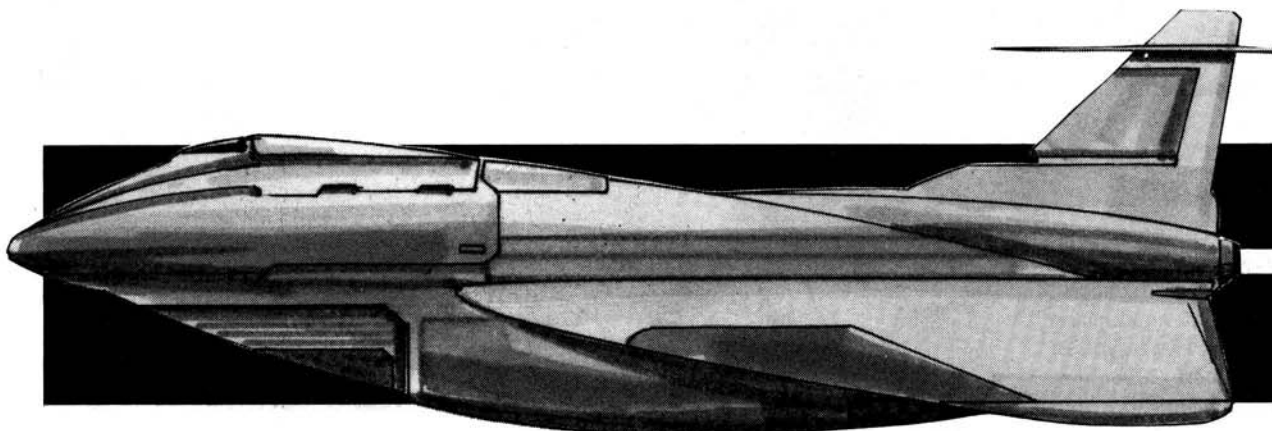
The deck's design can create logistical problems. Many unexperienced assault units have faced lengthy delays because of the difficulties of packing and unpacking a full-strength unit into the bay. Well-trained units develop an order of deployment to expedite off-loading and to increase the survivability of the entire DropShip. Many *Gazelle* crews worry whenever a green unit comes aboard because so many DropShips have been destroyed on the ground due to delays caused by inexperienced units. Smart *Gazelle* captains sit down with unit commanders to outline the best procedures for rapid vehicle deployment.

Deck two is commonly referred to as the main deck. It contains the engine room, bridge, and quarters for all ten crew members. The aft third of this deck houses the bottom half of the ship's drives.

The top deck contains most of the systems and facilities required by the crew, including the laundry, waste recycling, water tankage, med bay, mess hall, and fuel storage. The aft portion of this deck houses the upper half of the ship's drives.

In order for the ship to use its transit drives, super-hot plasma is channeled from the engine core to the drive mechanism. In the *Gazelle*, this channel passes through the compartment next to the engineering control center, causing uncomfortably hot conditions for the Engineers. To alleviate the problem, an air circulation shaft was installed from the top deck, through the main deck, and opening into the vehicle bay below. Roughly 3 x 11 meters wide, this shaft spreads heat evenly to reduce overheating the engine section. Inside this shaft are an access ladder, catwalks, and other numerous pipes and conduits.

The *Gazelle*'s passengers are divided up among three bays located on the main deck. Each bay provides housing for a single armor lance's personnel. Sleeping arrangements consist of four triple-stacked bunks, one per vehicle crew. To provide room for additional personnel, a fifth bunk is also included. Each person has a small wall locker for storing personal gear. A shared washroom takes up a large portion of the room. Because of the lack of space in the bay, the platoon lieutenant does not have a desk and chair, as on many other DropShips. Instead he must attend to his administrative tasks in the mess hall or in the vehicle bay. As on many other troop transports, the CO and First Sergeant share a small bunkroom. The ship's crew is housed in a bay next to and identical to the three troop bays.





# DROPSHIPS

## GAZELLE CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 1,903

### Dimensions

**Length:** 79 meters

**Height:** 28.1 meters

**Width:** 73.2 meters

**Crew:** 10

**Cargo Complement:** 950 tons, 15 heavy vehicles, 45 troops

### Armament:

2 PPCs

1 LRM-20 Rack

1 AC/5

2 SRM-6s

1 Large Laser

10 Medium Lasers

4 Tons LRM ammunition

2 Tons SRM-6 ammunition

1 Ton AC/5 ammunition

**Drive System:** Star League V95

**First Introduced:** 2531

**Frequency of Sighting:** Uncommon

## Gazelle Class DropShips

**Thrust:** 4

**Overthrust:** 6

**Structural Integrity:** 8

	<i>Tons</i>
Engine	410
Fuel (9 thrust points/ton) 1,233	137
Consumption: 1.84 tons/burn-day	
Bridge:	15
Heat Sinks: 48 + 22	48

**Armor Factor (16 points/ton):** 480 30

**Nose** 100

**Right Wing** 85

**Left Wing** 85

**Fuselage** 140

**Engine** 70

### Weapons:

#### Nose:

LRM-20

AC/5

Medium Laser

Medium Laser

#### Wings:

PPC

SRM-6

Medium Laser

Medium Laser

Medium Laser

#### Aft:

Large Laser

Medium Laser

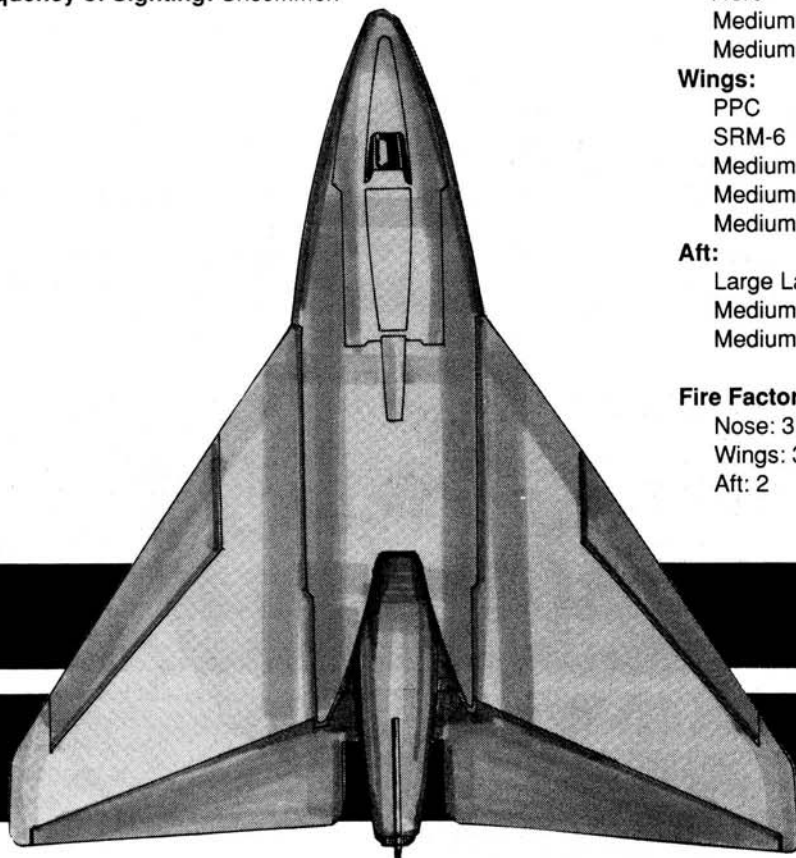
Medium Laser

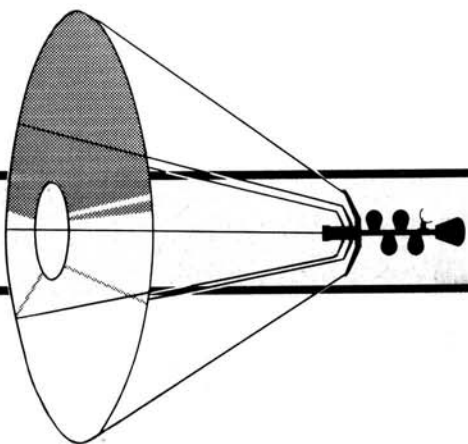
### Fire Factors:

Nose: 3

Wings: 3

Aft: 2





## SEEKER CLASS DROPSHIP

The *Seeker* Class DropShip's mission is to carry a full scout battalion into hostile territory, and so it has been designed to operate independently of other supporting vessels. At a mass of 3,700 tons, it is one of the fastest and most maneuverable DropShips in its size and weight class, due to its Quad-RanTech 720 Fusion Drive system.

As a spheroid-type DropShip, the *Seeker* must rely completely on its drive thrust to stay in the air during atmospheric operations. Unlike the aerodynamic design of the aerodyne DropShip, the spheroid is generally unstable and so requires constant thrust vectoring to keep it from tumbling out of control.

The *Seeker's* interior is divided into three major sections. Running through the center of the lower two sections is the DropShip's heavily shielded fusion power plant and engine core.

The lowermost section contains the ship's enormous vehicle bay. Alongside one of the ship's two loading ramps is a tall area that can hold a pair of BattleMech cubicles, each taking up 150 tons of the bay's vehicle-carrying capacity. Under normal conditions, the vehicle bay can hold up to 50 light vehicles, with a maximum mass capacity of 1,000 tons. This deck also contains all landing gear machinery and a pair of small weapons bays.

The *Seeker's* middle section also houses an unusually tall cargo hold that can accommodate up to two BattleMech cubicles, if needed. Normally, the bay is used to carry extra vehicles, supplies, or equipment for the transported unit. Also located in this section are the main fuel tankage, heat sinks, and a pair of aft-directed weapons bays and ammo storage.

The topmost section is divided into four decks. The bottom deck contains the ship's engineering control center, batteries, heat pumps, back-up generators, coolant reserves, machine shops, and spare parts storage. The next deck up contains the waste recycling plant, the laundry, life-support systems, and storage for fresh water, ammo, food, and repair parts. The next deck contains the remaining troop bay, the crew quarters, separate crew mess and equipment storage, the bridge, and the combat operations centers. The topmost deck contains the docking collar, avionics, forward weapons bay, communications gear, and more batteries.

The *Seeker's* engine core is equipped with four small fusion reactors, which makes it easy to repair and maintain the vessel in the field. Because each reactor is independently operated and shielded, engineers can work safely on one reactor while the other three are still operating. This system also conserves fuel, as three reactors can be shut down while the fourth functions to at low power. When full power is needed, this single reactor has enough output to restart the other three, a process that requires only about five minutes to perform.

The *Seeker* carries its passengers in three bays, each of which is further divided into three small sub-bays. Each sub-bay

houses a single platoon of scouts or a squad of motorized infantry. There are normally four triple-tiered bunks in each sub-bay,

with small personal-gear lockers at one end of the room. Each bay contains a

single large washroom that is shared by all three sub-bays. A

set of small double-occupancy quarters are set aside

to accommodate an additional twelve personnel.

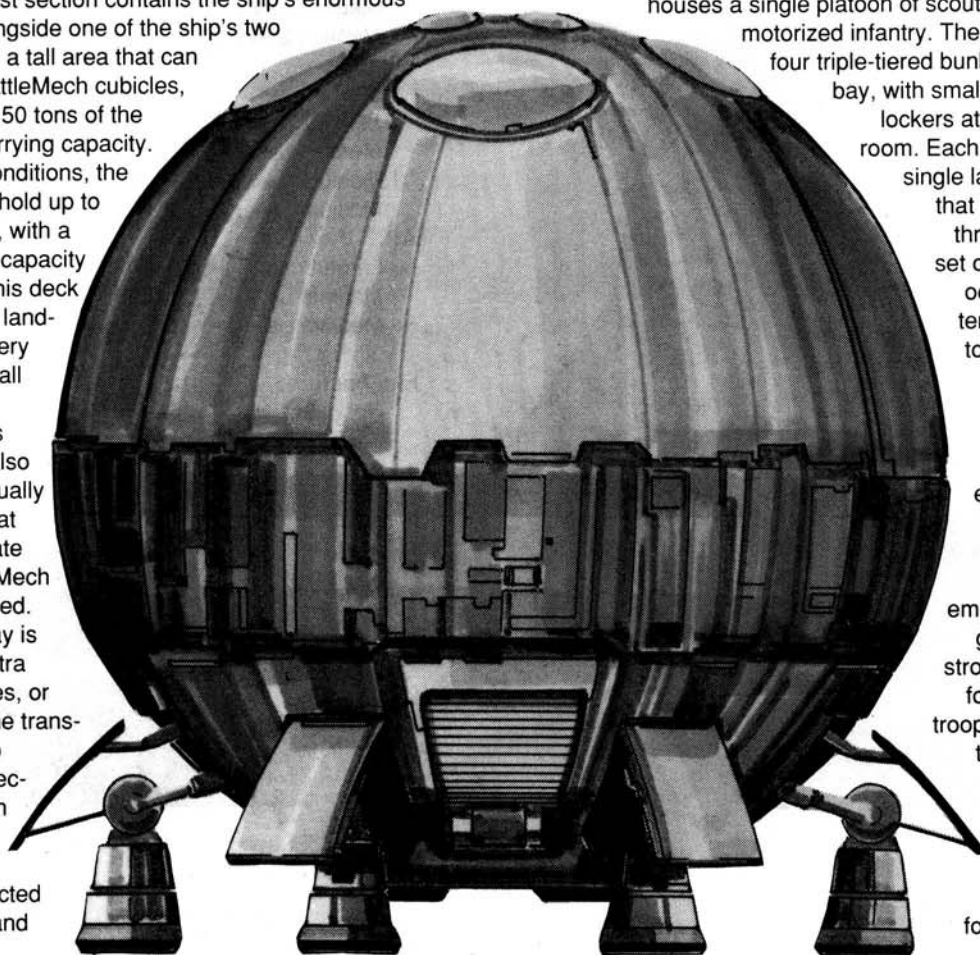
The *Seeker* is equipped with a

fairly extensive med bay for handling most emergencies. This

gives the ship a strong support role for its passenger troops, and allows it

to operate independently. The crew of the Drop-

Ship is housed in tiny, four-person bunk



# DROPSHIPS

rooms, with a single washroom for the entire crew. Each quad-occupancy bunkroom has a pair of double-bunks, a fold-down table, and four large personal-storage lockers.

The *Seeker* was designed as a forward reconnaissance ship to scout out a planet. Its construction reflects this need for independent operations. The design includes large spare parts stores, extended food supplies and water tankage, and large ammunition storage bays. The ship was also equipped primarily with energy weapons to make it less dependent on ammunition supplies.

The DropShip's lack of Fighter bays is probably its greatest weak point. In the absence of Fighter support, it must often depend upon its own inadequate firepower to ward off enemy Fighters. Many *Seekers* have been lost in solitary encounters with Fighters.

To remedy this situation, many *Seekers* carry a pair of AeroSpace Fighters in the vehicle bay. Though the bay is not designed for small craft launching and recovery it can be converted. Because the ship is not equipped with proper recovery equipment, however, both the DropShip and Fighter must have exactly zero relative velocity. Small craft recovery takes two to three times longer than on other Fighter-equipped DropShips.

## SEEKER CLASS DROPSHIP

**Type:** Spheroid

**Tonnage:** 3,700

### Dimensions

**Height:** 88.7 meters

**Width:** 90.2 meters

**Crew:** 20

**Cargo:** 1,350 tons; 64 light vehicles (or 48 light vehicles and 4 BattleMech cubicles, 120 troops

### Armament:

2 PPCs

2 LRM-10s

3 Large Lasers

6 Medium Lasers

3 Tons LRM ammunition

**Drive System:** Quad RanTech 720

**First Introduced:** 2815

**Frequency of Sighting:** Rare

## Seeker Class DropShip

Thrust: 5

Overthrust: 8

Structural Integrity: 10

	Tons
Engine: 1,190	
Fuel (6 Thrust Points/ton) 1,314	215
Consumption: 1.84 tons/burn-day	
Bridge:	26
Heat Sinks: 0 + 88	0

<b>Armor Factor (16 points/ton):</b> 480	30
<b>Nose</b>	90
<b>Right Side</b>	85
<b>Left Side</b>	85
<b>Fuselage</b>	135
<b>Engine</b>	85

### Weapons :

#### Nose:

None

#### Sides:

PPC

#### Rear Sides:

LRM-10

Large Laser

Medium Laser

Medium Laser

#### Aft:

Large Laser

Medium Laser

Medium Laser

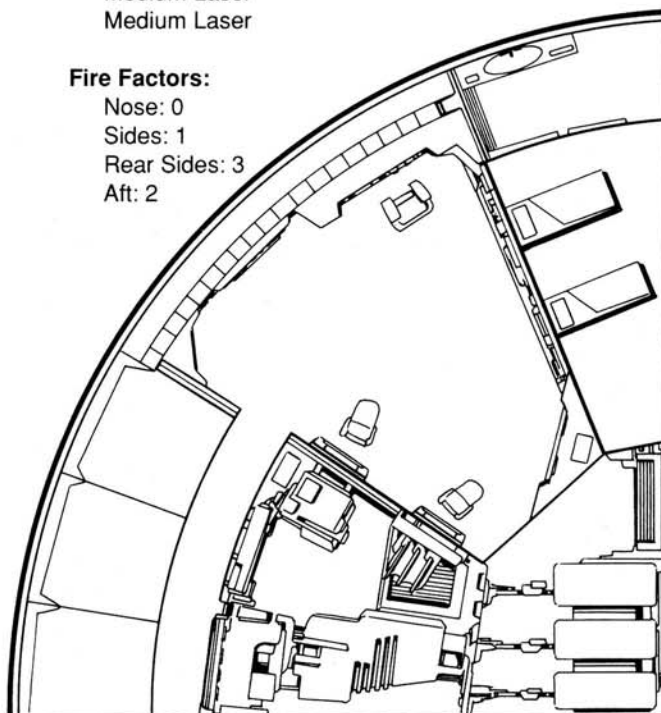
### Fire Factors:

Nose: 0

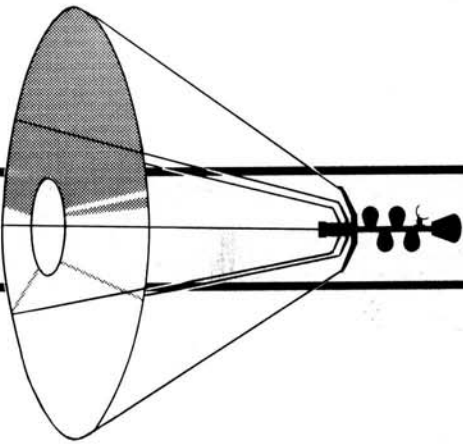
Sides: 1

Rear Sides: 3

Aft: 2







### TRIUMPH CLASS DROPSHIP

The *Triumph* Class DropShip is designed to carry a fully equipped armor battalion onto the battlefield. Able to transport up to 45 tanks and their crews, the ship is one of the more common classes of DropShips in the Successor States. In addition to transporting armored vehicles, its cavernous vehicle bay is also perfect for transporting conventional aircraft, artillery, BattleMechs, and AeroSpace Fighters.

The *Triumph* is the largest aerodyne vessel still in existence. Though the shape limits its transit flight characteristics, it does allow the *Triumph*'s armored vehicles to be loaded and unloaded easily.

The ship's large interior is divided into five decks. The bottommost deck houses the ship's transit drives, landing gear, and fuel tankage. Running through the center of this deck is a portion of the ship's vehicle bay, which has room for 15 tanks lined up end to end. Near the aft end are two cargo bays, each capable of holding tons of supplies and equipment. The bays each have enough floor area to fit four light vehicles.

The ship's main vehicle bay occupies most of the second deck. At the end is a ramp that, when lowered, leads down to the bottom deck, but blocks any access to the lower vehicle bay. The second deck also houses the ship's forward weapons bay and ammunition storage.

The middle deck contains most of the ship's personnel and mess facilities, med bay, food storage, and personal equipment storage. The deck's aft section houses the lower half of the ship's engine core.

The fourth deck contains the DropShip's engineering central center, avionics, computers, communications electronics, batteries, and the upper half of the forward weapons bay. Also located on this deck is a well-equipped tactical operations center for use in coordinating ground unit movement and combat. The back of the deck is taken up by the upper half of the engine core.

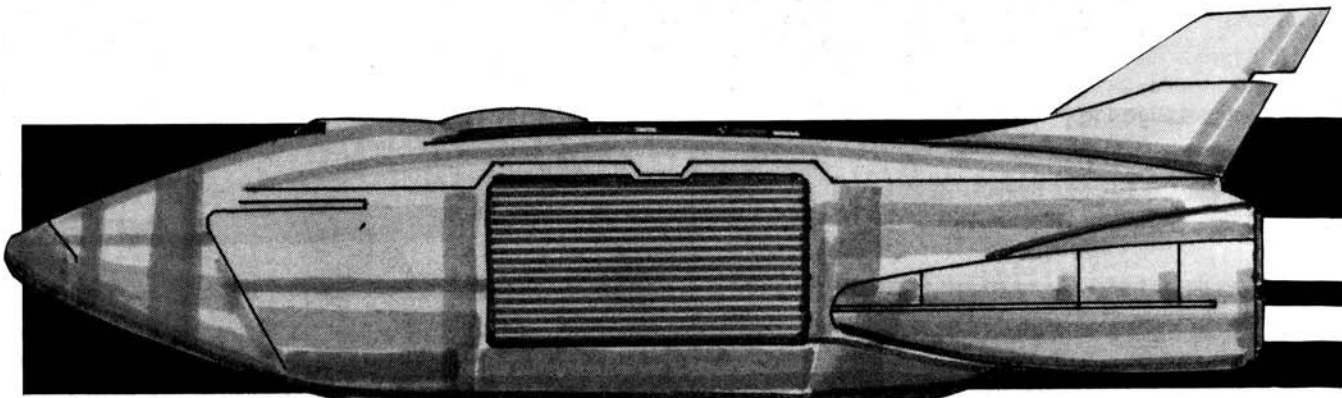
The fifth deck houses the bridge, deep-space tracking radar, waste processing, equipment storage, ship's laundry, and fire-control systems. The back portion of the deck houses the power plant. Located at the far aft end is a rear-firing weapons bay that can be accessed only through the engine compartment.

The *Triumph* has three large bays to house the personnel of the armor companies. Each bay is long and narrow, with twelve double-high bunks lining each wall. Between each set of bunks is a large personal gear locker. At one end of the bay is a washroom that the entire company shares. At the opposite end is the main entrance, next to which is a door leading into the CO's room. The unit commander and the First Sergeant share this room, which contains one double bunk, a fold-down wash basin, and a pair of fold-down tables and benches.

The ship's crew is housed in double-occupancy quarters located on the deck above the troop deck. The crew also has a separate mess and their own recreation facilities.

The *Triumph*'s mission is to land in a pre-established landing zone and then deliver its battalion of tanks. Though the ship was not designed to enter contested territory, it has been called upon more than once to deploy reinforcements into the middle of a battle zone.

The *Triumph* is a demoralizing sight to enemy units. Though its passengers and cargo are not MechWarriors and BattleMechs, an armor battalion usually makes up for it in numbers.



# DROPSHIPS

## TRIUMPH CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 5,600

### Dimensions:

**Length:** 129 meters

**Height:** 43 meters

**Width:** 120.2 meters

**Crew:** 15

**Cargo Complement:** 3,260 tons, 45 heavy vehicles, 8 light vehicles, 135 troops

### Armament:

1 PPC

1 AC/10

2 AC/5

1 LRM-20

2 LRM-15

1 LRM-10

2 Large Lasers

8 Medium Lasers

2 Tons AC/5 ammunition

2 Tons AC/10 ammunition

7 Tons LRM ammunition

**Drive System:** Delano 1070

**First Introduced:** 2593

**Frequency of Sighting:** Rare

## Triumph Class DropShip

**Thrust:** 3

**Overthrust:** 5

**Structural Integrity:** 11

Engine:	Tons
Fuel (5 Thrust Points/ton): 1,250	1,070
Consumption: 1.84 tons/burn-day	250
Bridge:	26
Heat Sinks: 30 + 82	30

<b>Armor Factor (16 points/ton):</b> 560	35
<b>Nose</b>	110
<b>Right Wing</b>	100
<b>Left Wing</b>	100
<b>Fuselage</b>	170
<b>Engine</b>	80

### Weapons:

#### Nose:

PPC

AC/10

LRM-20

Medium Laser

Medium Laser

#### Wings:

AC/5

LRM-15

Large Laser

Medium Laser

Medium Laser

#### Aft:

LRM-10

Medium Laser

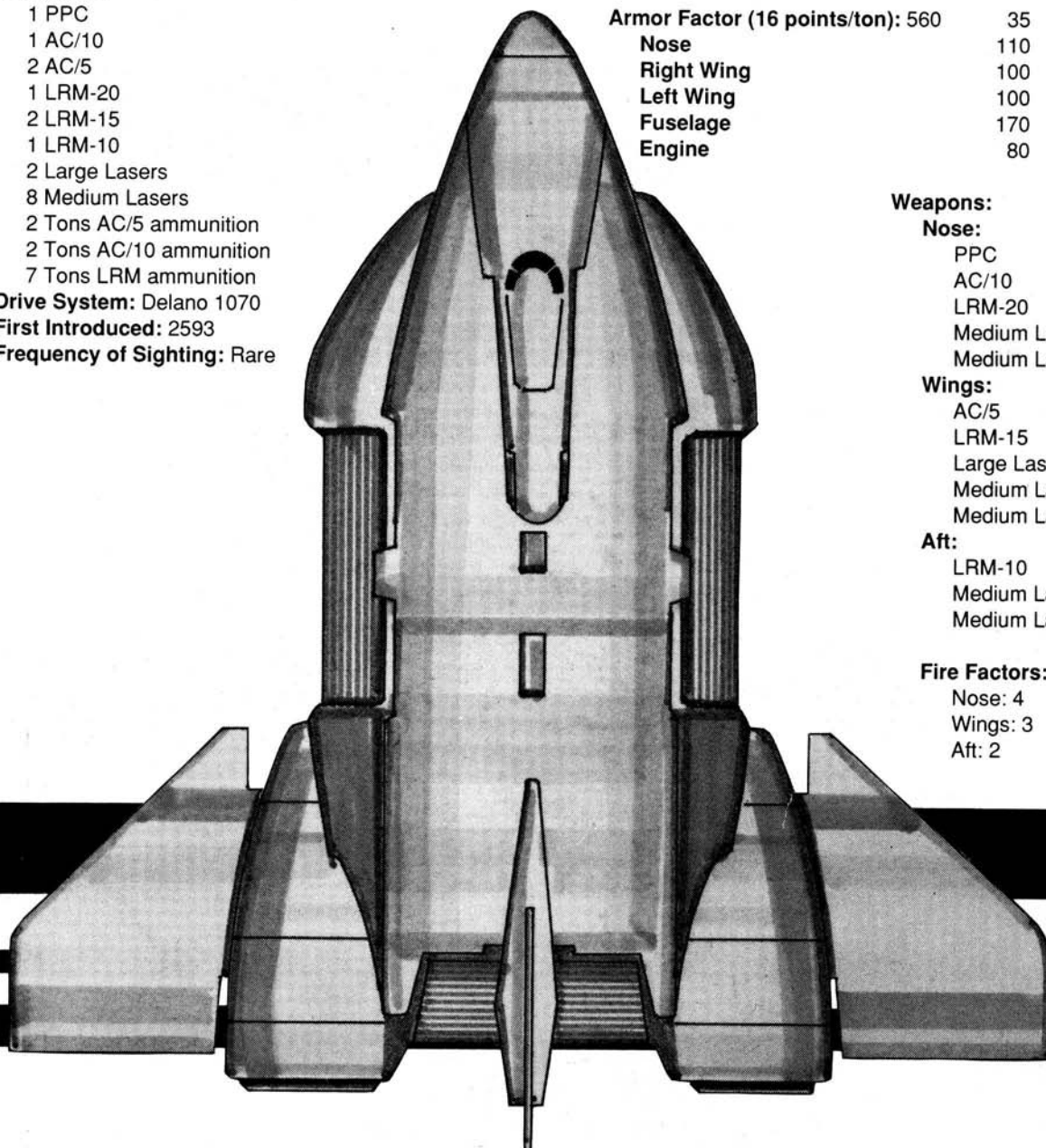
Medium Laser

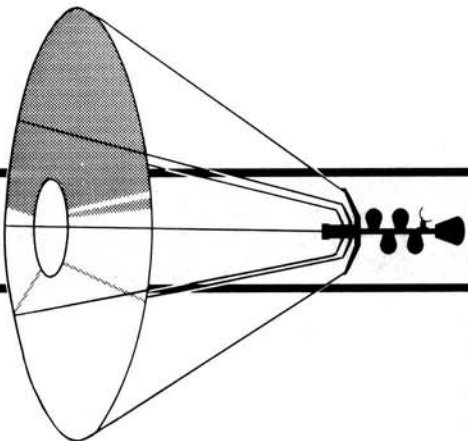
### Fire Factors:

Nose: 4

Wings: 3

Aft: 2





### CONDOR CLASS DROPSHIP

The *Condor* Class DropShip is designed to deliver a fully equipped battalion of infantry onto the battlefield. The ship masses 4,500 tons and has accommodations for 360 personnel, including the ship's crew. In addition, it also has a pair of cargoholds, each capable of storing up to 200 tons of equipment and supplies. The *Condor* is the largest DropShip designed purely for the transport of infantry. It is also one of the few DropShips with an aerodynamic lifting body.

The *Condor*'s wings are extremely sturdy, more so than on other ships. As a result, the *Condor* is less susceptible to control surface damage than any other aerodyne vessel. Roughly 17 percent of all hits that would damage other ships' control surfaces have no effect on the *Condor*.

Within the large cavity of each wing is the ship's fuel tankage, most of the avionics, weapons bays, ammunition storage, and massive landing gear. An access corridor crisscrosses the interior of the wings and leads into the lowest deck of the main hull. When the ship is under acceleration or resting on a planet's surface, it is difficult to walk the passageways because of the steep angle of the wings.

The main body of the *Condor* is divided into five decks. The lowermost deck contains the ship's interplanetary transit drives, which can provide the ship with up to 1.6 Gs of acceleration. At the aft end of the deck is a large open area used as a troop ready-room. Troops are moved into this area one company at a time for deployment onto a planet's surface. Exit is through a large rear door that, when lowered, serves as a ramp. Access to deck two is through a large, 20-ton-capacity cargo elevator that has enough room for a single heavy vehicle or a platoon of infantry. A locked access door leads into the lower engine section.

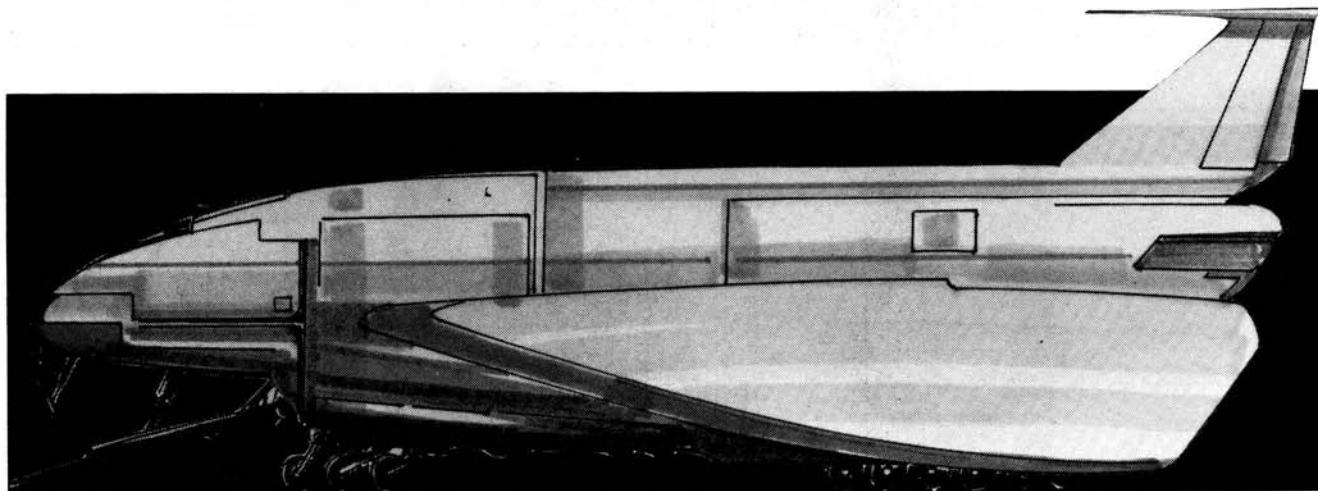
Located at the aft end of deck two are the *Condor*'s two 200-ton-capacity cargoholds. Each hold has enough room for up to ten light vehicles, and measures roughly 20 x 25 meters. In the forward portion of this deck are the barracks-style quarters for some of the ship's troops. Also located here are troop mess facilities, a recreation room, a training bay, and food storage. At the far forward end of this deck is the ship's forward weapons bay and ammunition storage. Access to deck three is through the main lift, which is located amidships and runs from this deck up to deck five.

Deck three contains another portion of the troop bays. It also has its own mess facilities and recreation room, but lacks its own training area; troops must use the off-loading holding area on deck one for this purpose. In place of a training area, this deck contains a large medical facility that can handle six emergency cases simultaneously. The rear half of deck three contains half of the ship's engine core. In the nose is the ship's deep-space radar.

Deck four houses the remaining troop bays, as well as a mess hall, recreation room, and training bay. This deck also contains quarters for the battalion commander and the battalion staff. Each room is single-occupancy and very tiny. The back half of this deck contains half of the engine core.

Located at the top of the ship is the crew deck. At the forward end is the cockpit-like bridge, the computer, fire control systems, and communications gear. Behind this are the crew's double-occupancy quarters, a small mess facility, a tiny lounge, and a small conference room for use by the battalion staff. The rear half of this deck contains the ship's power plant. A heavily shielded corridor passes from the crew section to a small weapons bay located in the rear of the deck.

Though the *Condor*'s wings are crisscrossed with structural bracing, they contain a great deal of dead space. This space can store as much as ten tons of extra equipment and supplies, but this is rarely known outside of *Condor* crews. They seldom talk about this section so that it will remain a good place to store things in an emergency.





# DROPSHIPS

## CONDOR CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 4,500

### Dimensions

**Length:** 104 meters

**Height:** 36.1 meters

**Width:** 97.4 meters

**Crew:** 24

**Cargo Complement:** 400 tons, 20 light vehicles, 336 troops

### Armament:

1 PPC

3 AC/5s

1 LRM-15

5 Large Lasers

8 Medium Lasers

4 Tons AC 5 ammunition

3 Tons LRM ammunition

**Drive System:** Pitban 1350-XRB

**First Introduced:** 2801

**Frequency of Sighting:** Uncommon

## Condor Class DropShip

**Thrust:** 3

**Overthrust:** 5

**Structural Integrity:** 9

	<i>Tons</i>
Engine:	850
Fuel (6 Thrust Points/ton): 1,260	208
Consumption: 1.84 tons/burn-day	
Bridge:	34
Heat Sinks: 18 + 72	18

**Armor Factor (16 points/ton):** 528 33

**Nose** 105

**Right Wing** 90

**Left Wing** 90

**Fuselage** 168

**Engine** 75

### Weapons :

#### Nose:

PPC

AC/5

LRM-15

Medium Laser

Medium Laser

#### Wings:

AC/5

Large Laser

Large Laser

Medium Laser

Medium Laser

#### Aft:

Large Laser

Medium Laser

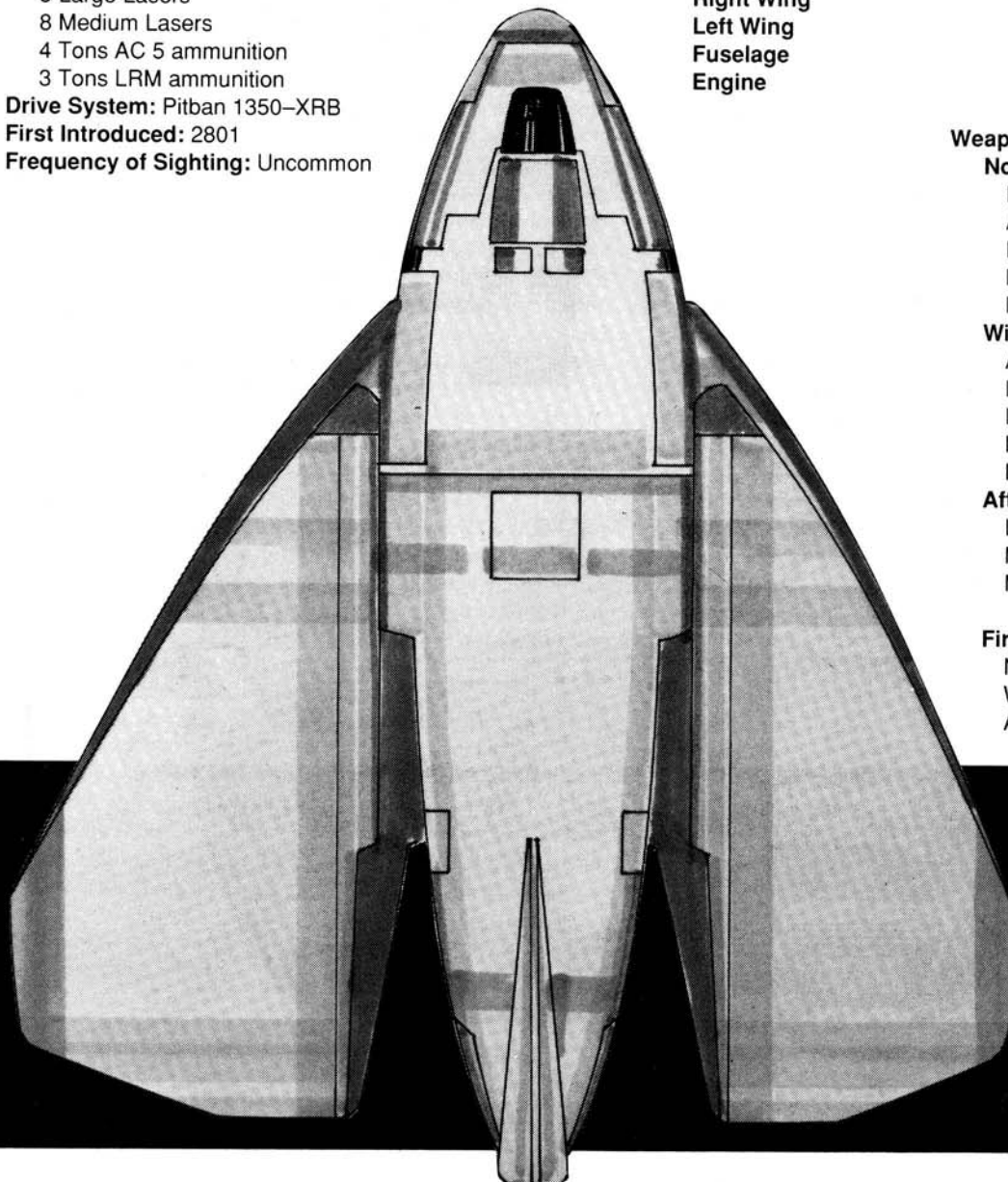
Medium Laser

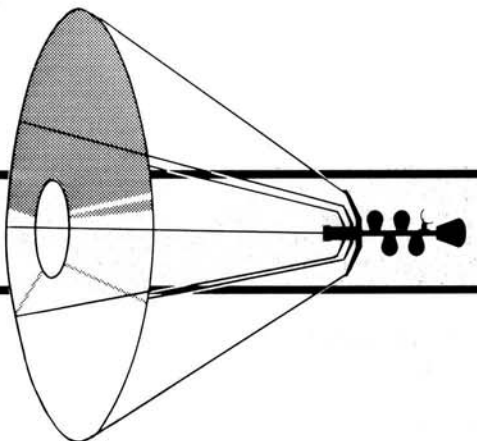
### Fire Factors:

Nose: 3

Wings: 3

Aft: 2





## EXCALIBUR CLASS DROPSHIP

The *Excalibur* Class DropShip is a large combat troop transport designed to carry a combined arms unit into hostile territory. The ship has the facilities to carry two tank battalions, one infantry battalion, and one BattleMech company.

The *Excalibur*'s 16,000-ton, egg-shaped body resembles the shorter, fatter *Overlord* Class DropShip. The most notable contrast between these two is that the *Overlord* is equipped with six retractable landing legs, while the *Excalibur* has four heavy, box-like structures attached to the bottom sides of the hull. Besides serving as fixed landing pads, these structures also contain the DropShip's rear-side weapons bays.

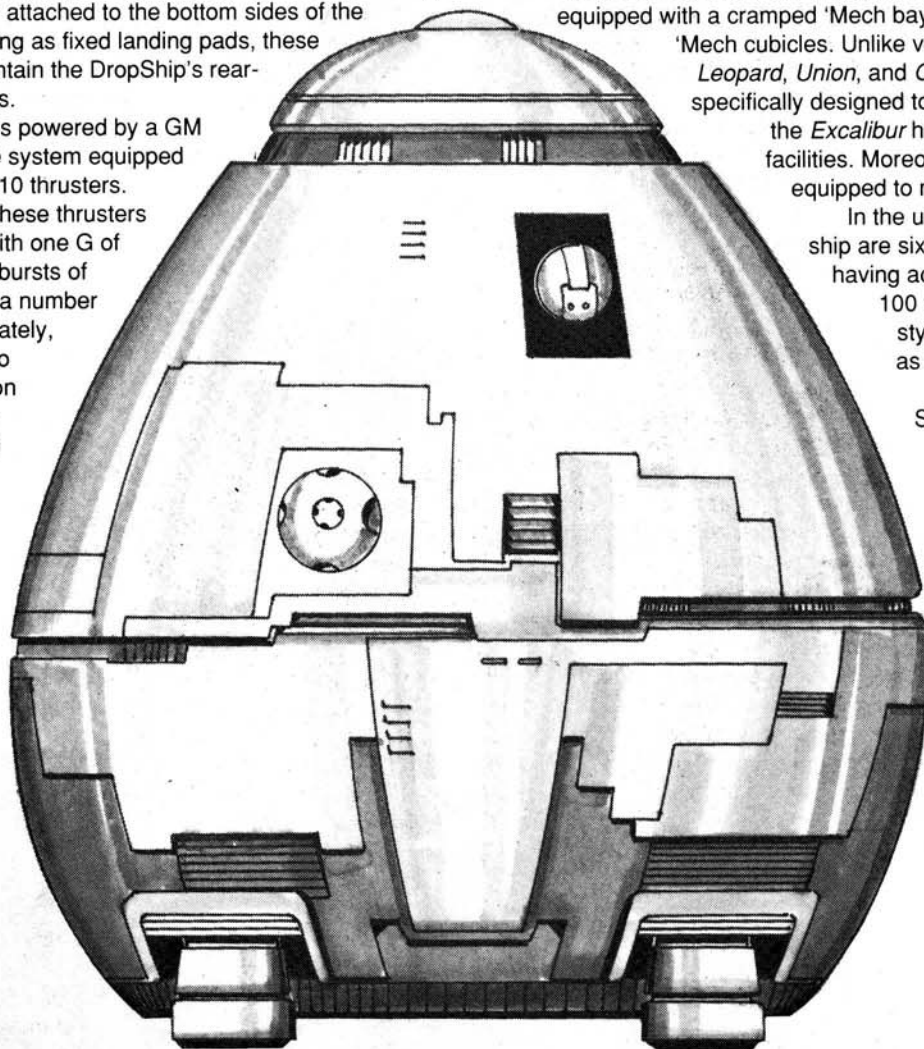
The *Excalibur* is powered by a GM 48000 fusion drive system equipped with four Risley F-10 thrusters. When combined, these thrusters provide the ship with one G of acceleration, with bursts of up to three Gs for a number of hours. Unfortunately, these drives are no longer in production and have recently been plagued with major and minor component failures. There is also a critical shortage of spare parts. As a result, maintenance of the *Excalibur* can

be very expensive. Even with these drive problems, however, the DropShip maintains a high mass-to-fuel consumption ratio, making it one of the more efficient combat transports. *Excaliburs* are almost always found in large-scale operations, if only to hold down operations costs.

The vessel's four roomy vehicle bays each have sufficient floor space to hold up to 25 heavy vehicles, with a maximum capacity of 1,500 tons. The ships are beginning to show signs of structural stress, however, and so many have a maximum deck capacity of 1,000 and 1,250 tons. This does not present much problem for light armor units, but units equipped with heavy vehicles, such as House Steiner's new Rommel/Patton tanks, sometimes have to give up an entire armor company to prevent stress on the ship's structure.

Besides these two vehicle bays, the *Excalibur* is also equipped with a cramped 'Mech bay containing twelve 'Mech cubicles. Unlike vessels such as the *Leopard*, *Union*, and *Overlord*, which are specifically designed to transport 'Mechs, the *Excalibur* has no 'Mech repair facilities. Moreover, the ship is not equipped to make 'Mech drops.

In the upper section of the ship are six troop decks, each having accommodations for 100 troops in barracks-style housing, as well as mess facilities and recreation rooms. Shared training and medical facilities are located at various areas in this area.



# DROPSHIPS

Above the troop decks is the crew deck, with accommodations for the ship's 50 crew members. There are 22 double-occupancy rooms, and six single-occupancy rooms for the captain and the ship's senior officers. The crew deck is equipped with its own mess hall and recreation room.

The *Excalibur's* combat capabilities are somewhat limited, which has earned it considerable criticism. Mounted in the nose are an Autocannon/5, an LRM-10 launcher, and one medium laser; on the front sides are a PPC, two LRM-10 launchers, and two medium lasers; on the rear sides are a large laser and a pair of medium lasers; and in the aft are one large and a pair of medium lasers. Though this armament may not provide a lot of punch, it does protect the ship from uncoordinated Fighter attacks. It is also the main reason why *Excaliburs* are almost never sent into hostile territory without a well-armed escort.

The *Excalibur* is normally assigned to provide support for siege operations and to supply reinforcements following planetary assaults. Because of its light armament, the vessel does not involve itself directly in combat.

During planetary assault operations, the *Excalibur* is usually one of the last ships to enter the battlefield. Before entering the target planet's atmosphere, AeroSpace Fighters and DropShips normally ensure that the *Excalibur* will not be harassed by enemy forces. The ship then unloads in an area that is unthreatened by enemy weapons fire. Depending on the organization of the unit and the amount of equipment carried, it may take anywhere from half an hour to as much as two or three hours to deploy the *Excalibur's* military payload.

Once it has unloaded, the *Excalibur* serves as a general support vessel, transporting supplies and extra equipment to operations support stations. It is useful in this role, as it is better protected than the average civilian DropShip.

The *Excalibur* is generally too large to be operated by anyone but Successor State armies and large mercenary units. Some of the Inner Sphere's larger corporations (including Akira Transport, which provides a wide range of transportation options for merchants and mercenaries) own and operate several *Excaliburs* as armed transports.

Because of recent drive maintenance problems, many *Excaliburs* are being scrapped and salvaged for repair parts. To reverse this trend, House Kurita, a major user of the *Excalibur*, has commissioned an engineering team to refit the ships with enhanced versions of the same drive used in *Mule* Class DropShips. This drive has proven reliable and is still under manufacture. A number of *Excaliburs* have been fitted with these drives, though no performance data is yet available.

## EXCALIBUR CLASS DROPSHIP

**Type:** Spheroid

**Tonnage:** 16,000

### Dimensions

**Height:** 124.9 meters

**Width:** 113 meters

**Crew:** 24

**Cargo Complement:** 600 tons, 20 light Vehicles, 336 troops

### Armament:

2 PPCs

1 AC/5

5 LRM-10

3 Large Lasers

11 Medium Lasers

1 Ton AC/5 ammunition

6 Tons LRM ammunition

**Drive System:** GM 48000

**First Introduced:** 2786

**Frequency of Sighting:** Rare

## Excalibur Class DropShip

**Thrust:** 3

**Overthrust:** 5

**Structural Integrity:** 9

	Tons
Engine:	3,150
Fuel (6 Thrust Points/ton): 1,200	300
Consumption: 1.84 tons/burn-day	
Bridge:	120
Heat Sinks: 0 + 129	0

**Armor Factor (14 points/ton):** 700 50

**Nose** 150

**Right Side** 125

**Left Side** 125

**Fuselage** 200

**Engine** 100

### Weapons:

#### Nose:

AC/5

LRM-10

Medium Laser

#### Sides:

PPC

LRM 10

LRM 10

Medium Laser

Medium Laser

#### Rear Sides:

Large Laser

Medium Laser

Medium Laser

#### Aft:

Large Laser

Medium Laser

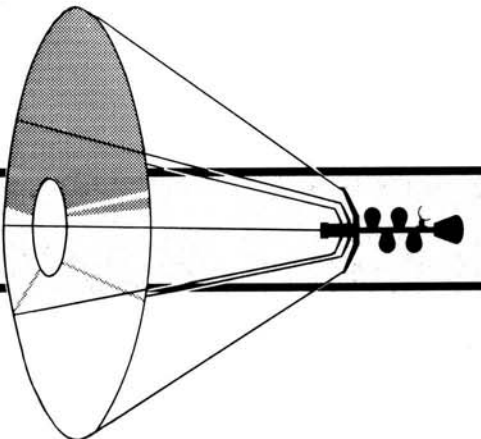
### Fire Factors:

Nose: 2

Sides: 3

Rear Sides: 2

Aft: 2



## 'MECH CARRIERS

### LEOPARD CLASS DROPSHIP

The *Leopard* Class DropShip is a small 'Mech transport vessel that has served the combat units of the Inner Sphere since the early days of the Star League. In addition to carrying a 'Mech lance into battle, the *Leopard* can deliver a pair of AeroSpace Fighters as part of the 'Mech unit or as part of its own Fighter cover force.

The *Leopard* is an aerodyne-type DropShip. Its blocky fuselage measures roughly 65 meters long and masses approximately 1,700 tons. Powering the vessel is the reliable, but difficult to service, Star League V84 interplanetary drive. Aside from that, the vessel is easy to maintain and its operating costs are low, which make it one of the most popular vessels among mercenary units and Periphery Bandit Kings.

The DropShip has similar capabilities as its sister vessel, the *Leopard CV*. The most obvious differences are the types of cargo and the appearances of the two vessels. The 'Mech-carrying *Leopard* was designed in the days when crystal-steel armor could only be formed in plates. The *Leopard CV* came out after a breakthrough in technology made curved armor plating possible, and so it uses this more advanced armor.

For its relatively small size, the *Leopard* is a well-armed DropShip. It mounts a pair of PPCs, an LRM-20 launcher, and three medium lasers in the nose. In each side-mounted weapons bay, the ship has a single LRM-20 launcher, one medium laser, and two large lasers. Providing fire to the ship's aft arc are two medium lasers and a single large laser. Protecting the ship's hull and its contents are 30 tons of crystal-steel armor plating.

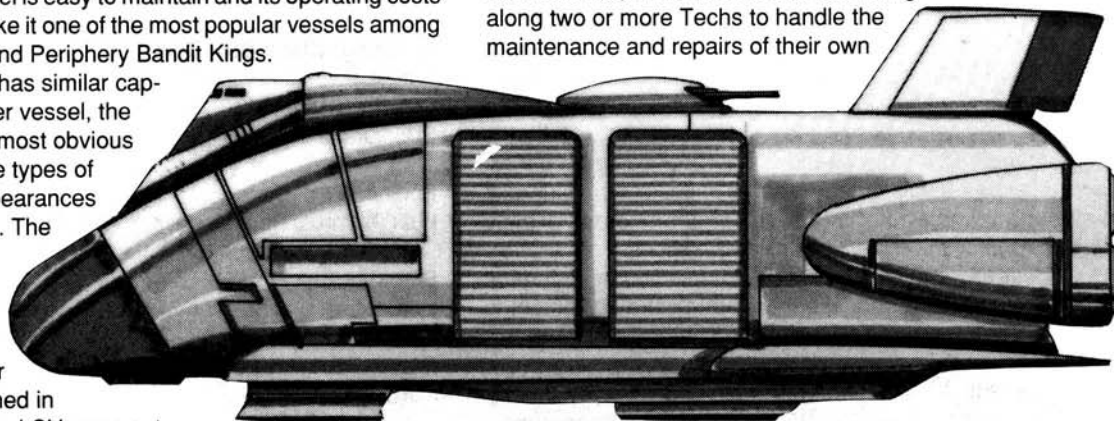
A pair of large doors flank the DropShip's fuselage. Each door leads into one of the ship's four individual 'Mech bays, which has little room for anything more than a single 'Mech cubicle. Because of the cramped conditions, the ship's repair facilities are limited to repair platforms and small equipment cranes.

Located just forward of the 'Mech bays are the *Leopard*'s two AeroSpace Fighter bays. These are as cramped as the 'Mech bays, with a single Fighter cubicle in each. When no

Fighters are aboard, this space is used to store extra equipment or vehicles. Each bay, minus the cubicle, is large enough to hold up to eight light vehicles at a maximum load of 150 tons. Because the *Leopard*'s internal space is so limited, this is the only way that the ship can carry any cargo aside from 'Mechs and AeroSpace Fighters. Indeed, when performing independent missions, the ship suffers from a lack of adequate repair stores for its 'Mechs, fighters, and its own systems. If repairs must be made, Engineers and Techs must make do with the few supplies at hand.

Personnel accommodations are similarly limited, with facilities for no more than 15 people. Though each person has his own private room, these small quarters provide only a single bed, a fold-down desk, and a small wall locker. Each room also has its own equally small, utilitarian washroom.

Though the *Leopard*'s crew capacity is nine, few of these vessels can be run efficiently with that staff. Most *Leopards* carry five or more crew members just to perform standard daily maintenance, while 'Mech units also bring along two or more Techs to handle the maintenance and repairs of their own



machines. All these extra crew members make for an extremely crowded vessel.

The *Leopard*'s primary purpose is to provide flexible 'Mech transportation in support of operations involving larger DropShips such as the *Union* and the *Overlord*. A *Leopard*'s 'Mechs are often used to plug a breach in defending lines or to provide strategic attacks in support of large-scale offensives.

During major operations, these ships support other combat DropShips and are normally deployed not far behind assault DropShip groups. Moreover, when assault DropShips are not readily available, *Leopards* are often used instead, though usually in larger numbers to make up for their smaller firepower.

The *Leopard* is also used extensively in raiding operations. Even though their limited supplies and repair parts are inadequate for such missions, the DropShip's small size and high maneuverability make it useful in this role. When part of a raiding mission, most ships have little difficulty obtaining whatever supplies and repair parts they may need.



# DROPSHIPS

## LEOPARD CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 1,720

### Dimensions

**Length:** 65.5 meters

**Height:** 22.4 meters

**Width:** 51.6 meters

**Crew:** 9 crew, 6 MechWarriors/AeroSpace Pilots

**'Mech Complement:** 4

**Fighter Complement:** 2

### Armament:

2 PPCs

3 LRM 20s

5 Large Lasers

7 Medium Lasers

4 Tons LRM ammunition

**Drive System:** Star League V84

**First Introduced:** 2537

**Frequency of Sighting:** Uncommon

## Leopard Class DropShip

**Thrust:** 4

**Overthrust:** 6

**Structural Integrity:** 7

**Engine:**

**Fuel (10 Thrust Points/ton):** 1,230

**Consumption:** 1.84 tons/burn-day

**'Mech Cubicles:** 4

**'Mech Bay Doors:** 4

**AeroSpace Fighter Cubicles:** 2

**Fighter Bay Doors:** 2

**Bridge:**

**Heat Sinks:** 64 + 16

**Armor Factor (16 points/ton):** 480

**Nose**

**Right Wing**

**Left Wing**

**Fuselage**

**Engine**

*Tons*

360

123

600

0

300

0

13

64

30

100

90

90

140

60

### Weapons:

#### Nose:

PPC

PPC

LRM-20

Medium Laser

Medium Laser

Medium Laser

#### Wings:

LRM-20

Large Laser

Large Laser

Medium Laser

#### Aft:

Large Laser

Medium Laser

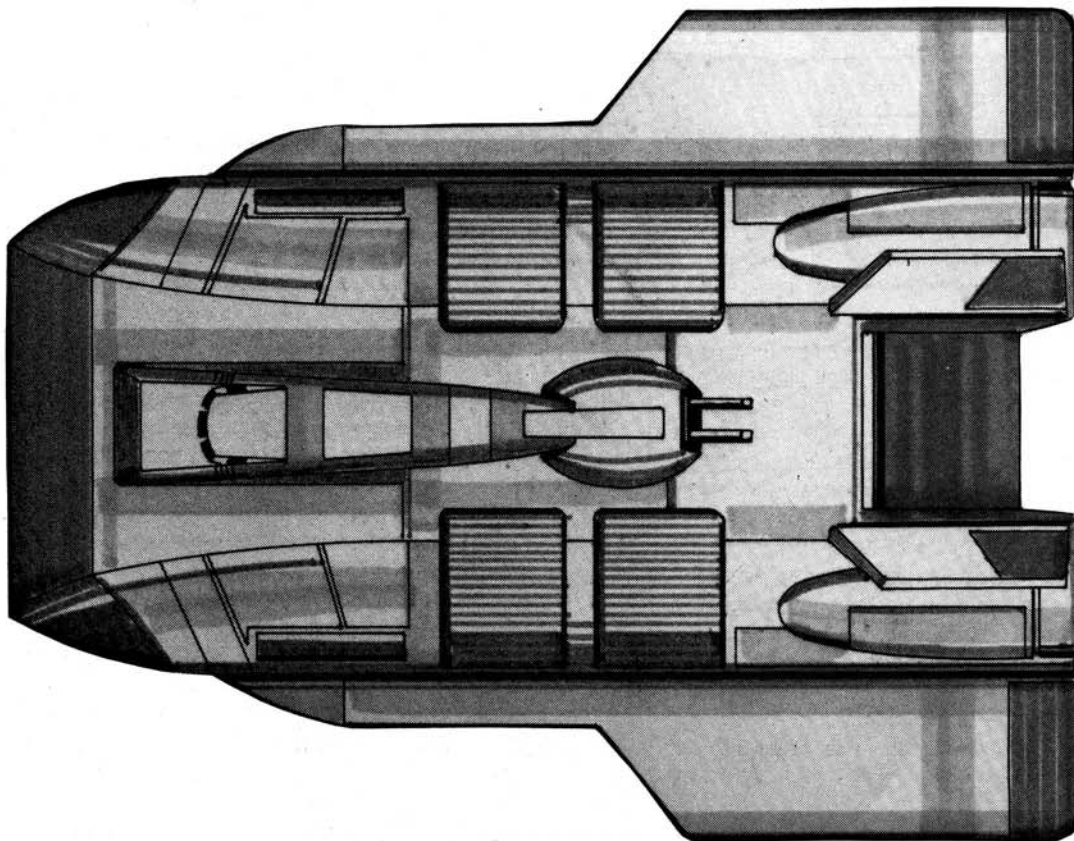
Medium Laser

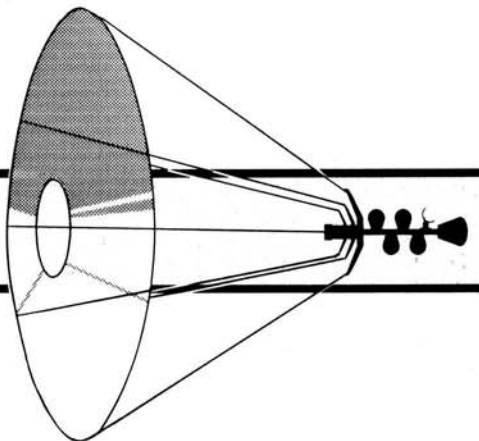
### Fire Factors:

Nose: 5

Wings: 3

Aft: 2





## UNION CLASS DROPSHIP

The *Union* Class DropShip may be the most famous vessel type in the Inner Sphere. Well-armed and armored, the *Union* is an extremely versatile ship. Though small enough for use in raids, it is powerful enough to be taken seriously in larger-scale operations. The vessel is designed to transport a company of 'Mechs and their pilots to a planet, where they are either dropped into low orbit or are delivered directly to the surface.

The *Union's* interior consists of three main sections. The lowermost section contains the DropShip's V250 interplanetary fusion drive, fuel tankage, weapons bays, loading door, 'Mech drop doors, and the ship's enormous landing gear. Leading up from the loading door is a heavily reinforced ramp that spirals up around the outside of the engine core and leads into the lower 'Mech bay.

The middle section of the DropShip consists of two 'Mech bays. The lower 'Mech bay is cavernous, with walls lined with four 'Mech cubicles, doors leading into the two Aero-Space Fighter bays, entrances to the four drop chutes, and storage for repair parts and ammunition. A set of plates cover the ramp entrance in the floor, making an airtight seal between the bay and the ramp area when closed. In the center of the ceiling is a large circular opening to the upper 'Mech bay.

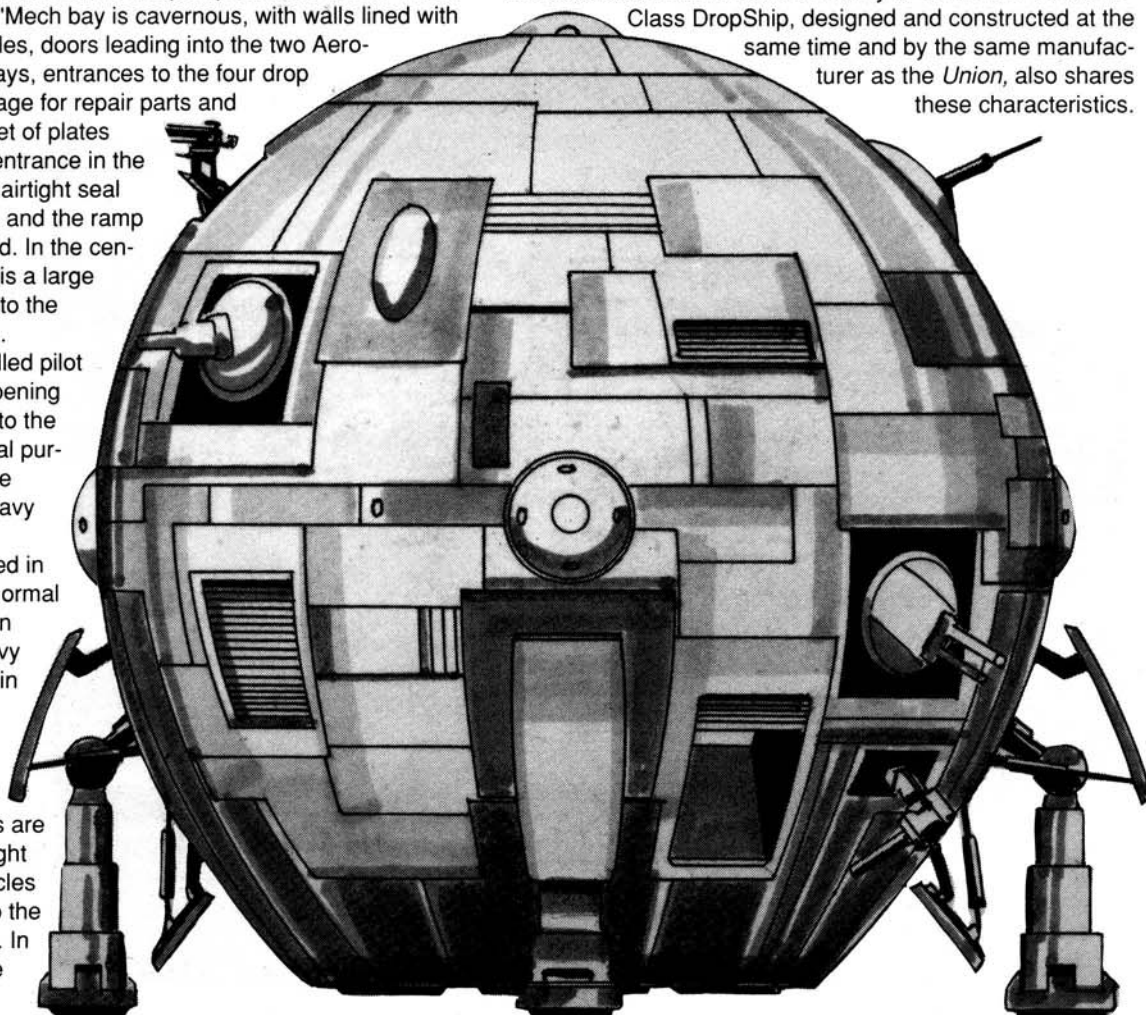
Though a skilled pilot could use this opening to get his 'Mech to the upper bay, its real purpose is to provide access to the heavy lifting and repair equipment located in the upper bay. Normal passage between bays is by a heavy elevator located in the drop chute.

The upper 'Mech bay is also quite large. Ringing the walls are the remaining eight BattleMech cubicles and entrances to the four drop chutes. In the ceiling above

the hole in the floor is a set of large general-purpose cranes. The hole in the floor of the upper 'Mech bay can be sealed by a pair of large steel doors sturdy enough to support the mass of the heaviest 'Mechs.

The *Union's* flight control systems and the crew decks occupy the ship's upper portions. The original design of the ship included a number of corridors ringing the double-occupancy quarters, a comfortable lounge, roomy mess facilities, and ample storage space for personal equipment. Electrical and hydraulic problems eventually led to a complete remodeling of the DropShip's interior on over half the vessels. Though the wealthiest operators were able to restore completely the original layout, most ships were re-equipped with more spartan accommodations: a single bunkroom for both crew and Mech-Warriors, minimal lounge/mess hall, increased air circulation space, and strengthened containment bulkheads around the weapons bays and ammunition storage. For some reason, the life support systems added to these versions created a stale odor to the air inside the ship. Because it would have been expensive to refit the ships with new life support systems, this characteristic smell remains on many of them. The *Overlord*

Class DropShip, designed and constructed at the same time and by the same manufacturer as the *Union*, also shares these characteristics.



# DROPSHIPS

## UNION CLASS DROPSHIP

**Type:** Spheroid

**Tonnage:** 3,500

### Dimensions

**Height:** 78 meters

**Width:** 81.5

**Crew:** 14 crew, 14 MechWarriors/AeroSpace Pilots

**'Mech Complement:** 12

**Fighter Complement:** 2

### Armament:

3 PPCs

6 LRM-20s

6 AC/5s

5 Large Lasers

12 Medium Lasers

9 Tons LRM ammunition

12 Tons AC/5 ammunition

**Drive System:** Star League V250

**First Introduced:** 2708

**Frequency of Sighting:** Uncommon

### Union Class DropShip

**Thrust:** 3

**Overthrust:** 5

**Structural Integrity:** 11

	Tons
Engine:	630
Fuel (6 Thrust Points/ton): 1,254	209
Consumption: 2.82 tons/burn-day	
'Mech Cubicles: 12	600
'Mech Bay Doors: 4	0
AeroSpace Fighter Cubicles: 2	300
Fighter Bay Doors: 2	0
Bridge:	27
Heat Sinks: 27 + 63	27

<b>Armor Factor (16 points/ton):</b> 640	40
<b>Nose</b>	140
<b>Right Side</b>	140
<b>Left Side</b>	140
<b>Fuselage</b>	160
<b>Engine</b>	60

## Weapons and Ammo:

### Nose:

PPC

AC/5

AC/5

LRM-20

LRM-20

Medium Laser

Medium Laser

### Sides:

PPC

AC/5

AC/5

LRM-20

LRM-20

Large Laser

Medium Laser

Medium Laser

### Rear Sides:

Large Laser

Medium Laser

Medium Laser

### Aft:

Large Laser

Medium Laser

Medium Laser

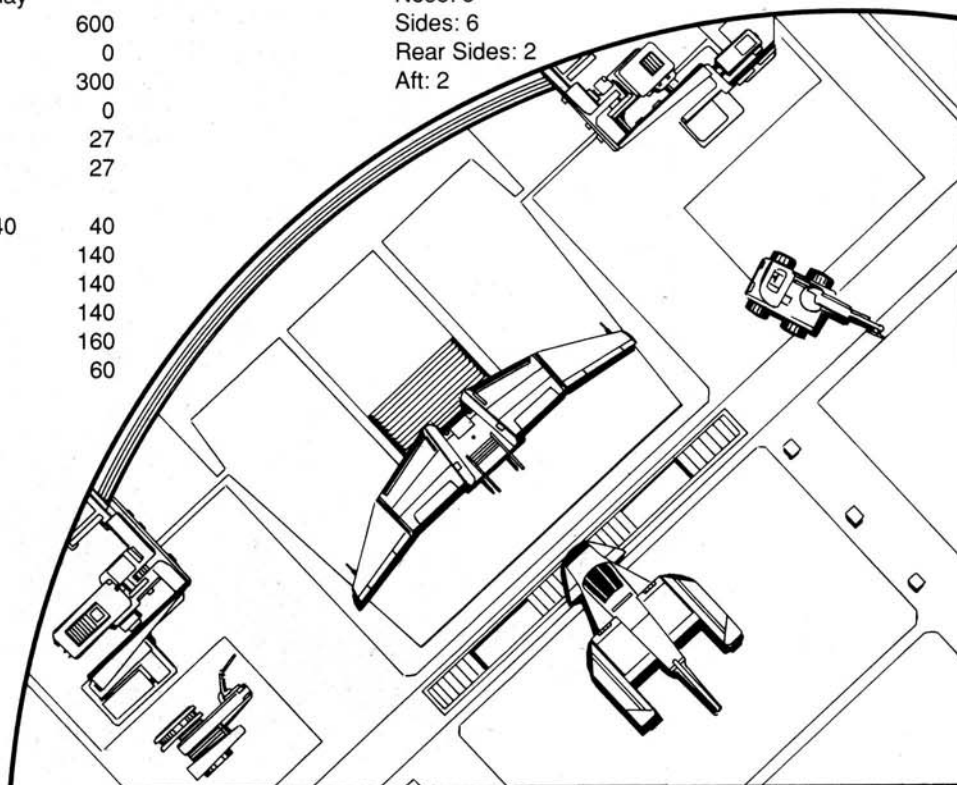
## Fire Factors:

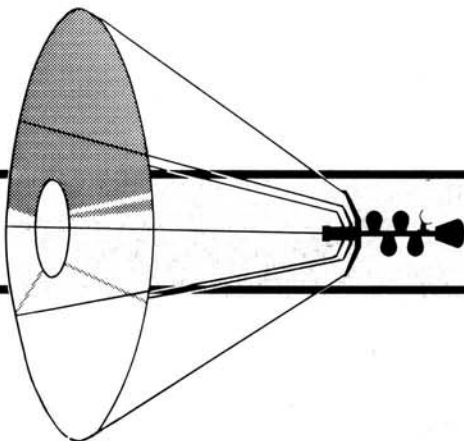
Nose: 5

Sides: 6

Rear Sides: 2

Aft: 2





## OVERLORD CLASS DROPSHIP

The *Overlord* is the largest 'Mech-carrying DropShip of the Succession Wars era. The vessel is designed to deliver and support a complete battalion of 36 BattleMechs, along with up to six AeroSpace Fighters. Because of its versatility, the DropShip is among the most respected vessels in the Inner Sphere.

The vessel's egg-shaped hull masses just under 10,000 tons, making it one of the largest combat vessels in use today. Designed by the same team that developed the *Union* Class DropShip, the *Overlord* has a similar appearance and shares some of the *Union*'s weaknesses, including a difficulty with the original electrical and hydraulic systems. Unlike on the *Union*, however, this problem extended to the massive 'Mech bays as well. Because so many *Overlords* underwent major interior overhauling, there are now a wide variety of interior configurations in existence.

The most common of these variations is

known as the *Overlord-One*. The "one" refers to the fact that the ship is equipped with a single, immense 'Mech bay, a tall, cylindrical section with a large central support column running through the middle.

Providing extra hull support are three sets of support "spokes" radiating out from the central column. Besides providing structural support, the central column also houses the main power and control cabling, coolant lines, circulation ducts, a pair of personnel lifts, a small cargo elevator, and an access way leading down to the engineer section and up through the command section. The personnel lifts have a stop at each set of spokes. From these, MechWarriors can access their BattleMechs via catwalks mounted atop the support spokes.

The 36 BattleMech cubicles are set into the interior walls of

this bay. Six large, high-speed cargo elevators facilitate loading and unloading of these machines. Also located inside the bay near the top end are six AeroSpace Fighter cubicles. A pair of large, ceiling-mounted cranes move these Fighters (and 'Mechs, if needed) to and from these bays.

When carrying extra cargo, such as ground vehicles and equipment, the 'Mech bay floor becomes extremely crowded unless some of the cargo is placed inside empty 'Mech cubicles. This lack of cargo storage area usually means that if troops or any extra units are needed, a troop carrier will likely accompany the *Overlord*.

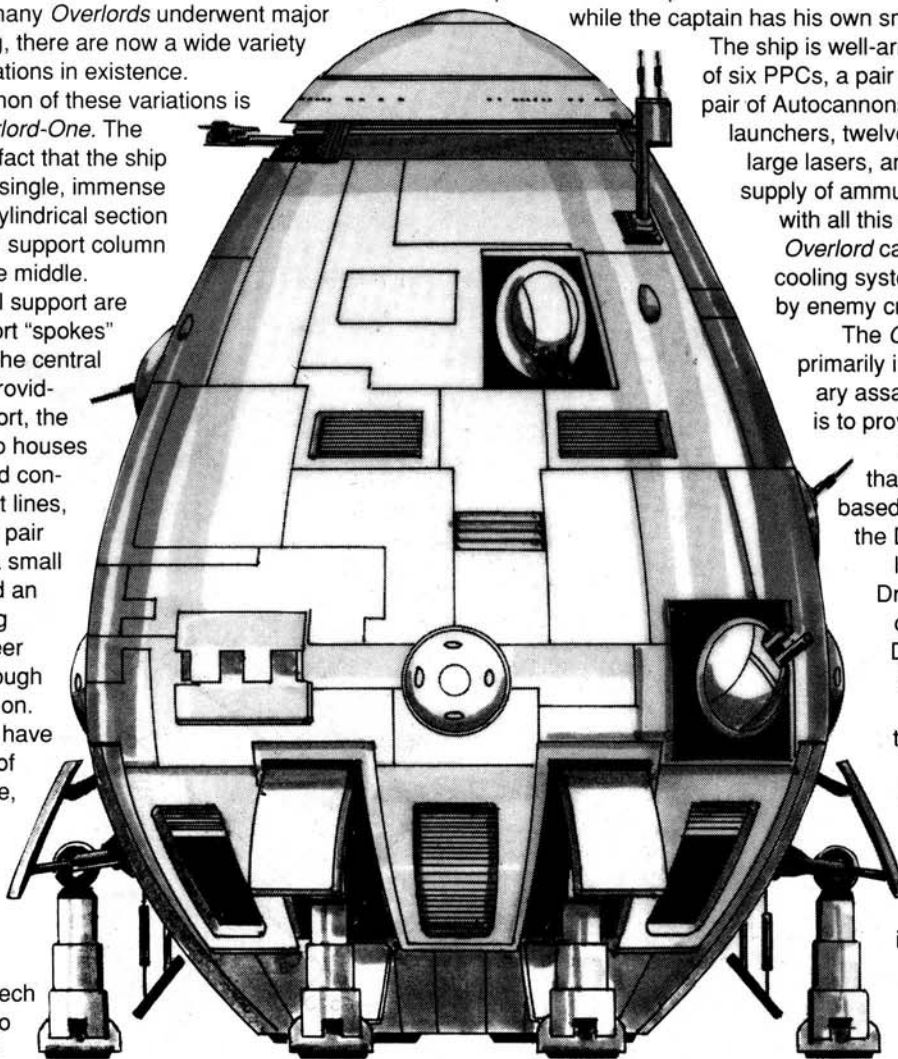
The command section of the ship is located above the 'Mech bay section. Compared to the open space of the 'Mech bay, this area is quite cramped. Personnel accommodations consist of four bunkrooms, each housing about 22 people. Two of these rooms are normally reserved for the ship's crew, while the remaining two bunkrooms house the MechWarriors and AeroSpace Pilots. A separate room is set aside for senior officers, while the captain has his own small private quarters.

The ship is well-armed, carrying a total of six PPCs, a pair of Autocannon/5s, a pair of Autocannons/20s, three LRM-20 launchers, twelve medium lasers, six large lasers, and a standard 32-ton supply of ammunition. One problem with all this weaponry is that the *Overlord* can easily overload its cooling systems when swamped by enemy craft.

The *Overlord* is employed primarily in large-scale planetary assault missions. Its role is to provide the main Battle-

Mech assault forces that spearhead ground-based attacks. In this role, the DropShip is normally located just behind a DropShip attack group composed of assault DropShips and AeroSpace Fighters.

In most cases, the *Overlord* deploys its 'Mech forces in high-altitude or low-orbit. This requires the DropShip to hold its position over the intended target zone as BattleMechs exit the ship and fall planetward. This procedure can be





# DROPSHIPS

dangerous to both the DropShip and the 'Mech if there is too much enemy AeroSpace Fighter or combat DropShip activity in the area. Neither the hovering DropShip nor the dropping 'Mechs can do much to protect themselves from ships and small craft. In this type of environment, the 'Mech-carrying DropShip often lands on the planet's surface, where the 'Mechs can exit the ship on foot. Though this method reduces the loss of BattleMechs, it makes grounded DropShips vulnerable to ground-unit fire as well as fire from conventional aircraft and AeroSpace Fighters.

If the *Overlord* can remain on the ground in relative safety, it is often used as a supply base for ground forces and as a coordinating command center. A few have been fitted with highly sophisticated electronics just for this purpose.

All five Houses of the Successor States operate *Overlord* Class DropShips. Because of the vessel's relatively high price and maintenance cost, mercenary units and other private concerns operate only a handful. Production facilities for the V450 fusion drive are rapidly deteriorating, causing fewer and fewer new *Overlords* to be produced each year. Owners of the ships make do by salvaging many of the repair parts needed to keep their *Overlords* in action.

## OVERLORD CLASS DROPSHIP

**Type:** Spheroid

**Tonnage:** 9,700

### Dimensions

**Height:** 131.2 meters

**Width:** 99 meters

**Crew:** 43 crew, 42 MechWarriors/AeroSpace Pilots

**'Mech Complement:** 36

**Fighter Complement:** 6

### Armament:

6 PPCs

3 LRM-20s

2 AC/20s

6 AC/5s

6 Large Lasers

12 Medium Lasers

16 Tons LRM ammunition

10 Tons AC/5 ammunition

6 Tons AC/20 ammunition

**Drive System:** Star League V450

**First Introduced:** 2762

**Frequency of Sighting:** Rare

## Overlord Class DropShip

**Thrust:** 3

**Overthrust:** 5

**Structural Integrity:** 18

	<i>Tons</i>
Engine:	1,890
Fuel (6 Thrust Points/ton): 1,224	306
Consumption: 1.84 tons/burn-day	
'Mech Cubicles: 36	5,400
'Mech Bay Doors: 6	0
AeroSpace Fighter Cubicles: 6	900
Fighter Bay Doors: 2	0
Bridge:	82
Heat Sinks: 0 + 120	0

<b>Armor Factor (16 points/ton):</b> 800	50
<b>Nose</b>	170
<b>Right Side</b>	160
<b>Left Side</b>	160
<b>Fuselage</b>	210
<b>Engine</b>	100

### Weapons:

#### Nose:

PPC

PPC

AC/5

AC/5

AC/20

AC/20

Medium Laser

Medium Laser

#### Sides:

PPC

AC/5

LRM-20

Large Laser

Medium Laser

Medium Laser

#### Rear Sides:

PPC

Large Laser

Medium Laser

Medium Laser

#### Aft:

AC/5

AC/5

LRM-20

Large Laser

Large Laser

Medium Laser

Medium Laser

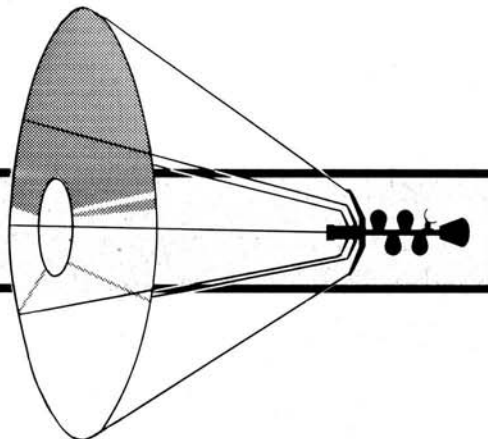
### Fire Factors:

Nose: 8

Sides: 5

Rear Sides: 3

Aft: 5



## ASSAULT SHIPS

### AVENGER CLASS DROPSHIP

The *Avenger* is the smallest of the assault DropShips as well as one of the smallest DropShips of any type. Despite its size, the vessel is well-armed, nearly matching the firepower of a *Union Class DropShip*. Its 50 tons of armor rivals that of an *Overlord*.

The *Avenger's* 1,400-ton hull is disk-shaped, which gives it good aerodynamic stability. It measures approximately 50.5 meters long by 42 meters across and has an overall height of about 11.9 meters. When viewed from a distance, the *Avenger* can be easily mistaken for House Liao's *TR-7 Thrush Aero-Space Fighter*, a mistake that has cost many enemy pilots their lives.

The *Avenger* is well-armed. In its forward weapons bay alone are two Autocannon/5s, an Autocannon/20, an LRM-20 launcher, and two large and two medium lasers. The ship also mounts a PPC, a pair of Autocannon/5s, an LRM-20 launcher, and two medium lasers in each of two wing-mounted weapons bays. Finally, to defend against rear attacks the ship is equipped with an Autocannon/2, an LRM-20 rack, and two medium lasers in an aft-mounted weapons bay. Finally, to provide a ground-shaking punch while the DropShip is still in the air, there is a special bomb bay beneath the engineering compartment in the ship's rear.

Because the *Avenger* has only the rear vectoring maneuver drive and lacks the separate transit drive of many larger vessels, its gravitational orientation during space flight is different than when on the ground. In transit, "up" is toward the nose,

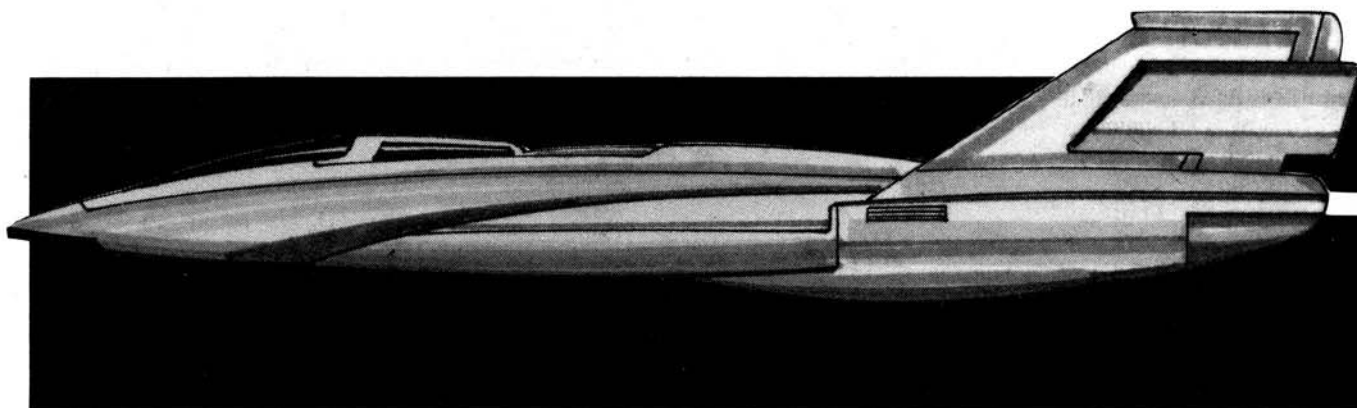
while on the ground, "up" is toward the side mounting the vertical stabilizer. This changing orientation requires an exotic interior design, allowing the crew to live in relative comfort in either case.

When on the ground, the crew compartment is composed of a single six-meter-high deck, which is divided into many three-meter-wide compartments. During interplanetary transit, when apparent gravity is oriented toward the back of the ship, these compartments become individual decks and the ship's corridors become long vertical shafts. A sturdy fold-down lift is attached to one wall of the shaft (which is the ship's ceiling when on the ground).

The furniture in each room is designed so that it can lock into many different locations and positions. Altering the interior is almost always done in space, as the lack of gravity makes it much easier to accomplish. With a full crew, this operation takes about 20 minutes. To ease the conversion, the interior is roomy but sparsely furnished.

The *Avenger's* primary mission is to establish a foothold on a planet's surface for other ships and 'Mechs. This procedure usually involves a preliminary bombing run, which the *Avenger* accomplished using 20 tons of standard free-fall bombs. After its bombing run, the ship locates an appropriate landing zone, lands, and forces enemy units out of its weapons range. Once a clear zone has been established, 'Mechs and combat DropShips land and ensure that the area is free from intense enemy fire before the troop ships and cargo transports arrive. Once matters are well in hand, the *Avenger* is often sent out to establish landing zones for other ships or to sit on call in orbit.

The *Avenger* is a very rare ship. Because it is considered wasteful to use the *Avenger* for anything less than a major battle, the attrition rate for these ships is high. To date, the Federated Suns is the only Successor State that has been able to keep up enough *Avenger* production to replace combat losses.



# DROPSHIPS

## AVENGER CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 1,400

### Dimensions

**Length:** 50.5 meters

**Height:** 11.9 meters

**Width:** 42 meters

**Crew:** 15 crew

**Cargo Complement:** 93 tons, 15 troops

### Armament:

2 PPCs

1 AC/20

6 AC/5s

1 AC/2

4 LRM-20s

2 Large Lasers

8 Medium Lasers

1 Ton AC/2 ammunition

6 Tons AC/5 ammunition

3 Tons AC/20 ammunition

13 Tons LRM ammunition

**Drive System:** GM 9800i

**First Introduced:** 2816

**Frequency of Sighting:** Unique

## Avenger Class DropShips

**Thrust:** 7

**Overthrust:** 11

**Structural Integrity:** 12

**Engine:**

**Fuel (10 Thrust Points/ton):** 1,600

**Consumption:** 1.84 tons/burn-day

**Bridge:**

**Heat Sinks:** 20 + 50

**Armor Factor (16 points/tons):** 800

**Nose**

**Right Wing**

**Left Wing**

**Fuselage**

**Engine**

*Tons*

580

160

12

20

50

175

150

150

200

125

## Weapons and Ammo:

### Nose:

AC/5

AC/5

AC/20

LRM-20

Large Laser

Large Laser

Medium Laser

Medium Laser

### Wings:

PPC

AC/5

AC/5

LRM-20

Medium Laser

Medium Laser

### Aft:

AC/2

LRM-20

Medium Laser

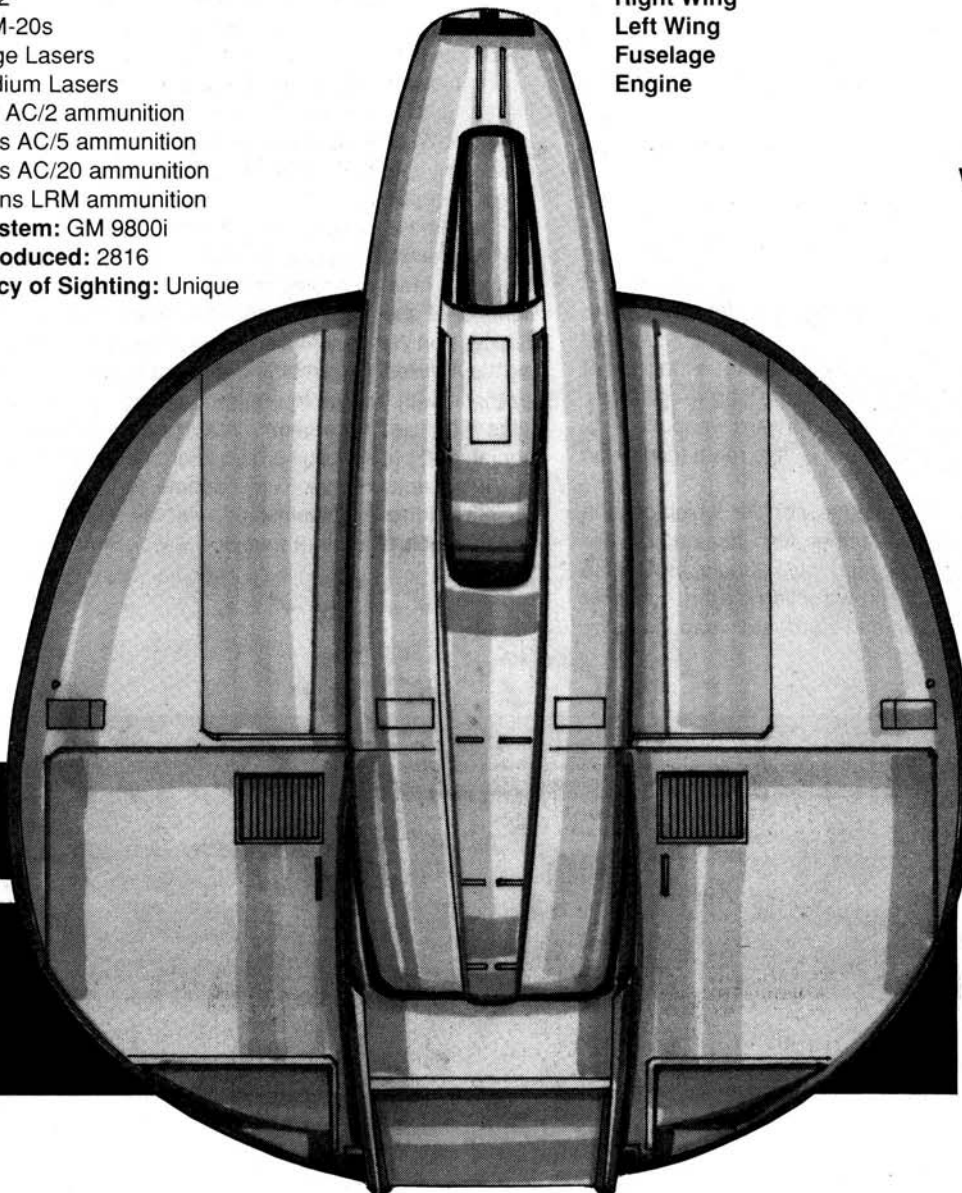
Medium Laser

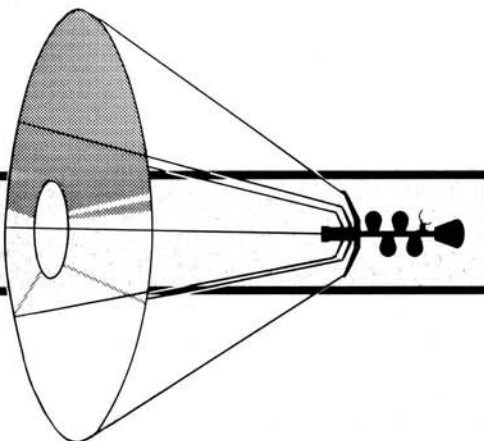
## Fire Factors:

**Nose:** 7

**Wings:** 4

**Aft:** 2





### ACHILLES CLASS DROPSHIP

The *Achilles* Class DropShip is one of the few vessels still in existence that was designed primarily to combat other DropShips and AeroSpace Fighters. Though incapable of atmospheric flight, the vessel is highly maneuverable in space and can outrun any other existing DropShip and most heavy and medium fighters.

The design of the *Achilles* is relatively simple. The ship masses 4,500 tons, with over half of the ship taken up by its extremely powerful Xevex-12s interplanetary fusion drive system. The ship has often been described as a well-armed fusion drive, but this high-powered drive system has its problems. When the drives are operating at full thrust, the engine begins to shudder and vibrate intensely. These vibrations become unbearable after prolonged use, and have caused ammunition-dependent weapons systems to misfeed. The chance of such misfeeds has been estimated at roughly three percent per minute that the vibrations continue. Once a misfeed occurs, the weapons system must be manually cleared and reset.

The interior of the *Achilles* is different than for most ships. Instead of having a few large decks, the vessel is constructed with many long, narrow decks. The three decks at the front of the ship are almost exclusively filled with the long-range tracking and navigational systems and the forward weapons bay. Except for narrow access ways, there is little room to walk on these decks.

Just behind this section are the crew decks, which contain the quarters for the ship's 60 personnel. Also located here are the recreation rooms, mess hall, med bay, laundry, and waste processing facilities. Behind the crew section is a large area for the ship's fuel tankage, the port and starboard weapons bays, and ammunition storage.

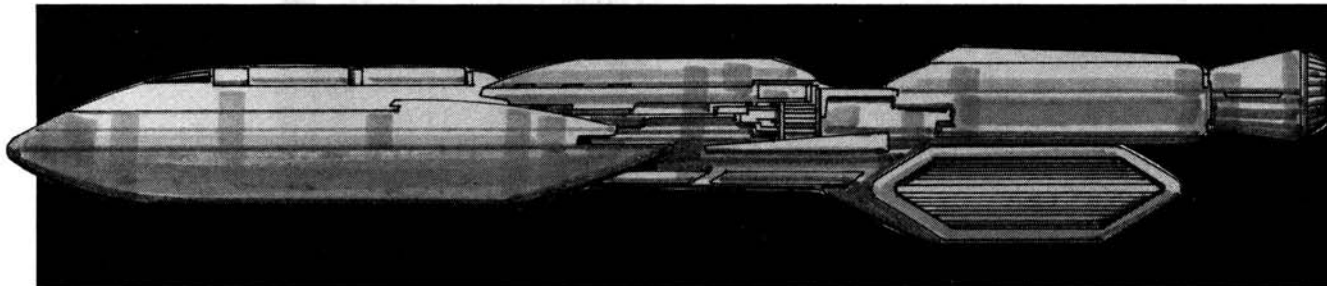
Beyond this is the control deck, where are located the ship's bridge, the engineering control room, the main computer system, and communications gear. The ship's massive fusion drive makes up the bulk of the rest of the ship. Located on either side of the engine core is a small craft bay with a pair of small craft cubicles in each. The normal small craft complement is two AeroSpace Fighters and two marine-bearing buses for use in boarding operations.

The *Achilles* is used to lead planetary assault forces and space defense forces into combat. The ship's high maneuverability makes it an excellent anti-Fighter ship. In defensive operations, a common tactic is to lead a Fighter group straight into an enemy fleet, headed toward the weakest ships. The enemy Fighters usually attempt to stop the attacking *Achilles*, only to be engaged from behind by the Fighters following the DropShip.

In an offensive role, the ship usually follows the assaulting Fighter group and hits enemy vessels engaged with friendly Fighters. With its tremendous firepower, the *Achilles* can take out enemy Fighters one at a time or engage in a firefight with enemy DropShips.

The *Achilles* is a rare DropShip that dates back to the early days of the Star League. It is the only surviving relative of the League's massive battle cruisers, which did not survive the fighting of the early Succession Wars. Because the First Succession War knocked out most of the facilities for constructing the *Achilles*, the remaining ships have been maintained only by those with access to enormous League equipment stockpiles. Attempts have been made to fit the ships with existing equipment, but so far, the results are not promising.

At present, House Kurita seems to possess the largest quantity of these assault ships, with the rest spread thinly but evenly among the other four Successor States.





# DROPSHIPS

## ACHILLES CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 4,500

### Dimensions

**Length:** 125 meters

**Height:** 23 meters

**Width:** 37.4 meters

**Crew:** 30

**Cargo Complement:** 250 tons, 30 troops

**Small Craft Complement:** 2 Fighters, 2 Buses

### Armament:

6 PPCs

3 AC/20s

2 AC/10s

4 AC/5s

1 LRM-10

6 LRM-20

4 Large Lasers

12 Medium Lasers

4 Tons AC/5 ammunition

4 Tons AC/10 ammunition

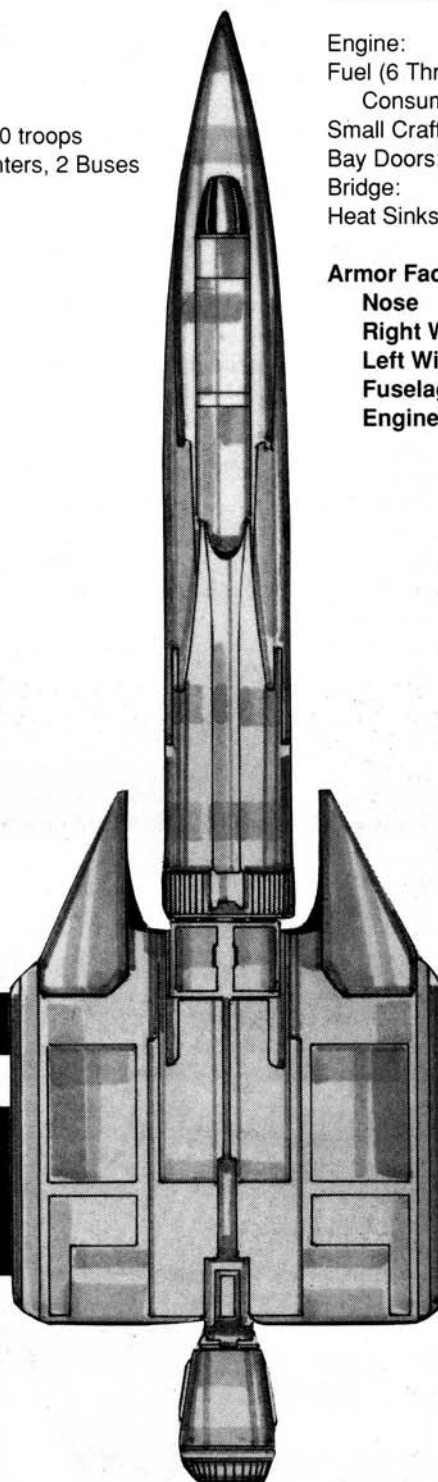
4 Tons AC/24 ammunition

17 Tons LRM ammunition

**Drive System:** Xevex-12s

**First Introduced:** 2582

**Frequency of Sighting:** Unique



## Achilles Class DropShip

**Thrust:** 8

**Overthrust:** 12

**Structural Integrity:** 16

	<i>Tons</i>
Engine:	2,390
Fuel (6 Thrust Points/ton): 1,800	300
Consumption: 1.84 tons/burn-day	
Small Craft Cubicles: 4	600
Bay Doors: 2	0
Bridge:	34
Heat Sinks: 124	124

**Armor Factor (16 points/ton):** 960 60

**Nose:** 220

**Right Wing:** 190

**Left Wing:** 190

**Fuselage:** 260

**Engine:** 100

### Weapons:

#### Nose:

PPC

PPC

LRM-20

LRM-20

Large Laser

Large Laser

Medium Laser

Medium Laser

#### Wing:

PPC

AC/5

AC/5

LRM-20

LRM-20

AC/20

Medium Laser

Medium Laser

#### Rear Wing:

PPC

AC/10

Large Laser

Medium Laser

Medium Laser

#### Aft:

AC/20

LRM-10

Medium Laser

Medium Laser

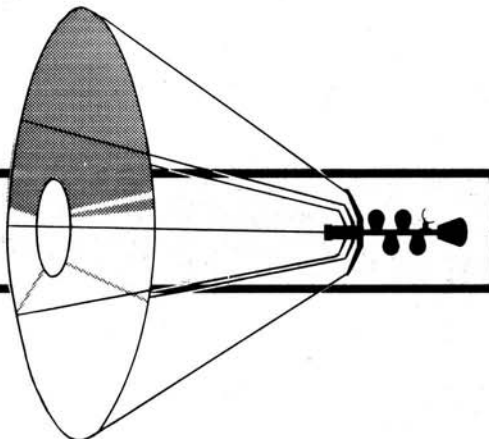
### Fire Factors:

Nose: 7

Wings: 7

Rear Wings: 4

Aft: 4



### INTRUDER CLASS DROPSHIP

The *Intruder* Class DropShip is a combat assault ship designed to support raiding operations or to attack heavily defended ground targets. The ship often takes the place of the lighter-armed and -armored *Union* Class DropShip, especially when no BattleMech support is needed.

The *Intruder's* well-armored, 3,000-ton hull contains a large assortment of weaponry, and its cargo section has a 675-ton capacity with enough area to carry up to ten heavy vehicles. To provide aerospace support, there is a Fighter bay on either side of the hull, each equipped with servicing support equipment and a single small craft cubicle. The *Intruder* often carries a pair of Land-Air-'Mechs to provide a light 'Mech force, which gives it great flexibility in its operations.

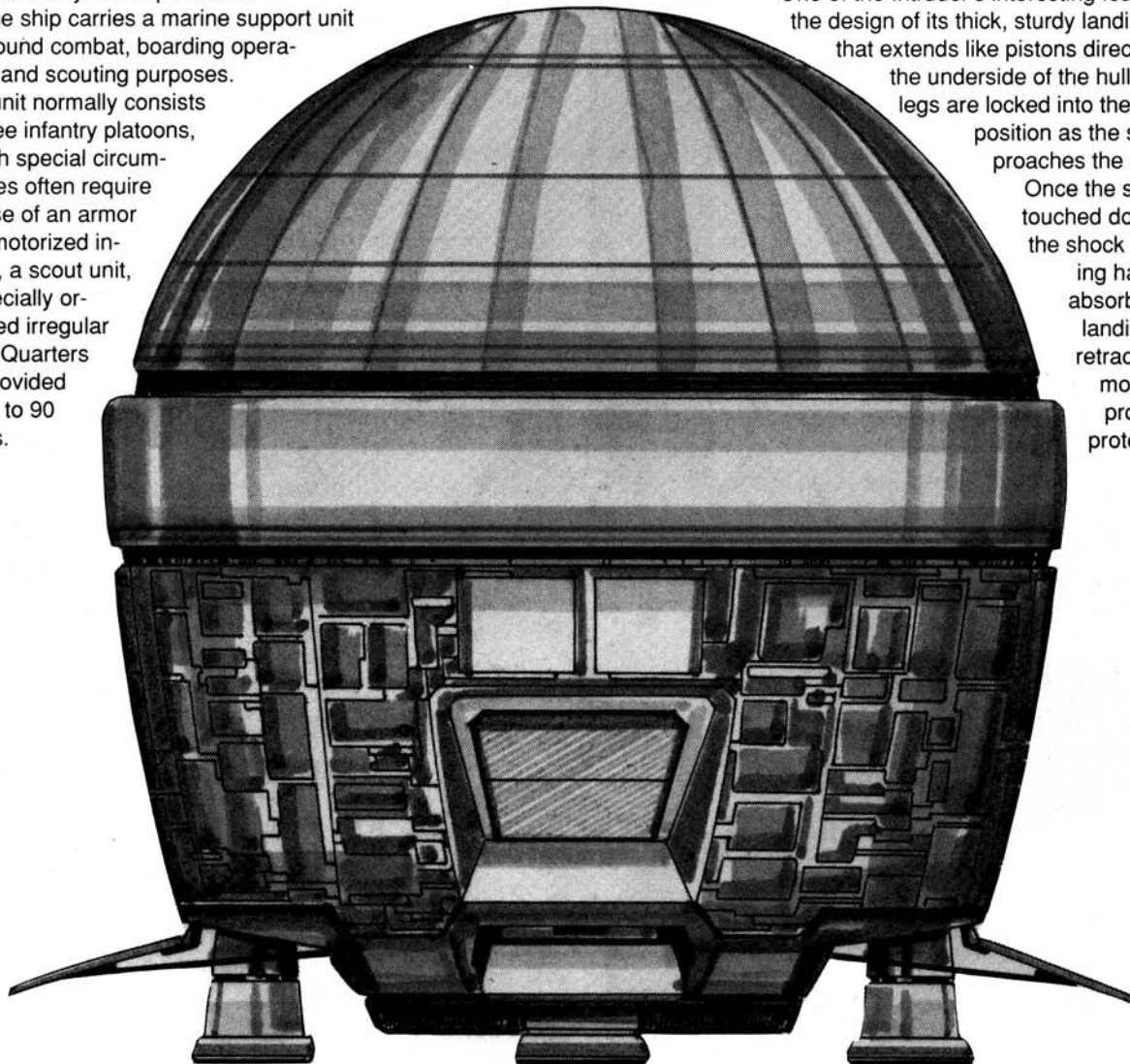
The ship carries a marine support unit for ground combat, boarding operations, and scouting purposes. This unit normally consists of three infantry platoons, though special circumstances often require the use of an armor unit, motorized infantry, a scout unit, or specially organized irregular units. Quarters are provided for up to 90 troops.

The ship is equipped with three large bays that the marine units use for training purposes. These bays contain target practice simulators, visual training aids, and plenty of floor space for physical activities. The training bays often serve as recreation rooms when not needed for other purposes.

The *Intruder's* well-equipped medical facility can handle most emergency cases that occur during combat. It consists of an emergency treatment room, which can handle two cases simultaneously, an intensive care ward with room for up to six patients, and a tiny dispensary for treating minor injuries and illnesses.

To support the marine unit during ground operations, the ship carries a well-equipped command center. From this room, deep inside the armored walls of the ship, the marine commander can control all the activities of the three platoons and any other units operating with the *Intruder's* troops. The command center contains extensive communications gear, combat computers, mapboards, and tactical intelligence displays.

One of the *Intruder's* interesting features is the design of its thick, sturdy landing gear that extends like pistons directly from the underside of the hull. These legs are locked into the "down" position as the ship approaches the ground. Once the ship has touched down and the shock of landing has been absorbed, the landing gear retracts once more. This procedure protects the



# DROPSHIPS

ship's relatively weak underside by preventing enemy troops or vehicles from getting under the ship.

Prior to lift-off, the legs are extended again, raising the 3,000-ton hull off the ground. The legs lock into place and allow the super-hot plasma from the engine core to vent itself away from the skin of the ship. The time it takes to extend the legs and lift the ship is usually about 30 seconds.

The *Intruder* is most often used in raids and in intelligence-gathering missions to worlds known to be occupied by hostile forces. The ship is ideal for such missions because it can fight in space or on the ground without support from other DropShips. Once landed, the ship can then deploy its reconnaissance or raiding forces, which are coordinated from the *Intruder's* command center. Its heavy armament keeps it well-protected from enemy AeroSpace Fighters and ground forces.

The ship is also regularly assigned to planetary assault missions. Often used to establish a foothold for troopships to follow, the *Intruder* just as often directly attacks large concentrations of enemy troops.

Among the very few variants of the *Intruder*, the one used by House Liao is best-known. This ship is designed to pack a greater punch at close range through the modification of certain weapons mounts. The rear-side-mounted Autocannon/5s, half of the similarly mounted medium lasers, and two tons of ammo are removed and two rear-side-mounted Autocannon/10s and four tons of ammunition are added. Also, to store all of the required ammo, the ship gives up six tons of fuel.

## INTRUDER CLASS DROPSHIP

**Type:** Spheroid

**Tonnage:** 3,000

### Dimensions

**Height:** 61.5 meters

**Width:** 69 meters

**Crew:** 30

**Cargo Complement:** 725 tons, 90 troops

### Armament:

7 PPCs

2 AC/10s

3 AC/5s

4 LRM-20s

4 SRM-6s

4 Large Lasers

16 Medium Lasers

3 Tons AC/5 ammunition

4 Tons AC/10 ammunition

11 Tons LRM ammunition

7 Tons SRM-6 ammunition

**Drive System:** Movem-XL Drive

**First Introduced:** 2655

**Frequency of Sighting:** Rare

## Intruder Class DropShip

Thrust: 4

Overthrust: 6

Structural Integrity: 10

Engine: 770 *Tons*

Fuel (6 Thrust Points/ton):

Consumption: 1.84 tons/burn-day

Cargo Doors: 2 0

Fighter Cubicles: 2 300

Fighter Bay Doors: 2 0

Bridge: 23

Heat Sinks: 45 + 68 45

**Armor Factor (16 points/ton):** 1,280 80

**Nose** 290

**Right Side** 270

**Left Side** 270

**Fuselage** 290

**Engine** 160

### Weapons:

#### Nose:

PPC

LRM-20

AC/5

Medium Laser

Medium Laser

#### Sides:

PPC

LRM-20

Large Laser

Medium Laser

Medium Laser

#### Rear Sides:

PPC

PPC

AC/10

AC/5

SRM-6

SRM-6

Medium Laser

Medium Laser

Medium Laser

Medium Laser

#### Aft:

LRM-20

Large Laser

Large Laser

Medium Laser

Medium Laser

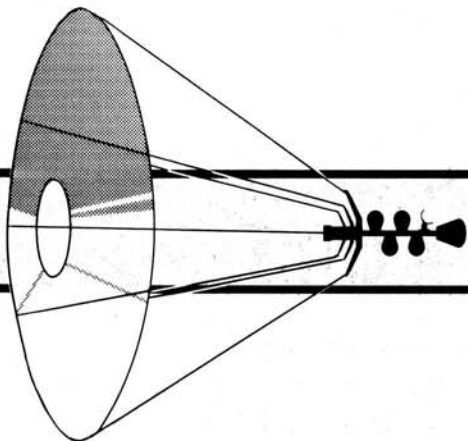
### Fire Factors:

Nose: 4

Sides: 4

Rear Sides: 7

Aft: 4



## FORTRESS CLASS DROPSHIP

The *Fortress* Class DropShip is the best-armed and -armored DropShip still in operation. The vessel is also one of the rarest of the assault DropShips, and so it is used only in large-scale operations where other ships and AeroSpace Fighters can provide support.

Massing 6,000 tons, the *Fortress* is smaller and lighter than the *Overlord*, but it devotes more space to weapons and armor. The ship is designed to carry a combined arms battalion consisting of a single 'Mech company, an armor company, and an infantry company. Originally designed as a heavy troop transport, the ship's tremendous firepower makes it among the deadliest of the assault DropShips.

Because of its heavily armored hull and thick, permanently fixed landing legs, the ship definitely fits its nickname, "the Turtle." This name also derives from the fact that it is so old that its systems tend to break down, leading to a sluggish performance.

The *Fortress* mounts a wide assortment of weapons, most of which are located on the rear sides. This location is perfect for providing heavy fire against ground targets. The ship's two side-mounted Autocannon/20s, four SRM-6s, six large lasers, and ten medium lasers can rip apart any single target at close range. At longer ranges, the *Fortress* uses its four PPCs, four LRM-20s, four LRM-10s, and two Autocannon/5s. This enormous array of weapons drives off most enemy units and destroys any that refuse to retreat.

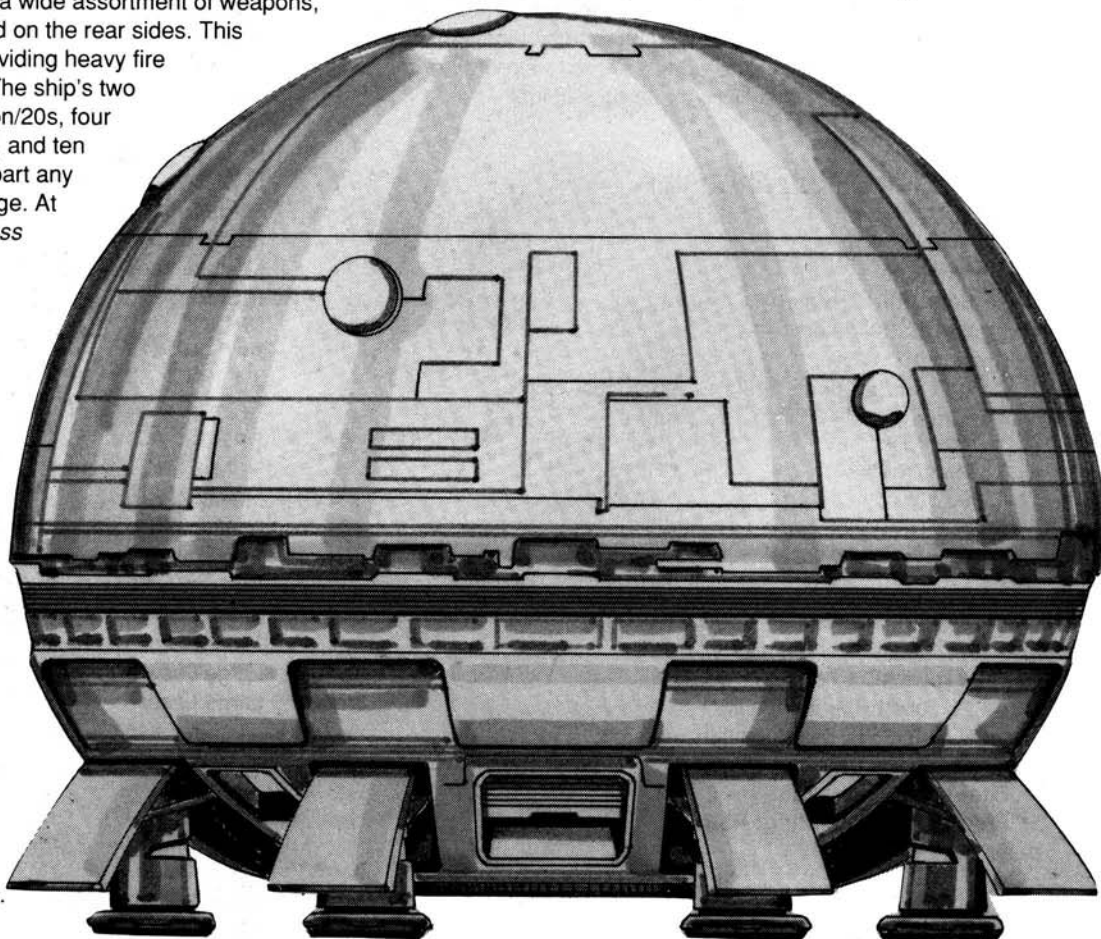
Even units that pull away from this DropShip's awesome main weaponry are not safe from the firepower of its far-reaching Long Tom III cannon, located in a retractable mount in the ship's nose. From its extended position, the Long Tom III has a 360° field of fire that is extremely accurate at long distance.

On the rare occasions when Long Tom ammunition is in good supply, the ship carries 125 rounds for the cannon. Because the ammunition is scarce, however, the *Fortress* usually carries between 20–40 rounds. Any remaining space is used to carry extra ammo for the ship's other weapon systems.

The biggest problems facing the *Fortress* are its age and the scarcity of spare parts for its complicated systems. Even when it was first produced in the early years of the Star League, it was criticized for being over-gunned and over-complicated. The vessel's high rate of computer and fire-control system breakdowns caused Engineers to replace these systems with less powerful but more durable systems. Also, the fusion drives became so rare that many *Fortresses* use engines scavenged from various other vessels, resulting in many variants.

In one case, replacing the original *Fortress* engine with a much smaller design resulted in a ship that runs "hot" and consumes a great deal of fuel. This variant still operates under the House Steiner banner, but is normally relegated to short-range missions. When needed for long-range travel, the ship must be accompanied by a fuel tanker.

The *Fortress*'s large amount of weaponry and heavy armor makes it perfect for establishing and clearing landing zones for other troop and cargo DropShips. Unfortunately, because of





# DROPSHIPS

the scarcity of this vessel, the ship now follows other assault DropShips and helps hold a landing zone once it has been established. To defend itself and the surrounding area, the *Fortress* carries a combined arms battalion that includes 'Mechs, infantry, and armor.

Once an area has been secured, the *Fortress* usually takes on supplies from supporting transports and remains as a base of operations for numerous combat units. The ship excels in this role, because only a very large enemy force can budge a *Fortress* from its resting place. Instead of attempting to destroy the ship, enemy units try to prevent support ships and units from getting to it. Eventually, the DropShip will run low on supplies and either become an easier target or be forced to leave its dug-in position.

## FORTRESS CLASS DROPSHIP

**Type:** Spheroid

**Tonnage:** 6,000

### Dimensions

**Height:** 94 meters

**Width:** 112 meters

**Crew:** 42

**Cargo Complement:** 175 tons, 130 troops

### Armament:

6 PPCs

2 AC/20s

6 AC/5s

4 LRM-20s

4 LRM-10s

4 SRM-6s

8 Large Lasers

16 Medium Lasers

5 Tons AC/5 Ammunition

5 Tons AC/20 Ammunition

14 Tons LRM Ammunition

4 Tons SRM-6 ammunition

1 Long Tom III Cannon

25 Tons Long Tom Ammunition

**Drive System:** Anacon B500

**First Introduced:** 2613

**Frequency of Sighting:** Unique

## Fortress Class DropShip

**Thrust:** 3

**Overthrust:** 5

**Structural Integrity:** 13

	Tons
Engine:	1,150
Fuel (6 Thrust Points/ton): 2,000	400
Consumption: 1.84 tons/burn-day	
Cargo Doors: 1	0
Vehicle Bay:	900
Bay Doors: 2	0
Ordnance Bay: 300	30
Bridge:	45
Heat Sinks: 45 + 86	131

**Armor Factor (16 points/ton):** 1,280 80

**Nose** 250

**Right Side** 280

**Left Side** 280

**Fuselage** 280

**Engine** 190

### Weapons:

#### Nose:

PPC

PPC

AC/5

AC/5

Large Laser

Large Laser

Medium Laser

Medium Laser

Long Tom III cannon

#### Sides:

PPC

LRM-20

LRM-20

Large Laser

Large Laser

Medium Laser

Medium Laser

Medium Laser

#### Rear Sides:

PPC

AC/20

AC/5

LRM-10

LRM-10

SRM-6

SRM-6

Medium Laser

Medium Laser

#### Aft:

AC/5

Large Laser

Large Laser

Medium Laser

Medium Laser

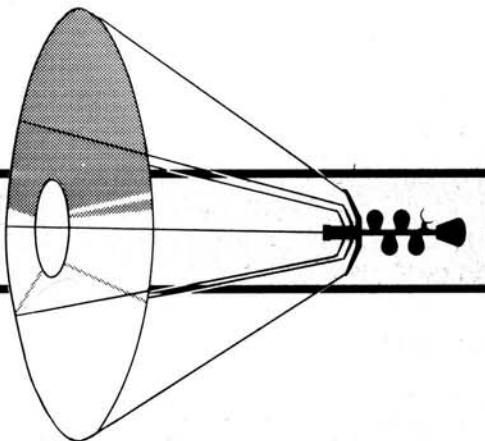
### Fire Factors:

Nose: 6 + Long Tom III

Sides: 7

Rear Sides: 7

Aft: 3



## FIGHTER CARRIERS

### LEOPARD CV CLASS DROPSHIP

The *Leopard CV* Class DropShip is the most common AeroSpace Fighter transport of the Successor States era. Although its appearance is much different from its 'Mech-carrying sister ship, the two have nearly identical combat performance characteristics. The *Leopard CV* is designed to carry up to six fully equipped AeroSpace Fighters.

The *Leopard CV* has a more aircraft-like appearance than the 'Mech-carrying *Leopard* because technology had increased when the *CV* was designed. The *Leopard's* crystal-steel armor could only be produced as flat plates, giving the earlier DropShip a box-like appearance. The *Leopard CV*, on the other hand, was designed and constructed using curved armor plates, giving the hull a more rounded shape.

The *Leopard CV* is distinguished by the large wing attached to its tail section. Though this tail structure provides good atmospheric flight stability, it is also the DropShip's critical weakness. A solid hit against the ship's long, thin tail could disable the vessel's atmospheric flying capability. Designers attempted to protect this weak spot by shifting some of the ship's armor but the added weight increased the strain on the tail structure and made the rest of the hull too vulnerable to enemy fire.

Another special feature of the *Leopard CV* is that it is the only ship still in existence that mounts the maneuver drive below the overhanging tail section. By placing the drives under the large wing section, the ship creates much less of a signature on infrared scanners. To gain the full benefit of this design feature, however, the ship's top side must be turned toward the enemy.

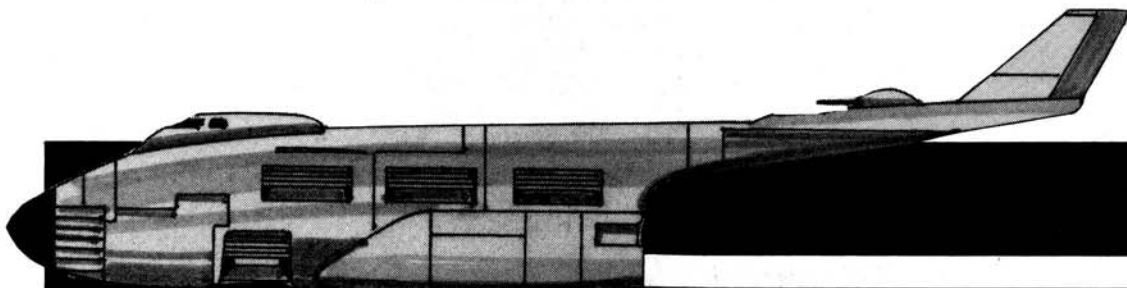
The *Leopard CV* is one of the few aerodynes not equipped with a separate transit drive, which means that the vessel's internal gravity is oriented differently when on the planet's surface than when in transit. This is generally not a problem, because the ship seldom enters the atmosphere except to recover an occasional downed fighter. The interior is designed almost exclusively for space flight, oriented so that "up" is toward the nose.

Aboard the *CV*, each crew member has a separate room, located along a common shaft running the length of the DropShip near the bottom of its hull. The rooms are tiny and provide little space for storing personal possessions. This helps the ship maintain a high degree of readiness when on the ground; there are fewer items for the crew members to secure before lift-off.

To make up for this lack of personal space, the ship offers the crew a roomy lounge and a separate exercise facility. When off-duty, crewmembers are free to spend their time reading, playing games, watching reruns of *The RFL-3N*, or working out in the exercise room.

Because the ship is not designed to operate independently, it carries only a small supply of repair stores, and its limited medical facilities provide only minor care for injuries and illness. Even with limited supply of repair parts, the ship is known for its high reliability and ease of maintenance.

The *Leopard CV* often operates in moderate to large operations, and rarely functions on its own. In most combat missions, it is deployed well forward of the main body of ships, where it can support its own Fighter group with heavy weapons fire against enemy fighters and DropShips. Other DropShips designed for space combat usually help it to hold any enemy vessels and Fighters away from the main body of the operation force. If the group is successful enough, it then penetrates the enemy forces and disables them or at least keeps them busy while the main force performs its mission.



# DROPSHIPS

## LEOPARD CV CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 1,720

### Dimensions

**Length:** 70.2 meters

**Height:** 19.8 meters

**Width:** 53 meters

**Crew:** 9 crew, 6 AeroSpace Pilots

**Fighter Complement:** 6

### Armament:

2 PPCs

3 LRM-20s

5 Large Lasers

7 Medium Lasers

4 Tons LRM ammunition

**Drive System:** Star League V84

**First Introduced:** 2581

**Frequency of Sighting:** Rare

## LEOPARD CV CLASS DROPSHIP

**Thrust:** 4

**Overthrust:** 6

**Structural Integrity:** 7

	<i>Tons</i>
Engine:	360
Fuel (10 Thrust Points/ton): 1,230	123
Consumption: 1.84 tons/burn-day	
AeroSpace Fighter Cubicles: 6	900
Fighter Bay Doors: 6	0
Heat Sinks: 64 +16	16

**Armor Factor (16 points/ton):** 480

**Nose** 100

**Right Wing** 90

**Left Wing** 90

**Fuselage** 140

**Engine** 60

### Weapons:

#### Nose:

PPC

PPC

LRM-20

Medium Laser

Medium Laser

Medium Laser

#### Wings:

LRM-20

Large Laser

Large Laser

Medium Laser

#### Aft:

Large Laser

Medium Laser

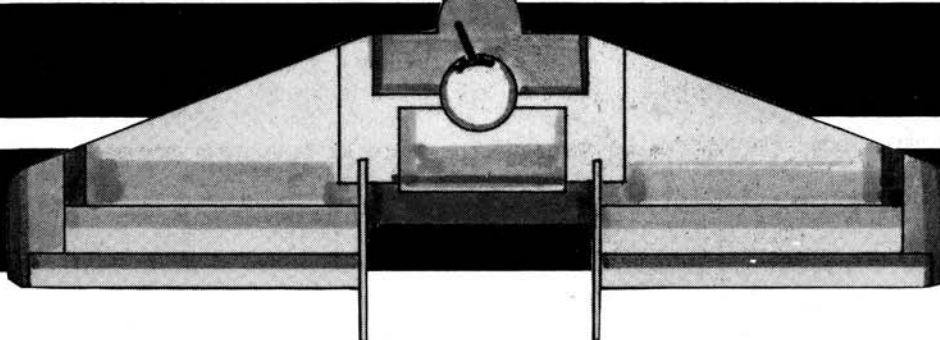
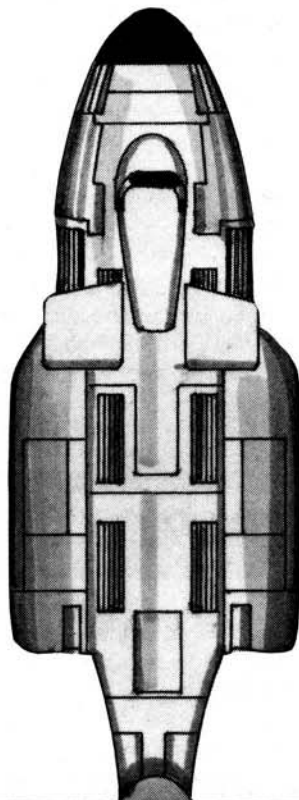
Medium Laser

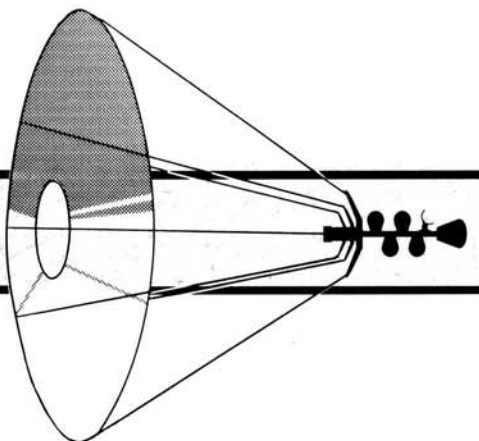
### Fire Factors:

Nose: 5

Wings: 3

Aft: 2



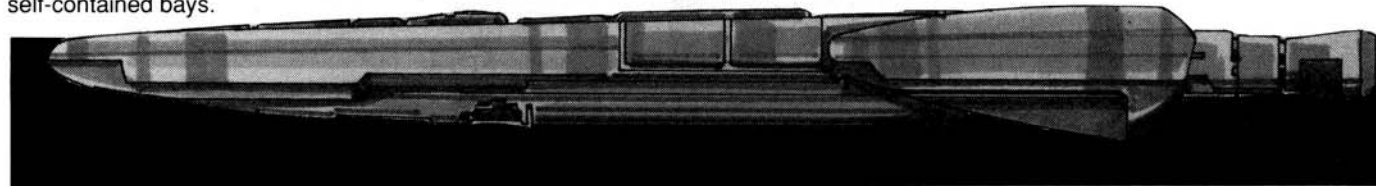


### VENGEANCE CLASS DROPSHIP

The *Vengeance* Class DropShip is the largest Fighter carrier in existence. Capable of carrying over 40 Fighters and three small craft, the ship functions as AeroSpace Fighter support for major operations. The *Vengeance* is probably the most formidable vessel operating in the Inner Sphere. Though it does not have the firepower of a *Union* Class DropShip, its Fighter complement can lay waste to a ship in a matter of minutes. Able to launch up to eight Fighters per minute, the *Vengeance* can deploy its entire force in as little as five to six minutes.

The long, flat, box-shaped hull of the *Vengeance* is not streamlined enough to allow for atmospheric travel. Instead, the ship is limited to orbital and interplanetary maneuvers. Like the *Achilles* and the *Avenger* Class DropShips, the *Vengeance* has no separate interplanetary drive. Because its drives are all aft-mounted, "up" is always toward the nose of the ship.

A cavernous AeroSpace Fighter bay takes up the bulk of the DropShip's interior. The bay contains 43 Fighter and small craft cubicles that line the walls. Running down the center of the bay are a number of small bracing walls separated by open archways. In an emergency, and always during combat, tremendous doors seal the archways, dividing the bay into two smaller, self-contained bays.



Referred to as the port and starboard hanger bays, each bay has four small launch decks at the forward end and a single large recovery deck at the aft end. These are not actually separate decks, but the terminology is used to distinguish one from the other. Each launch deck and recovery deck can be sealed off from the hangar bays, allowing simultaneous launch, recovery, and repair of AeroSpace Fighters without the need to depressurize the hangar bays.

Each launch deck has its own fueling and weapons fitting equipment. To prevent damage to the rear door of the launch deck, each deck is equipped with a blast deflector. This heavy steel plate absorbs part of the energy of the Fighter's fusion drive and spreads the rest of the energy along the reinforced interior walls.

The recovery deck has a reinforced inner door to prevent an incoming craft from plowing through the door and damaging the hangar bay. In addition, each recovery deck is equipped with magnetic grappling gear and special life-support equipment for saving damaged Fighters and their pilots.

The crew decks are located on either side of the hangar bays. Mounted on one of the large, flat sides is the ship's cockpit-style bridge. The ship's captain and the flight operations chief sit at the front of the bridge and are surrounded by viewscreens and windows. Behind them sit the pilot and navigator.

If the bridge is the brain of the ship, the engines are its heart. The ship's large engine section sits behind the hangar bays and between the two Fighter recovery decks. Because of the engine section's proximity to the recovery deck entrances, any craft that enters an accelerating *Vengeance* will get fried. Therefore, the ship's engines must be shut down completely during recovery operations. This puts the *Vengeance* in a dangerous situation should it need to recover a Fighter during combat. Under normal conditions, however, the ship can receive up to two Fighters per minute.

The *Vengeance* is designed to ensure aerospace superiority over a contested world or system. Being such a tremendous resource, it is sent only to areas of the utmost importance. When one of these vessels is present, it is quite likely that someone high up is showing a definite desire to hold onto the local property. The ship always has an escort of at least two assault DropShips and sometimes three or more well-armed DropShips, such as the *Union*.

During combat, the ship deploys its complement of AeroSpace Fighters then sits behind a small Fighter covering force. If enemy forces get too close, the defending Fighter group and the DropShip escorts engage the enemy. If the enemy gets past that group, the *Vengeance*'s moderate weapons array will try to drive them away. With its limited maneuverability, the *Vengeance* must often slug it out until help can arrive, or else run in hopes that the attackers will quit the chase before long.

The House Liao ship named *Omaha Beach* is a well-known vessel of this class. It is equipped almost entirely with well-armored small craft, each of which can carry a single heavy vehicle or a full platoon of infantry into battle. As the DropShip itself does not have room for the troops or vehicles, it is always escorted by two or three transports that can either dock with the *Omaha Beach* or shuttle the personnel and equipment over to the ship prior to the assault.



# DROPSHIPS

## VENGEANCE CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 10,000

### Dimensions

**Length:** 234 meters

**Height:** 20 meters

**Width:** 96 meters

**Crew:** 9 crew, 6 AeroSpace Pilots

**Cargo Complement:** 250

**Small Craft Complement:** 43

### Armament:

2 PPCs

4 LRM-20s

1 LRM-10

3 AC/5s

5 Large Lasers

16 Medium Lasers

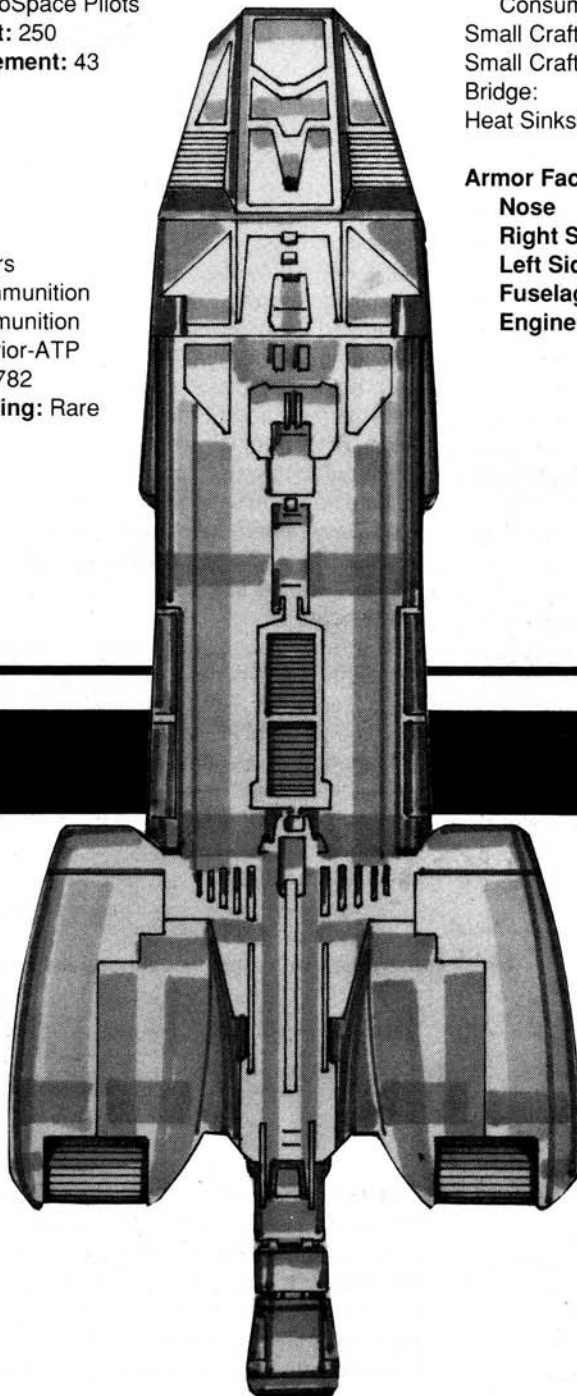
13 Tons LRM ammunition

2 Tons AC/5 ammunition

**Drive System:** Warrior-ATP

**First Introduced:** 2782

**Frequency of Sighting:** Rare



## Vengeance Class DropShip

**Thrust:** 4

**Overthrust:** 6

**Structural Integrity:** 7

	<i>Tons</i>
Engine:	1,930
Fuel (4 Thrust Points/ton): 2,000	500
Consumption: 1.84 tons/burn-day	
Small Craft Cubicles: 43	900
Small Craft Bay Doors: 8	0
Bridge:	75
Heat Sinks: 0 + 121	0

<b>Armor Factor (12 points/ton):</b> 600	50
<b>Nose</b>	100
<b>Right Side</b>	110
<b>Left Side</b>	110
<b>Fuselage</b>	140
<b>Engine</b>	140

### Weapons:

#### Nose:

Large Laser  
Medium Laser  
Medium Laser

#### Sides:

Large Laser  
Medium Laser  
Medium Laser

#### Rear Sides:

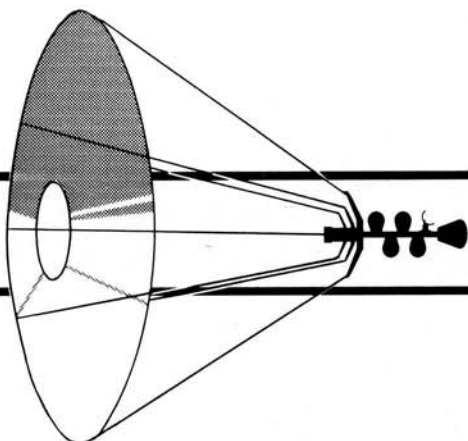
PPC  
LRM-20  
LRM-20  
AC/5  
Large Laser  
Medium Laser  
Medium Laser  
Medium Laser  
Medium Laser

#### Aft:

AC/5  
LRM-10  
Medium Laser  
Medium Laser

### Fire Factors:

Nose: 2  
Sides: 2  
Rear Sides: 7  
Aft: 2



## CIVILIAN SHIPS

### BUCCANEER CLASS DROPSHIP

The *Buccaneer* is one of the most popular DropShips among merchant captains. Though it is not as efficient as the larger *Mule* Class, its versatility makes it one of the most profitable DropShips to operate.

Though primarily a civilian cargo hauler, the *Buccaneer* was initially designed as a BattleMech transport to replace the aging *Lion* Class DropShip during the Star League era. The *Buccaneer* could not deploy its 'Mech complement fast enough and was so lightly armed and armored that the *Union* Class DropShip won the Star League contract.

The *Buccaneer* did go into production, though not for Star League. Instead, its internal structure was altered slightly so that it could be sold as a merchant ship. Several of these features are responsible for the ship's versatility. First is the ship's aerodynamic design, which makes it more fuel-efficient and stable than the larger spheroid hulls. Its landing gear is also rugged, with special reinforcement that permits the DropShip to land on paved, unpaved, and even unprepared terrain. Though the *Buccaneer's* deployment speed was often criticized as too slow for off-loading 'Mechs onto the battlefield, the vessel is considered quite fast for standard merchant operations.

The *Buccaneer* is 156.5 meters long and has a wingspan close to 128 meters across. It masses approximately 3,500 tons and carries up to 2,530 tons of cargo in its three large cargo bays. The *Buccaneer's* hull structure consists of a central fuselage with a large cargo bay attached to either side.

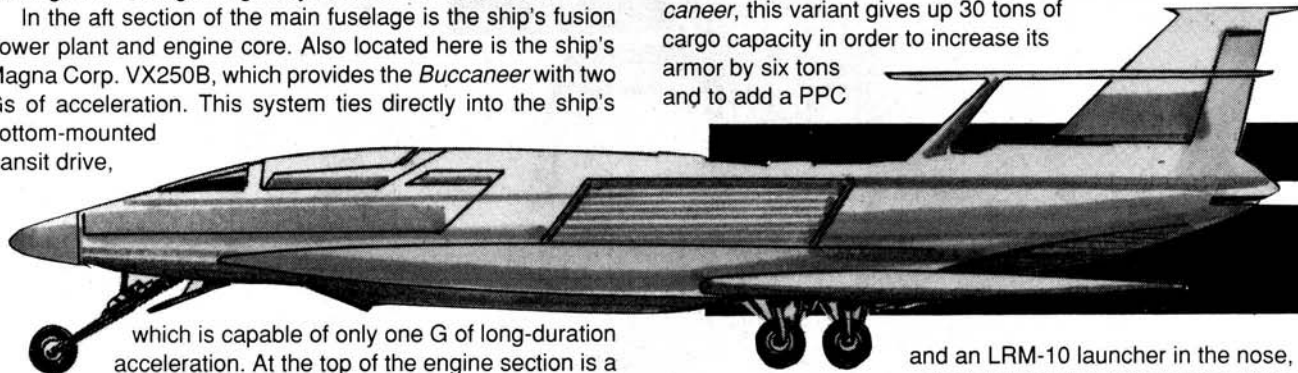
In the aft section of the main fuselage is the ship's fusion power plant and engine core. Also located here is the ship's Magna Corp. VX250B, which provides the *Buccaneer* with two Gs of acceleration. This system ties directly into the ship's bottom-mounted transit drive,

Directly forward of the cargo section is the command section, which can accommodate twelve crewmembers, which is more than adequate for most vessels of this class. Indeed, most *Buccaneers* have one or two rooms set aside for carrying passengers, just to bring in some extra income. On vessels operating well into the black, these extra rooms may serve instead as additional recreational space for the captain and/or crew. The section contains a large recreation room, mess hall, and lounge for the passengers and the crew. These extra comforts help to make a *Buccaneer* post one of the more attractive jobs available to merchant crewman.

Above the nose of the ship is the small cockpit-style bridge. This compartment lacks the space needed to control all the ship's systems, and so it is used only for flight operation controls and to fire the forward-mounted weapons. Communications is controlled from a small room just off the corridor behind the bridge. A separate security control station is used to monitor the internal operations of the ship. On most vessels, this station is considered unnecessary, and so it is not manned.

Mounted on either side of the ship's main hull are the main cargo bays. Each bay is approximately 93 meters long, 20 meters across, and 17 meters high, and is capable of carrying up to 1,101 tons of large equipment. When the ship is carrying vehicles, each bay can accommodate up to 48 light vehicles. To facilitate transport of larger numbers of vehicles or equipment, many *Buccaneers* have been refitted with a second deck, which splits each of the cargo bays into two smaller bays with reduced ceiling clearance. Each of these levels can then carry up to 40 light vehicles.

The *Buccaneer* Class DropShip, like other successful designs, has a large number of variants operating throughout the Successor States. The most common is used within mercenary units and the regular forces of the Draconis Combine and the Federated Suns. Essentially an upgunned version of the *Buccaneer*, this variant gives up 30 tons of cargo capacity in order to increase its armor by six tons and to add a PPC



which is capable of only one G of long-duration acceleration. At the top of the engine section is a small engineering systems monitoring and control station, which is manned at all times by an engineer.

Above the transit drive and in front of the main engine compartment is the smallest of the ship's cargo bays. This area can store up to 360 tons of small cargo and is divided up into a number of decks.

and an LRM-10 launcher in the nose, one large laser added to each wing, and an additional two tons of long-range missile ammunition. This variant is used mostly to deliver supplies and equipment to units in a combat zone. It often serves as a vehicle transport, even though its accommodations are not adequate to carry the troops needed to operate the vehicles. For this reason, the vessel is usually paired with a troop transport DropShip, such as the *Fury*, to carry the needed manpower.

# DROPSHIPS

## BUCCANEER CLASS DROPSHIP

Type: Aerodyne

Tonnage: 3,500

### Dimensions

Length: 136.5 meters

Height: 30 meters

Width: 127.5 meters

Crew: 12

Cargo Complement: 2,562

### Armament:

1 LRM-5

1 Large Laser

6 Medium Lasers

2 Small Lasers

1 Ton LRM ammunition

Drive System: Magna Corp. VX250B

First Introduced: 2708

Frequency of Sighting: Common

## BUCCANEER CLASS DROPSHIP

Thrust: 3

Overthrust: 5

Structural Integrity: 8

Engine:	Tons
	630

Fuel (6 Thrust Points/ton): 960	160
---------------------------------	-----

Consumption: 2.82 tons/burn-day

Cargo Doors:	2
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Bridge:	27
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Heat Sinks: 0 + 58	0
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Armor Factor (16 points/ton): 224	14
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Nose	50
------	----

Right Wing	40
------------	----

Left Wing	40
-----------	----

Fuselage	64
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Engine	30
--------	----

### Weapons:

#### Nose:

Large Laser

LRM-5

#### Wings:

Medium Laser

Medium Laser

Small Laser

#### Aft:

Medium Laser

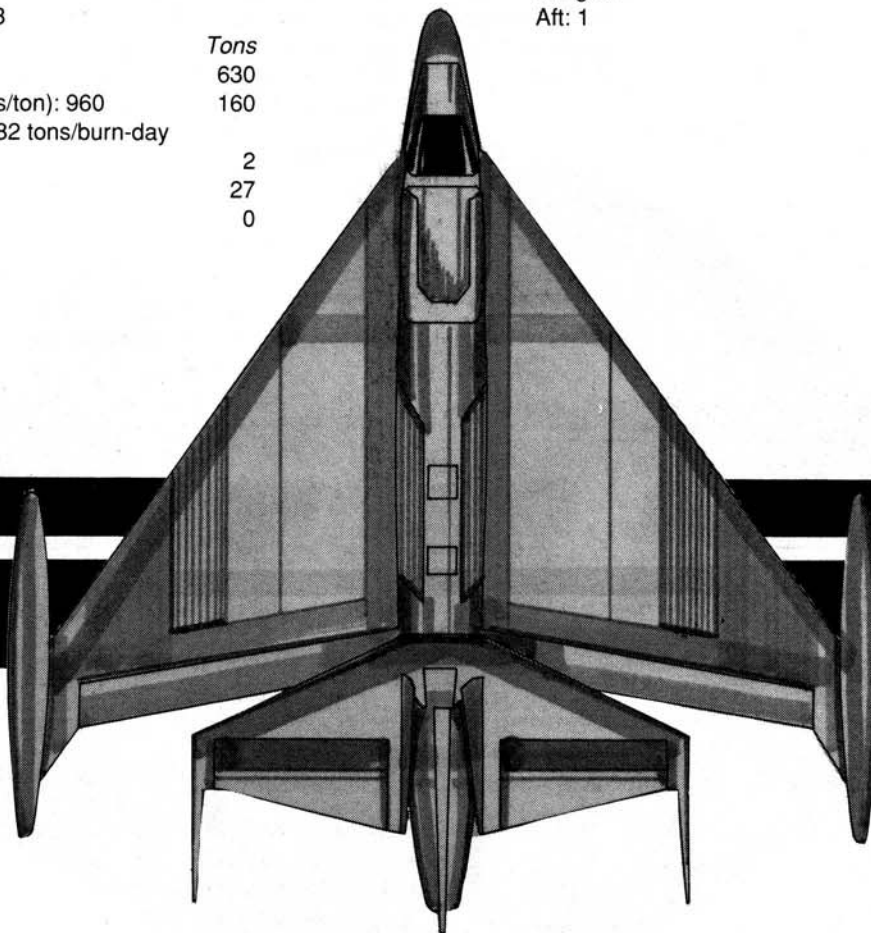
Medium Laser

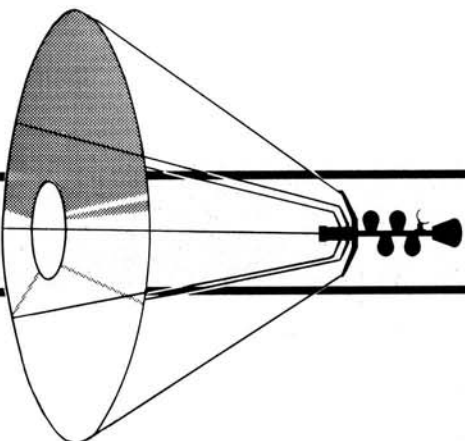
### Fire Factors:

Nose: 1

Wings: 1

Aft: 1





## MULE CLASS DROPSHIP

The *Mule* Class DropShip is one of the most commonly encountered civilian DropShips in the Inner Sphere. Massing at just over 11,000 tons, this transport is capable of carrying close to 8,500 tons of cargo. The ship's uncomplicated design and ease of maintenance make it one of the more affordable and popular vessels in use today.

The *Mule*'s squat spheroid hull is roughly 61 meters high and 158 meters across, and is moderately armored for protection against pirate attacks and natural space hazards. The vessel's small assortment of weaponry includes a single LRM-10 in the front, a pair of medium lasers on each of the front sides, an aft-mounted Autocannon/5 and medium laser, and an LRM-10 and a pair of medium lasers mounted in each of the rear-side weapons bays. The vessel normally carries four tons of ammunition in storage bins located near each weapon bay.

The *Mule*'s interior resembles that of other spheroid DropShips, such as the *Union* and *Seeker*. Its fusion power plant and engine core are contained in a fat, cylindrical section that runs about two-thirds of the way from the bottom to the center of the ship.

In a ring at the outer edge of the *Mule*'s lower deck is an equipment section containing the ship's four stubby but sturdy landing legs. Also in this ring are the ship's main heat sinks, fuel tankage, and the rear-side weapons bays.

Filling the space between the equipment rings and the engine core is the lower cargo bay, which holds up to 3,500 tons of cargo, or approximately 41 percent of the *Mule*'s capacity. Near the center of the

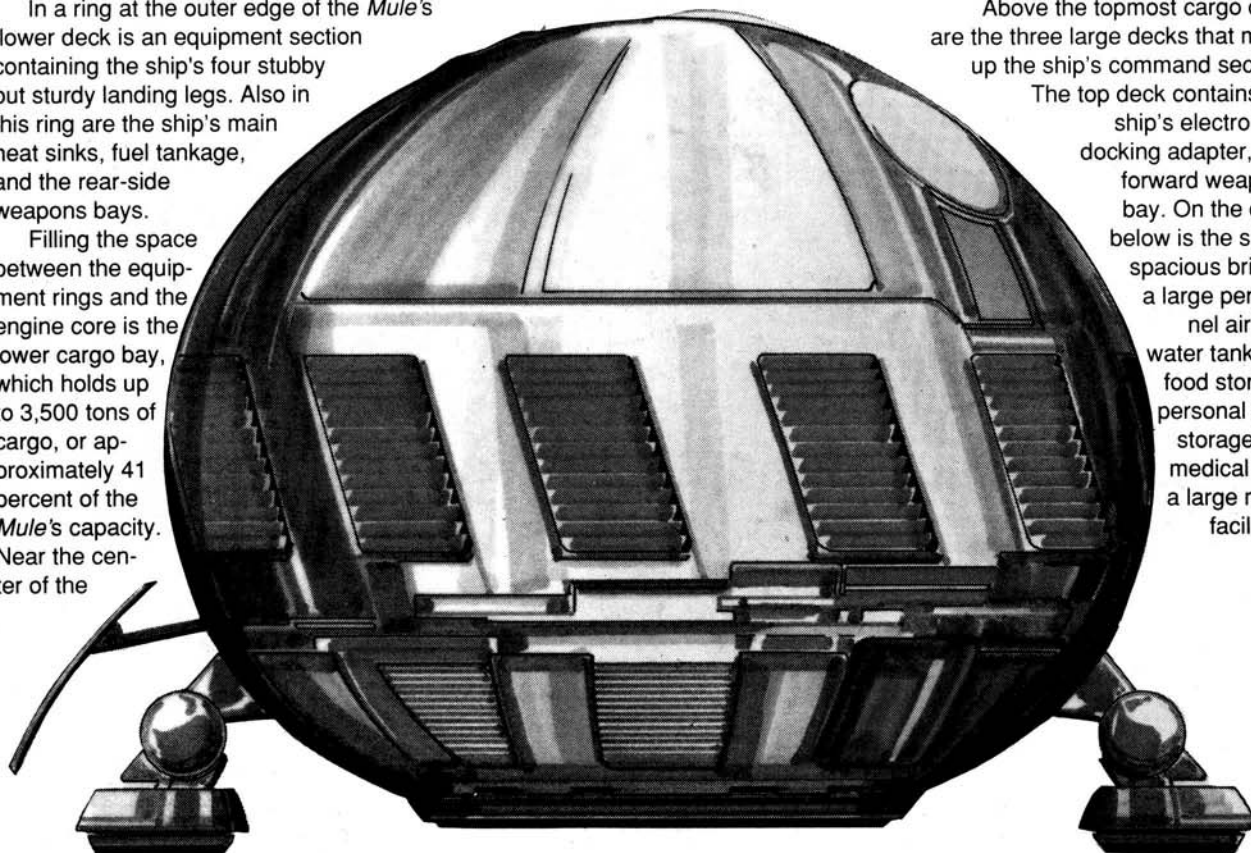
bay are four large, 200-ton capacity cargo elevators used to carry cargo between this deck and the two cargo decks in the ship's upper areas. In front of each elevator is the entrance to one of four large cargo ramps. These ramps have caused many take-off disasters. When the ship's drives fire up, a scorching blast immediately hits the ship's underside. If the ramps are not securely retracted, the blast can rip out a ramp, severely damaging the interior of the lower cargo bay.

In one famous incident, a *Mule* Class DropShip was delivering supplies to a mercenary unit. Explosive ammunition was being unloaded from the ship's lower deck when an enemy ground force penetrated the defending perimeter and began to fire on the DropShip. The captain ordered immediate launch. Though the ramps were retracted, one had failed to secure completely. When the drives fired, the blast ripped through the ramp and hit the cargo. The resulting explosions completely gutted the ship, killing everyone aboard. This incident led directly to improved cargo handling standards and procedures that most *Mule* captains and crews use to this day.

The drive blast problems also create troubles with the *Mule*'s landing gear. The engine blast tends to scorch the interior of the landing gear wells, singeing cables and various control lines. Because of this, the cable assemblies must be replaced after about every 20 lift-offs. If they are not replaced, the control lines may fail, causing the landing gear to lock in the "up" or "down" position, or even somewhere in between.

Above the topmost cargo deck are the three large decks that make up the ship's command section.

The top deck contains the ship's electronics, docking adapter, and forward weapons bay. On the deck below is the ship's spacious bridge, a large personnel airlock, water tankage, food storage, personal gear storage, the medical bay, a large mess facility, a





# DROPSHIPS

comfortable lounge, and 20 single-occupancy rooms for the ship's crew.

In the bottom deck of the command section are waste-processing facilities, a large hydroponic garden, the ship's laundry, life support, and emergency batteries. Also on this deck is a separate area composed of three specialized rooms. One is an observation room that overlooks the upper cargo deck. In front of the large downward-angled window is a communications panel connected to a loudspeaker in the cargo bay below. The crew often use this room as an extra lounge, but its main purpose is for meetings with customers and for coordinating cargo handling operations.

The second room contains three large, wall-sized screens that display local exchange rates and prices for various goods and services. The screens are tied into a communications system that picks up information broadcast by planetary marketing agencies. Many planets do not normally have access to this type of information. On these worlds, the screens display known or estimated market prices and exchange rates. In the center of the room is a small table and a pair of chairs. The room is normally used by the ship's captain, who handles most transaction decisions.

The third room is a central communications facility for tracking and coordinating planetary activities. Communications monitoring systems tie directly into local information broadcasts to provide data to the market display room. These comm systems also keep close touch with purchasing agents and sellers.

## MULE CLASS DROPSHIP

**Type:** Spheroid

**Tonnage:** 11,200

### Dimensions

**Height:** 100.4 meters

**Width:** 158 meters

**Crew:** 20 crew

**Cargo Complement:** 8,450

### Armament:

1 AC/5

2 SRM-6s

3 Large Lasers

8 Medium Lasers

2 Small Lasers

**Drive System:** GE 2080

**First Introduced:** 2737

**Frequency of Sighting:** Common

## MULE CLASS DROPSHIP

**Thrust:** 3

**Overthrust:** 5

**Structural Integrity:** 10

	Tons
Engine:	2,080
Fuel (4 Thrust Points/ton): 1,276	319
Consumption: 4.22 tons/burn-day	
Cargo Doors: 4	0
Bridge:	84
Heat Sinks: 0 + 58	0

<b>Armor Factor (12 points/ton):</b> 300	25
<b>Nose</b>	50
<b>Right Side</b>	60
<b>Left Side</b>	60
<b>Fuselage</b>	90
<b>Engine</b>	40

### Weapons:

#### Nose:

AC/5

Medium Laser

Small Laser

Small Laser

#### Sides:

SRM 6

Medium Laser

Medium Laser

#### Rear Sides:

Large Laser

Medium Laser

#### Aft:

Large Laser

Medium Laser

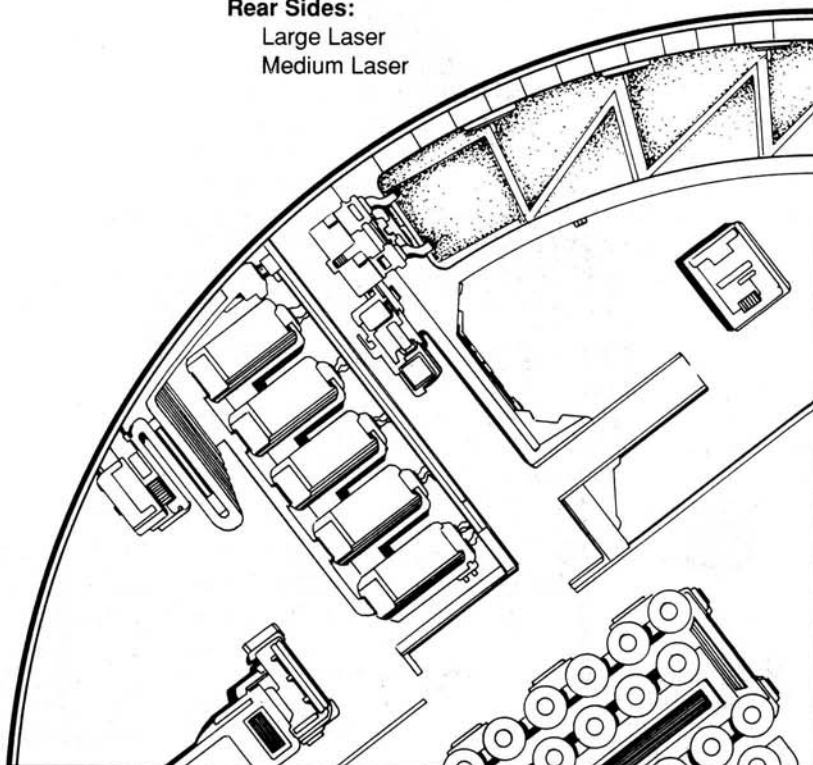
#### Fire Factors:

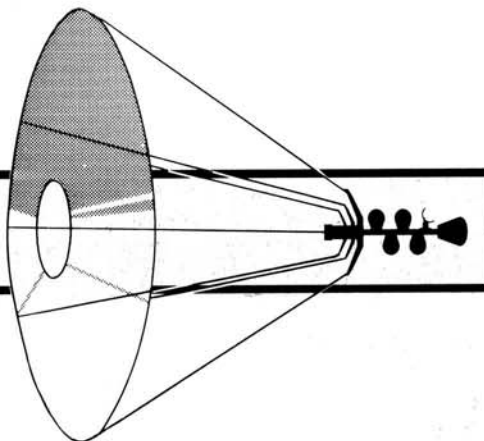
Nose: 2

Sides: 2

Rear Sides: 1

Aft: 1

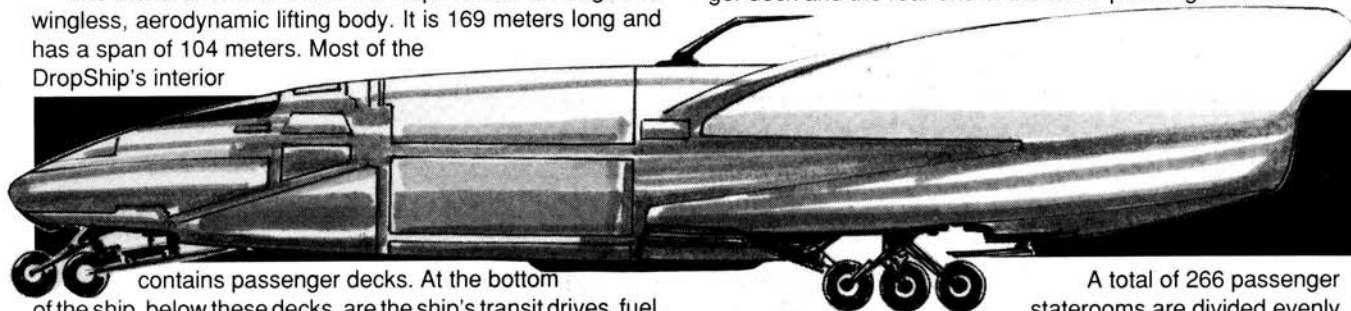




## MONARCH CLASS DROPSHIP

The *Monarch* is one of the few liners still in service in the Successor States. Within its aerodynamically designed hull, the 5,000-ton vessel can carry over 266 passengers plus 900 tons of cargo. Though not as luxurious as a *Princess Class DropShip*, the *Monarch* is quite comfortable. The ship is lightly armored and completely unarmed, making it a risky choice for use in military operations. Some have been used successfully as troop transports by mercenary units, however.

The *Monarch* is one of the few ships whose fuselage is a wingless, aerodynamic lifting body. It is 169 meters long and has a span of 104 meters. Most of the DropShip's interior



contains passenger decks. At the bottom of the ship, below these decks, are the ship's transit drives, fuel, landing gear, and other flight machinery. During interplanetary travel, the transit drives provide a constant one G acceleration, giving passengers and crew the illusion of standard gravity. At the aft end of the ship is the maneuver drive, which is used only during evasive actions and in atmospheric travel. Though it is capable of producing up to three Gs of thrust, regulator system prevents the drives from exceeding two Gs unless overridden.

Directly above the transit drives and near the ship's engine core is the multi-level cargo section, consisting of four cargo decks. Each deck is about 16 meters long by 14 meters wide by 4 meters high and is capable of supporting up to 225 tons of cargo. The uppermost compartment is normally reserved for the passengers' personal belongings, while the lower three sections are leased out to anyone in need of cargo transportation.

At the forward end of the ship is the small command section, which accommodates the ship's 34 crew members. The crew quarters consist of 15 double-occupancy rooms, plus single-occupancy rooms for the captain and senior officers. The crew has a small lounge, and no separate mess facility; instead, they are expected to use one of the passenger dining facilities. If the captain does not wish the crew to mingle with the passengers, they must use the tiny food processing facility located in one corner of the lounge. The crew may spend their off-duty time in one of the many recreational facilities installed for the passengers.

At the top of the command section is the ship's large, cockpit-style bridge. From here, the pilot and navigator have complete control over ship operations and security. A security

panel near the rear of the bridge controls all main bulkhead doors and can monitor activities in almost every location aboard the ship. The panel can also reduce the life support systems in various parts of the ship to minimal levels, which would eventually render the occupants of the area unconscious. In addition, the security panel can release tranquilizing gas into the air circulation system of any area on the passenger or cargo decks. However, it cannot affect any part of the crew or the engine areas.

The two passenger decks are located between the command section in the front and the cargo section in the rear. People may exit the passenger decks through passageways leading to the command and cargo section or through one of four large airlocks located at the front end of the upper passenger deck and the rear end of the lower passenger deck.

A total of 266 passenger staterooms are divided evenly between the upper and lower passenger decks, and various dining and entertainment facilities are located in the forward areas. Near the center of the lower deck is a large dining commons with a seating capability of 150 people. Next to this is a large, well-equipped food storage locker. To facilitate loading supplies, the locker has a small elevator that leads down to a loading hatch in the lower drive deck.

Also located on the lower passenger deck is an exercise room, a pair of saunas, a recreation room and two small gift and accessory shops. At the forward end are the passenger laundry facilities, waste processing systems, and life support equipment. Lined up along each side of this deck are entrances to ten lifeboat berths.

The upper passenger deck is also equipped with ten lifeboats. The deck layout is similar to the lower decks, except that this deck contains a pair of dining facilities with a seating capacity of 100 people. These two rooms are located on opposite sides of a galley and a food storage locker. Although different types of food are served in each dining room, they are both prepared within the same galley. At the front end of the deck and behind the two airlocks are a lounge and casino. The casino contains three tables that are used to run any kind of game of chance. A second entertainment lounge is located near the rear of the passenger facilities, along with a small videotape theater. Also located here is a general recreation room and the passenger's medical bay.

The *Monarch* has outlived many other DropShips because of its inoffensive nature. The ship is unarmed and too lightly armored to be a threat to anyone. In addition, because its super-

# DROPSHIPS

structure is so weak, the vessel has never been modified for combat. The *Monarch* seldom travels outside heavily populated, high-traffic regions of the Inner Sphere. They are almost always busy performing scheduled flights between well-populated worlds. Occasionally, a combat unit pressed for time will hire a *Monarch* to transport ground troops from one safe location to another. The cost is usually quite high, and the accommodations are a bit too soft for soldiers.

## MONARCH CLASS DROPSHIP

**Type:** Aerodyne

**Tonnage:** 5,000

### Dimensions

**Length:** 169 meters

**Height:** 30 meters

**Width:** 104 meters

**Crew:** 34

**Cargo Complement:** 900 tons, 266 passengers

**Armament:** None

**Drive System:** Marly 750

**First Introduced:** 2759

**Frequency of Sighting:** Common

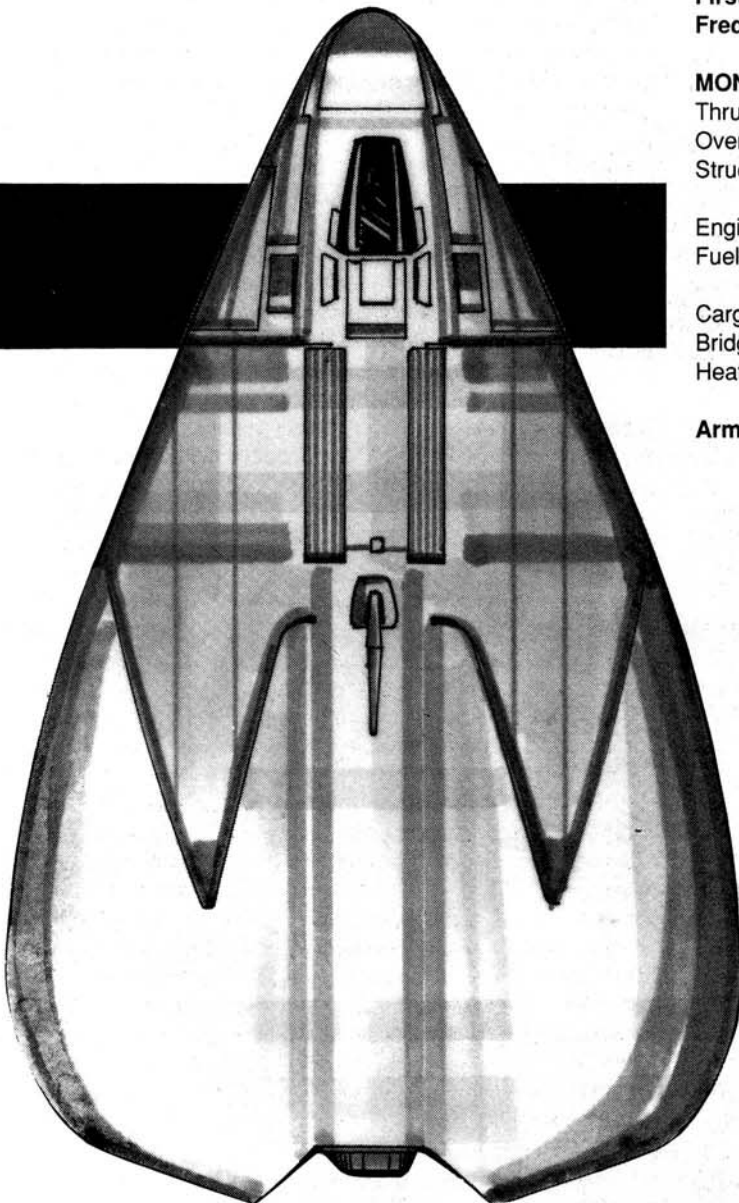
## MONARCH CLASS DROPSHIP

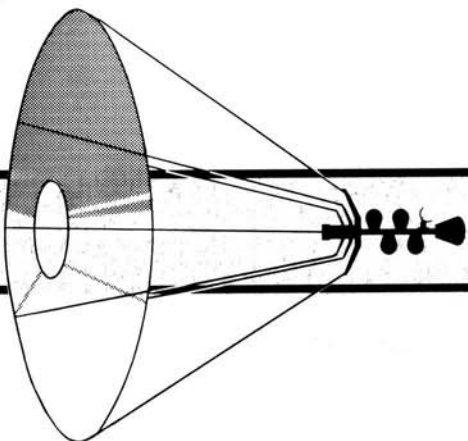
**Thrust:** 3

**Overthrust:** 5

**Structural Integrity:** 6

	Tons
Engine	940
Fuel (5 Thrust Points/ton): 560	112
Consumption: 3.37 tons/burn-day	
Cargo Doors: 2	0
Bridge:	38
Heat Sinks: 0 + 76	0
<b>Armor Factor (16 points/ton): 160</b>	10
<b>Nose</b>	40
<b>Right Side</b>	25
<b>Left Side</b>	25
<b>Fuselage</b>	50
<b>Engine</b>	20





### MAMMOTH CLASS DROPSHIP

The *Mammoth* is the largest DropShip capable of landing on a planet's surface. The bullet-shaped vessel masses 52,000 tons, and its cavernous cargo bays are capable of carrying over 40,000 tons. Because of its high operating and maintenance cost, this vessel is economically feasible to use only on scheduled runs between high-trade worlds. Nevertheless, the ship provides the mainstay for bulk cargo transportation between the industrial worlds of the Inner Sphere.

The *Mammoth's* proportions are enormous; it is over five times the size of the *Overlord* DropShip. If it were loaded solely with BattleMechs, it could carry over seven battalions, totalling 252 'Mechs. The ship's primary purpose, however, is to transport massive quantities of bulk goods between planets. For this purpose, the ship has five large cargo decks, each capable of supporting roughly 8,000 tons of cargo and equipment. Running from the top cargo deck to the bottom deck are two cargo elevators, each measuring 30 meters square and capable of lifting 400 tons of cargo. The bottom deck contains two large doors for loading and unloading cargo.

In a compartment next to the elevators is a pair of Industrial Exoskeletons. The models normally aboard the *Mammoth* are powered by batteries, which are recharged through a coupling located in the compartment. To help them maneuver in zero-G, these machines are

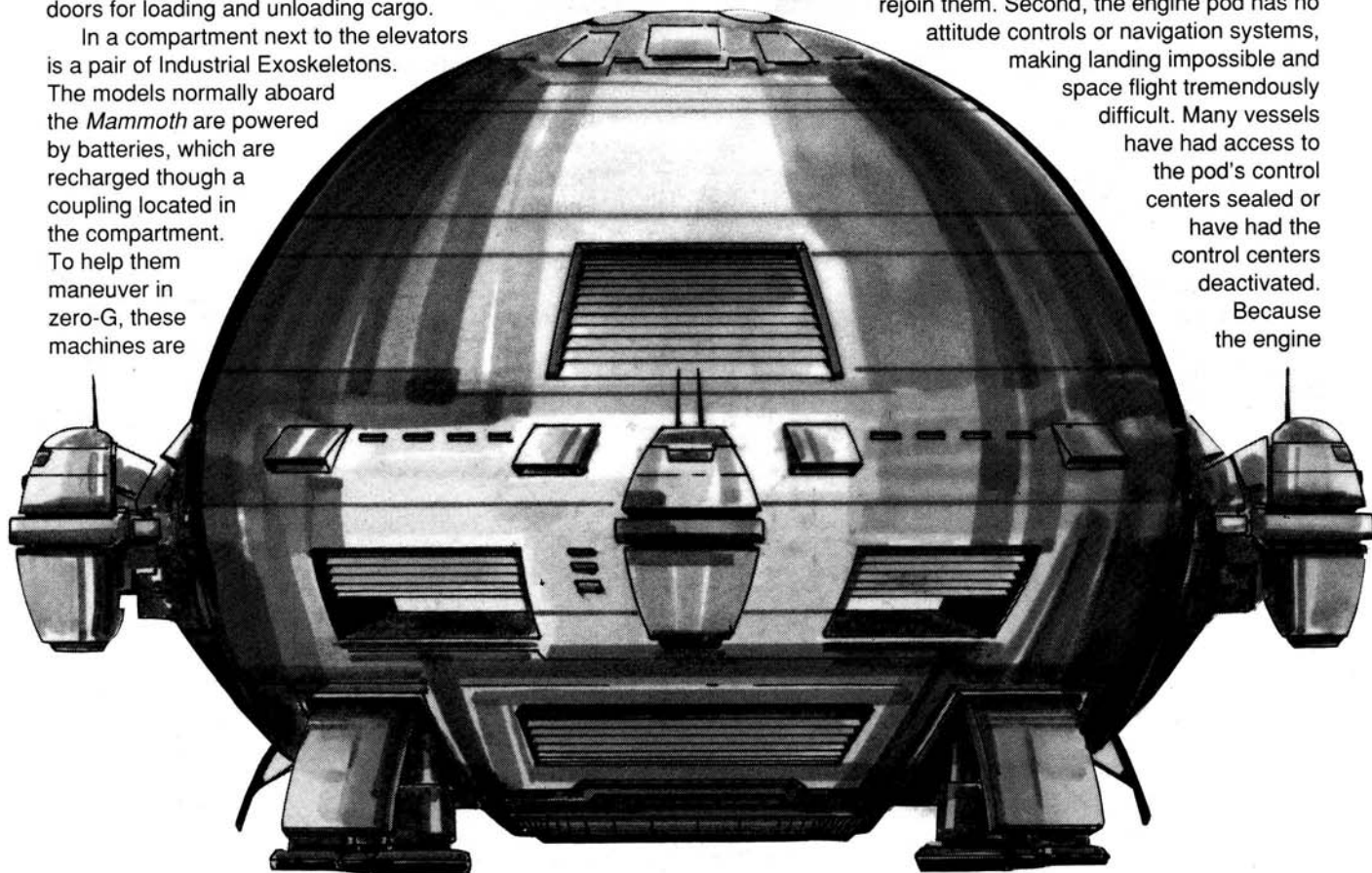
also equipped with a small thruster unit that uses short bursts of compressed gas.

On the second cargo deck are four airlocks used for transferring cargo while the ship is in space. The airlocks are so large that two full-sized shuttles can fit inside. In fact, they are sometimes used as small craft launch and recovery bays.

The *Mammoth's* engine configuration sets it apart from other DropShips. Instead of having a central drive, as do most spheroid DropShips, the *Mammoth* mounts engines in huge pods attached to its hull by strong struts. Combined, the drives constitute about 20 percent of the *Mammoth's* mass.

This engine arrangement is even more unusual because the drives can be detached from the rest of the ship. Activating a set of explosive bolts will sever the connection between a drive pod and the main fuselage. If a pod ever overloads or otherwise endangers the ship, it can be jettisoned. If one drive pod is jettisoned or shut down, however, the other pod must be shut down as well. Otherwise, the thrust imbalance will throw the ship into an uncontrollable spin, tearing the ship apart and crushing the crew against the ship's inner walls.

Each drive pod is equipped with a small control room, where a crew member can operate the pod as a separate vessel. However, this is not recommended for two reasons. First, once the pod has been detached, it is extremely difficult and costly to rejoin them. Second, the engine pod has no attitude controls or navigation systems, making landing impossible and space flight tremendously difficult. Many vessels have had access to the pod's control centers sealed or have had the control centers deactivated. Because the engine





# DROPSHIPS

Pods are located where most ships have their landing gear, the *Mammoth* has a large, flat, well-cushioned bottom section that serves as a landing foot. Although the ship is designed to land only on level, reinforced surfaces, a set of hydraulic lifts adjust for uneven ground.

The *Mammoth's* upper four decks contain 30 double-occupancy rooms for the crew and eight single-occupancy rooms for the captain and ranking officers. Each double-occupancy room contains a double-bunk, a table, two chairs, a pair of large lockers, and a washroom. The officers' quarters contain similar arrangements but are designed for a single occupant. Ironically, for the tremendous size of the ship, the crew accommodations are rather small and simple.

The *Mammoth* is an uncommon sight except in well-populated or highly industrial systems of the Inner Sphere. Because of its astronomic operating and maintenance costs, few *Mammoths* are independently owned. Large corporations and multi-system governments that need high-capacity service between its component worlds own most of these ships. The armies of the Successor States employ a few to carry hydrogen fuel.

The *Mammoth's* greatest problem is a lack of spare parts. In fact, many of these vessels are being scavenged for parts.

## MAMMOTH CLASS DROPSHIP

**Type:** Spheroid

**Tonnage:** 52,000

### Dimensions:

**Height:** 170.6 meters

**Width:** 277 meters

**Crew:** 35

**Cargo Complement:** 40,110

### Armament:

3 Large Lasers

4 Medium Lasers

2 Small Lasers

**Drive System:** Bally Tech Super X40

**First Introduced:** 2808

**Frequency of Sighting:** Uncommon

## MAMMOTH CLASS DROPSHIP

**Thrust:** 3

**Overthrust:** 5

**Structural Integrity:** 20

	Tons
Engine	10,150
Fuel (2 Thrust Points/ton): 840	420
Consumption: 8.37 tons/burn-day	
Small Craft Cubicles: 4	600
Cargo Doors: 6	0
Bridge:	390
Heat Sinks: 0 + 153	0

**Armor Factor (8 points/ton):** 240

<b>Nose</b>	50
<b>Right Side</b>	30
<b>Left Side</b>	30
<b>Fuselage</b>	110
<b>Engine</b>	20

### Weapons:

#### Nose:

Large Laser

#### Sides:

None

#### Rear Sides:

Large Laser

Medium Laser

Medium Laser

#### Aft:

Small Laser

Small Laser

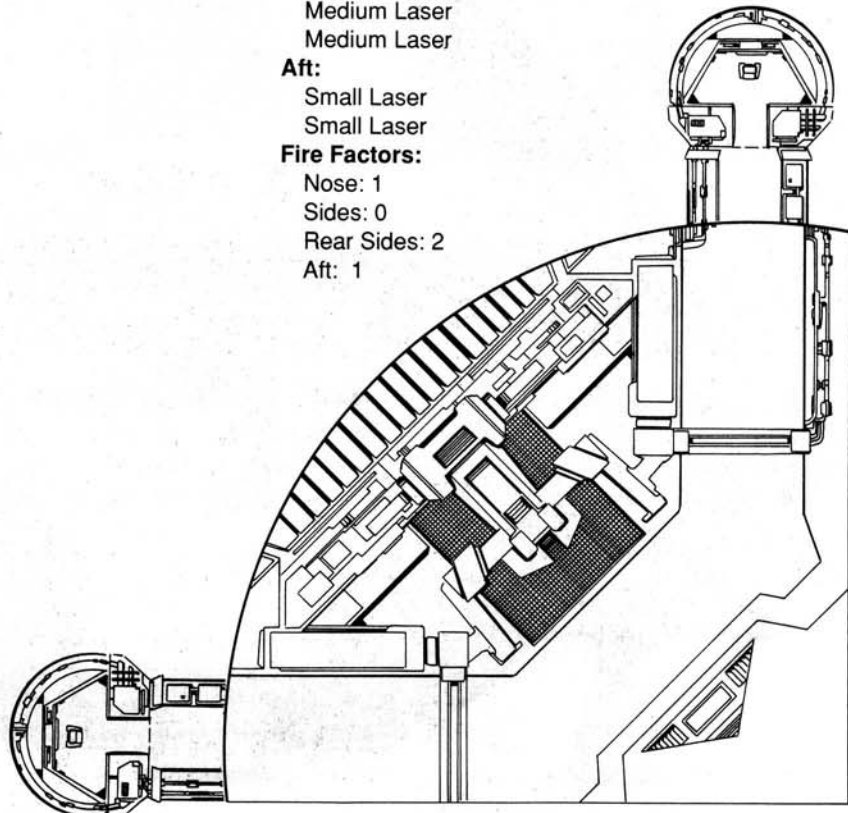
### Fire Factors:

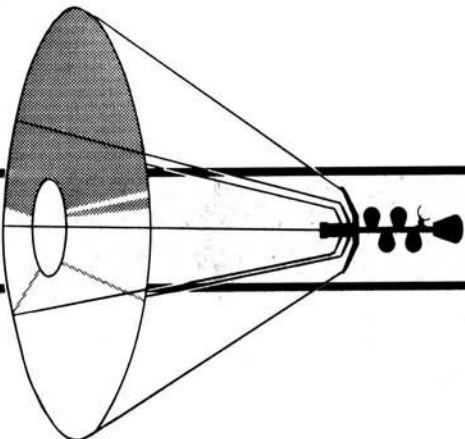
Nose: 1

Sides: 0

Rear Sides: 2

Aft: 1





## BEHEMOTH CLASS DROPSHIP

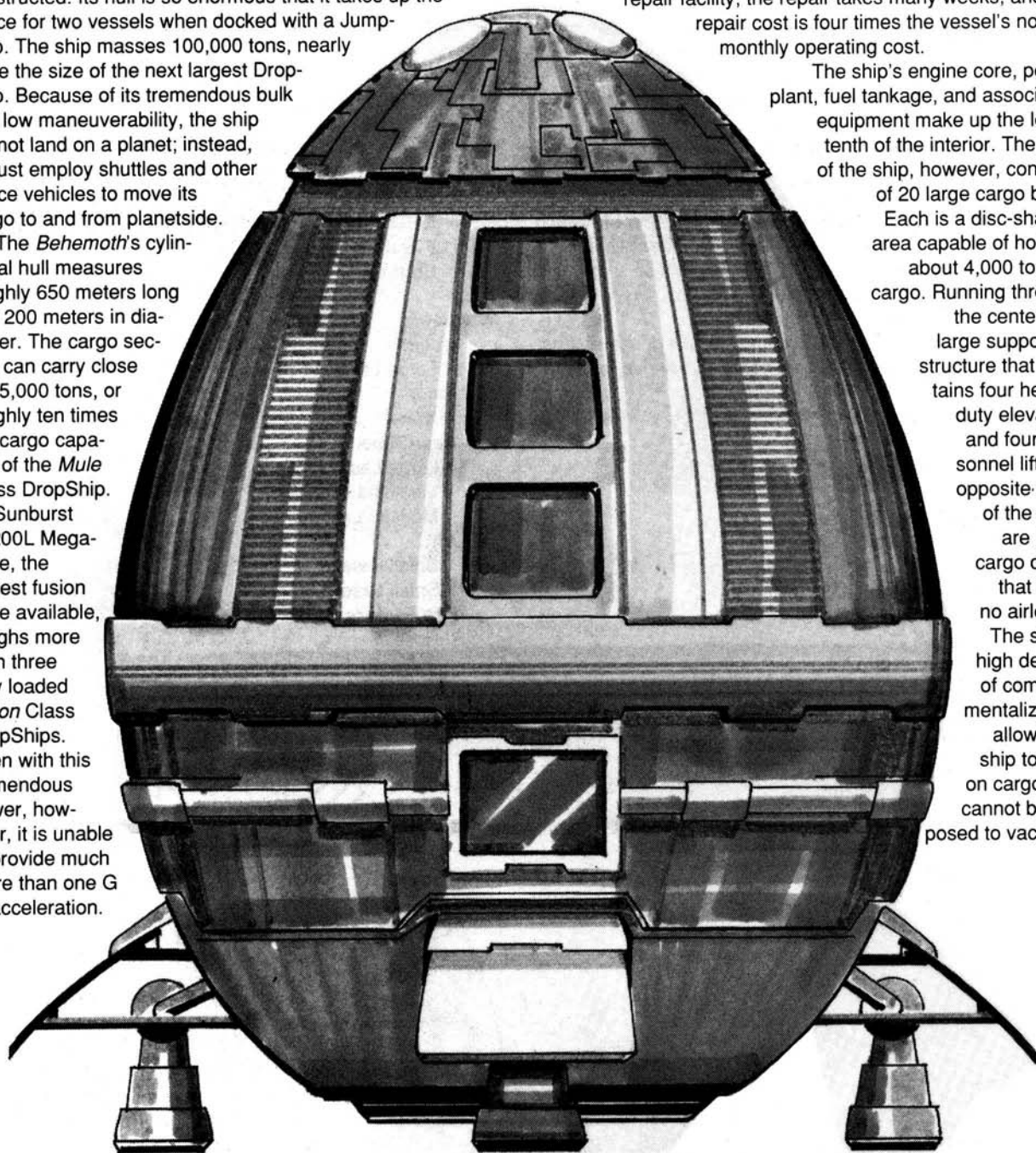
The *Behemoth* Class DropShip is the largest DropShip ever constructed. Its hull is so enormous that it takes up the space for two vessels when docked with a JumpShip. The ship masses 100,000 tons, nearly twice the size of the next largest DropShip. Because of its tremendous bulk and low maneuverability, the ship cannot land on a planet; instead, it must employ shuttles and other space vehicles to move its cargo to and from planetside.

The *Behemoth's* cylindrical hull measures roughly 650 meters long and 200 meters in diameter. The cargo section can carry close to 85,000 tons, or roughly ten times the cargo capacity of the *Mule* Class DropShip. Its Sunburst M-200L Mega-drive, the largest fusion drive available, weighs more than three fully loaded *Union* Class DropShips. Even with this tremendous power, however, it is unable to provide much more than one G of acceleration.

When the drive is operating at full thrust, the stress is so great that it can crack the hull and damage the ship's structural integrity. Therefore, most vessels keep acceleration below 0.8 Gs. If a ship exceeds this limit, it may suffer damage, decreasing its maximum acceleration to 0.6 Gs until repaired. Unfortunately, repairing this drive is very expensive and time consuming. Besides requiring months to obtain the services of a major repair facility, the repair takes many weeks, and the repair cost is four times the vessel's normal monthly operating cost.

The ship's engine core, power plant, fuel tankage, and associated equipment make up the lower tenth of the interior. The bulk of the ship, however, consists of 20 large cargo bays. Each is a disc-shaped area capable of holding about 4,000 tons of cargo. Running through

the center is a large supporting structure that contains four heavy-duty elevators and four personnel lifts. At opposite ends of the deck are large cargo doors that have no airlocks. The ship's high degree of compartmentalization allows the ship to take on cargo that cannot be exposed to vacuum.



# DROPSHIPS

On top of the cargo section is the multi-level command section. This area houses the ship's 50 crew members in the most comfortable crew accommodations in the Inner Sphere. Each of the four decks is a wide disk surrounded mostly by water tankage and the ship's moderately armored hull. Running through the center are the air circulation system, maintenance access ways, control system cabling, and the four personnel lifts from the cargo decks. The lower deck in the command section is an equipment deck, which contains the life support systems, waste treatment, repair parts storage, equipment storage, ship's laundry, ship's emergency batteries, heat sinks, a small detention area, a machine shop, and a pair of small craft bays.

The second command deck houses most of the ship's 50 crew members. Crew members aboard the *Behemoth* have individual rooms that, though small, are comfortable. Each is equipped with a bed, a desk and chair, storage closet, and tiny washroom. In the center of the deck, surrounding the central elevator structure, is a large lounge. Adjacent to the lounge is the main mess facility, which can accommodate the entire crew at one sitting. During non-mealtime hours, the room is often used for additional recreation space. Also located here is a galley and a large food storage facility. At the opposite side of the lounge is an exercise room, and next to that is the ship's medical bay.

The third command deck contains the quarters for the ship's officers. In addition, it contains a small lounge, mess facility, and a large hydroponic garden that supplies the crew with fresh vegetables and a small amount of oxygen.

The last deck contains the bridge, which controls the life support, internal security systems, cargo doors, elevator master controls, and flight, communications, navigation, computer, and weaponry controls. Because the bridge has a lot of power over the internal operation of the ship, security on this deck is tight. No one except for the bridge crew is allowed here without special permission from the captain. Besides the bridge, this deck contains the long-range communications gear, weapons fire control, deep-space radar, navigation systems, the ship's computers, local life support, and emergency batteries.

Because of its poor maneuverability, lack of armor, and meager weapons array, the *Behemoth* has rarely been used in combat. For this reason, few have been destroyed, and many are still operating today.

## BEHEMOTH CLASS DROPSHIP

**Type:** Spheroid  
**Tonnage:** 100,000  
**Dimensions:**

**Height:** 275 meters  
**Width:** 200 meters

**Crew:** 50  
**Cargo Complement:** 84,195  
**Armament:**

4 Large Lasers  
 10 Medium Lasers

**Drive System:** Sunburst M-200L Megadrive  
**First Introduced:** 2782  
**Frequency of Sighting:** Common

## BEHEMOTH CLASS DROPSHIP

**Thrust:** 2  
**Overthrust:** 3  
**Structural Integrity:** 30

	Tons
Engine	13,290
Fuel (2 Thrust Points/ton): 1,200	600
Consumption: 8.83 tons/burn-day	
Cargo Doors: 40	0
Small Craft Cubicles: 4	600
Small Craft Bay Doors: 2	0
Bridge:	750
Heat Sinks: 0 + 158	0

<b>Armor Factor (6 points/ton):</b> 210	35
<b>Nose</b>	30
<b>Right Side</b>	30
<b>Left Side</b>	30
<b>Fuselage</b>	80
<b>Engine</b>	40

## Weapons:

**Nose:**  
 None

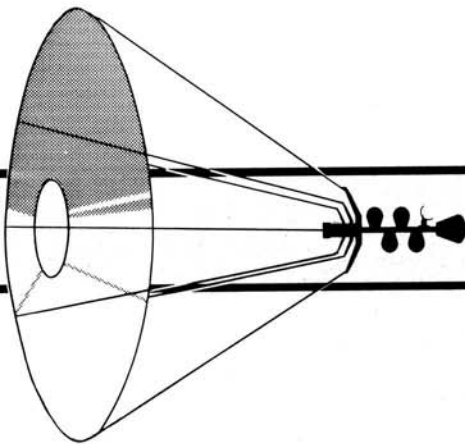
**Sides:**  
 1 Large Laser  
 2 Medium Lasers

**Rear Sides:**  
 1 Large Laser  
 2 Medium Lasers

**Aft:**  
 2 Medium Lasers

## Fire Factors:

**Nose:** 0  
**Sides:** 2  
**Rear Sides:** 2  
**Aft:** 1



Although DropShips are the most important space vehicles within the Inner Sphere, small craft can perform many operations better than DropShips can. Small craft are aerospace vehicles massing less than 200 tons and primarily used to carry passengers or cargo. Most small craft are aerodynamic, and thus capable of atmospheric flight, as are aerodyne DropShips. As few such craft possess the capability to hover, most vehicles need a prepared landing strip to land safely.

With a few exceptions, small craft are not designed for combat and are equipped with only one or two small weapons. Some, like the Mark VII landing craft, are designed for use in a combat environment and are well-armed and armored.

## ESCAPE POD

The escape pod is a small space vehicle found onboard nearly every DropShip and JumpShip in the Inner Sphere. It is designed to carry a number of passengers away from a larger ship in danger.

The escape pod is a five-ton, tear-drop-shaped craft measuring 5.3 meters long and 2.5 meters in diameter at its widest point. At the narrow end of the vehicle is a heavy hatch, while at the opposite end is a small thruster.

The thruster burns liquid hydrogen, providing the pod with a limited amount of maneuverability. It has enough fuel to provide a maximum acceleration of 0.5 Gs for five minutes, and is equipped with heat shielding for atmospheric entry and an atmospheric landing system composed of a large, glider-like parachute that can be steered from within the craft. It has no landing gear, however, making touchdown extremely rough.

The pod's interior is large enough to carry four passengers comfortably and can carry two additional persons if desired. With four passengers, the on-board food locker has enough rations to last for twelve days. However, the life support system will operate for about 20 days.

The interior of the pod provides little room to move about. An automatic piloting computer can pilot the craft in the absence of a skilled pilot. Because most of these computers have been scavenged for use elsewhere, passengers usually have to use the manual flight control panel, located between the main passenger seats, to steer the craft.

On the wall in front of the port passenger's couch is the pod's life support control panel, and the wall in front of the starboard seat contains the food and medical supply lockers and the pod's main power supply. Next to the seats are rectangular view ports, which can be covered on the inside with a sliding plate. Although this does not protect the window from breaking, it will keep the pod's cabin from becoming depressurized if the window does crack.

Near the entrance hatch of the pod is the control panel for the pod's distress beacon. Once activated, the beacon transmits a standard distress signal that can be detected within a couple of hundred kilometers. It will broadcast the signal once every five minutes for up to 30 days using its internal power supply.

Although the pod was designed strictly for emergency use, several have been used as shuttles to ferry people between ships and stations. These have been modified by adding a flight window, which allows better visibility for precise maneuvering.

**Tonnage:** 5

**Dimensions:**

**Length:** 5.3 meters

**Width:** 2.5 meters

**Passengers:** 6

**Cargo Complement:** 0.4

**Drive System:** RSD 1

**First Introduced:** 2647

**Frequency of Sighting:** Common

### Escape Pod

**Thrust:** 4

**Overthrust:** 6

**Structural Integrity:** 4

	Tons
Engine	0.25
Fuel (15 Thrust Points/ton): 9	0.6
Cockpit	3
Heat Sinks: 0 + 5	0

**Armor Factor (16 points/ton):** 4      0.25

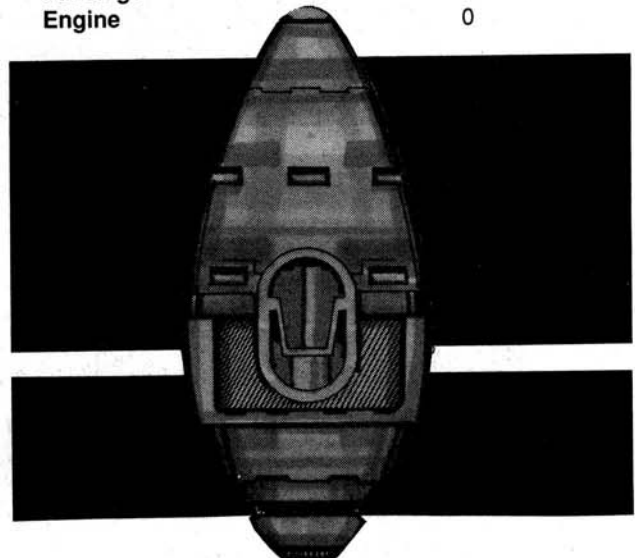
**Nose**      2

**Right Side**      0

**Left Side**      0

**Fuselage**      2

**Engine**      0





# SMALL CRAFT

## LIFE BOAT

Like the escape pod, the life boat masses about five tons and measures 16 meters long and 2.5 meters wide. At one end of its cylindrical fuselage is the entrance hatch, but, unlike the escape pod, there is not thruster at the other end. In fact, the life boat has only attitude correction jets. Incapable of independent maneuvering, the lifeboat can only support its passengers long enough for another vessel to arrive and pick up the survivors.

The craft is designed to carry up to six passengers in a very cramped amount of space. Enough supplies are carried aboard to keep them healthy for up to 16 days. The craft's life support system was built to maintain six people for 24 days, but the unit has been reported to function for as long as 30 days.

Most of the life boat's power comes from a solar energy collector sail very similar to that used by JumpShips. This sail provides an endless source of energy for lighting and life support, and can be used to recharge the distress beacon's power supply.

Besides providing the life boat with power, the solar energy collector sail has another purpose. The energy-absorbing photochemical that coats the sail is designed to reflect the electromagnetic frequencies used by deep-space tracking systems, making the craft very easy to locate.

### Life Boat

**Tonnage:** 5

### Dimensions:

**Length:** 16 meters

**Width:** 2.5 meters

**Passengers:** 6

**Cargo Complement:** 0.75 tons

**First Introduced:** 2478

**Frequency of Sighting:** Common

### Life Boat

Structural Integrity: 1

Heat Sinks: 0 + 5

*Tons*

0

**Armor Factor (16 points/ton):** 4

0.25

**Nose**

1

**Right Side**

1

**Left Side**

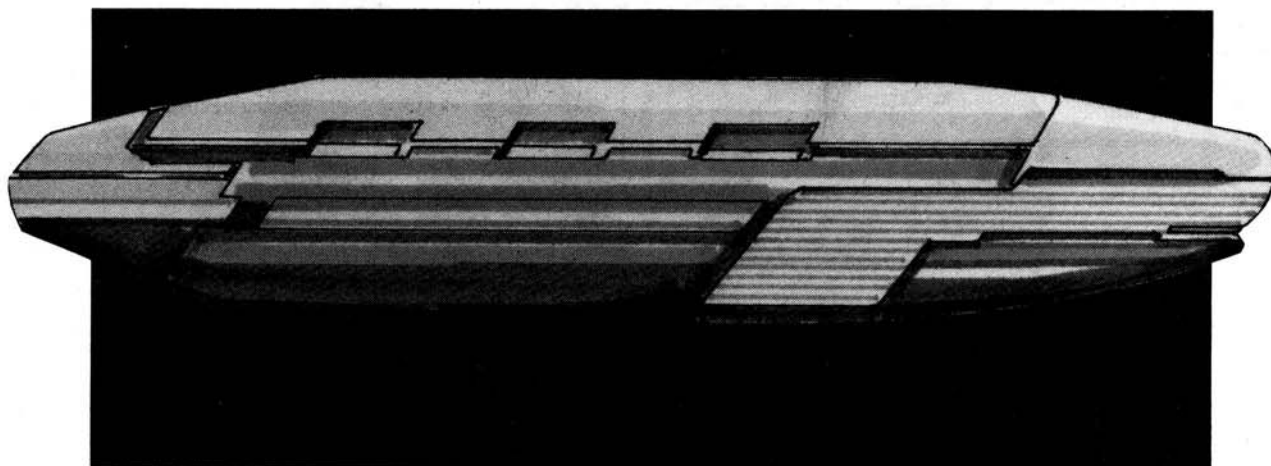
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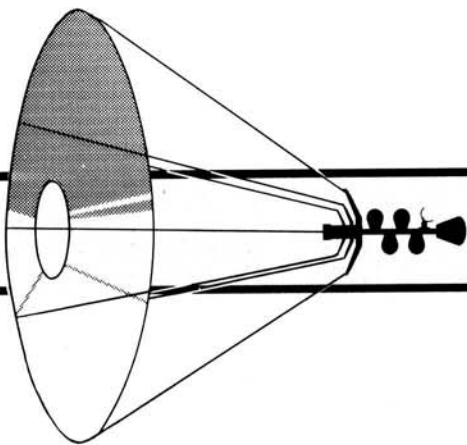
**Fuselage**

0

**Engine**

1





## ST-46 CLASS SHUTTLE

Used to carry cargo and passengers, the ST-46 shuttle is carried aboard many transports and some JumpShips and space stations. It masses 100 tons, measures roughly 22 meters long, and has a wingspan of about 19 meters. Its fuselage is streamlined for atmospheric stability and maneuverability. Although unarmed, the craft has a small amount of armor plating for protection against docking and landing damage.

This shuttle is unsuited to rough handling. Pilots must land it on well-paved surfaces, as the landing gear has been known to collapse when landing on unprepared surfaces.

Besides the cockpit and the engine section, there is a passenger section and a large cargo hold. Located directly behind the cockpit, the passenger section has a seating capacity of up to eight passengers. At the front end is the door leading into the cockpit, and at the back is a door leading into the craft's airlock. There is no way to reach the cargo hold or the engine section from the passenger section or the cockpit. To access these areas, one must travel outside the craft and enter through the main cargo door or through an engine section access panel.

Between the engine and passenger section is the cargo bay, which is large enough to carry up to 74.5 tons of equipment. Access to the hold is through a door mounted on the vehicle's starboard side. There are no conduits or pipes running through the cargo hold, as there are on many other small craft

**Tonnage:** 100

**Dimensions:**

**Length:** 22 meters

**Width:** 19 meters

**Crew:** 1

**Cargo Complement:** 74.5 tons, 9 passengers

**Drive System:** Entech 200c

**First Introduced:** 2528

**Frequency of Sighting:** Common

### ST 46 Class Shuttle

Thrust: 4

Overthrust: 6

Structural Integrity: 4

Engine 200

Fuel (15 thrust points/ton) 75

Cockpit

Heat Sinks 0 + 10

**Armor Factor (16 points/ton):** 80

**Nose**

**Right Side**

**Left Side**

**Fuselage**

**Engine**

*Tons*

8.5

5

3

0

5

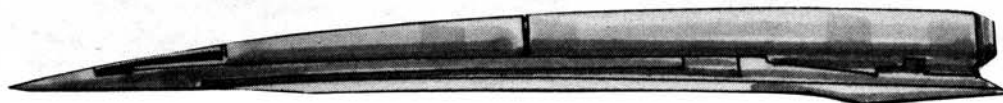
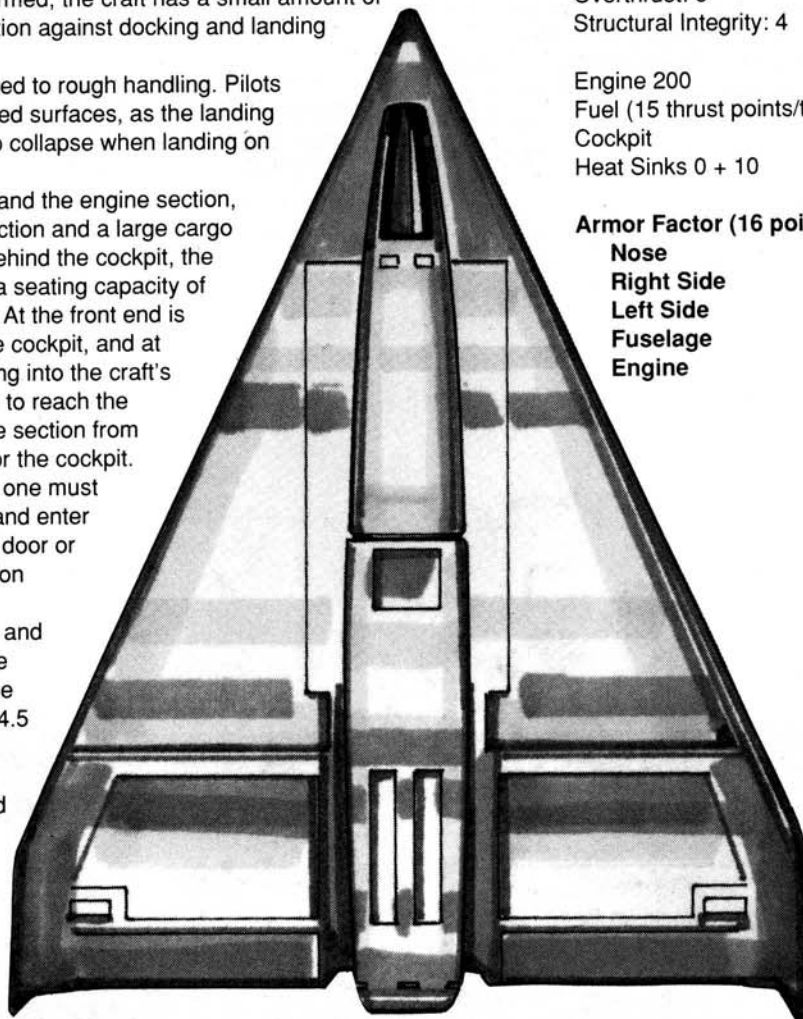
20

10

10

35

5



# SMALL CRAFT

## S-7A CLASS BUS

The S-7A Class bus is often found on space stations, JumpShips, and some DropShips. This 20-meter long cylinder looks rather odd; unlike most small craft, it has no control surfaces, wings, or stabilizers. This is because the bus was designed to transport cargo and passengers only in space. It performs the same functions as the ST-46 shuttle, but is limited to travel to and from stations and space ships.

The bus is equipped with a small engine core because it does not need a great deal of thrust. With only two tons of fuel, it has an extremely limited range.

The bus's interior is organized similarly to the shuttle's. Near the front end of the craft is the passenger compartment, which seats ten passengers. At the back of this compartment is the entrance to the airlock. Unlike the ST-46 shuttle, the airlock leads into the pressurized cargo bay.

Comprising three-quarters of the bus's bulk, the cargo section has two self-contained bays, connected by a large cargo door. The forward bay is approximately eleven meters long and can hold up to 60 tons of cargo. The four-meter-long aft section is used to carry the remaining 24 tons of the bus's cargo capacity. The aft hold has a cargo door that opens into space. Because of this section's small size and independent pressurization system, it is often used as an airlock for transferring pressure-sensitive cargo into the larger forward cargo hold. In the back of this hold is a small access hatch that leads directly into the engine section.

In an emergency, the entire cargo section can be detached from the rest of the craft. Without this central part of the fuselage, the craft's structural integrity is halved. To detach the cargo section, a set of explosive bolts are detonated, launching the section out through the top of the fuselage. Throughout this procedure, the cargo section remains intact and does become depressurized. The craft and its cargo section may be joined again, but the operation requires a well-equipped repair team to work many hours.

The two-man cockpit is in front of and above the passenger section. Access to the cockpit is through a door in the front end of the passenger section.

**Tonnage:** 100

**Dimensions:**

**Length:** 20 meters

**Width:** 7 meters

**Crew:** 2

**Cargo Complement:** 84 tons, 10 passengers

**Drive System:** Burster M-100

**First Introduced:** 2602

**Frequency of Sighting:** Common

### S 7A Class Bus

Thrust: 3

Overthrust: 5

Structural Integrity: 4

Engine: 100

Fuel (15 Thrust Points/ton) 30

Cockpit

Heat Sinks: 0 + 10

**Armor Factor (16 points/ton):** 48

**Nose**

**Right Side**

**Left Side**

**Fuselage**

**Engine**

*Tons*

3

2

3

0

3

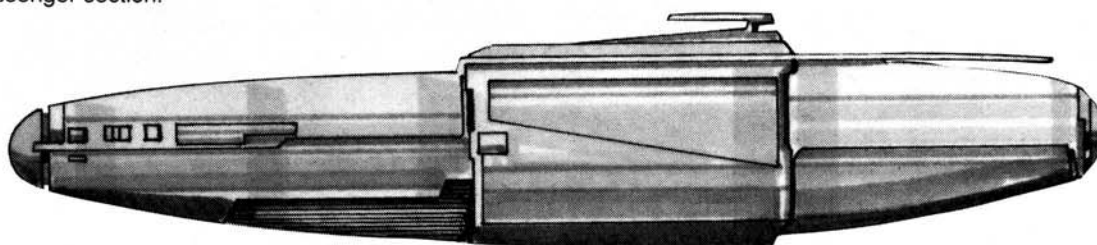
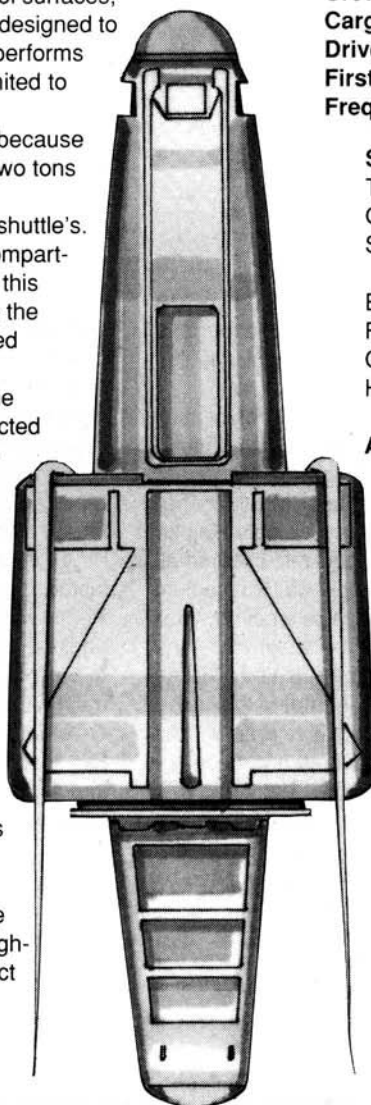
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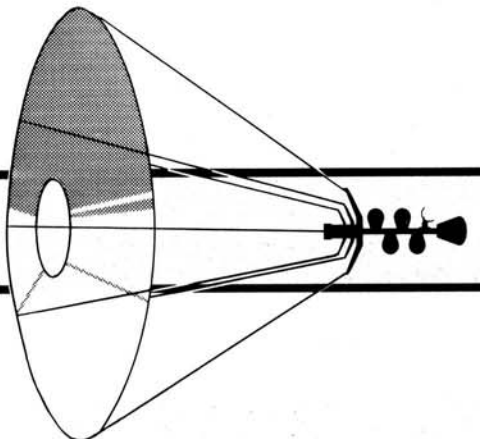
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5

15

8





## MARK VII LANDING CRAFT

The Mark VII landing craft is a heavy aerospace craft that is well-armored and carries a heavy payload. It is somewhat rare, being mass-produced only in the Capellan Confederation. A few are constructed in the Lyran Commonwealth and the Draconis Combine.

Massing 100 tons, the Mark VII is capable of transporting up to 65 tons of vehicles and equipment directly into a battle zone. The craft's boxy fuselage is well-armored with 14.5 tons of armor plating. The vehicle is equipped with the Faxxen-70A fusion drive, which, although quite powerful, is just enough to get a fully loaded craft into orbit. Poor maneuverability is this craft's greatest shortcoming.

The Mark VII carries a number of weapons to protect itself and to provide covering fire for embarking and disembarking troops and cargo. To fire on aerospace targets and to clear landing zones, the craft is fitted with a single LRM-5 launcher mounted on the cockpit. For closer targets, a single Kajuka medium laser is also mounted on the cockpit. In a small weapons bay in the rear of the craft is a single Kajuka medium laser, and, in the nose just below the cockpit, is a pair of small lasers. Mounted under the stubby wings are a set of pylons used to carry small bombs and infernos. Because the craft lacks maneuvering power, any payload severely hampers the craft's performance. In fact, the Mark VII cannot achieve orbit without first expending or jettisoning any wing-mounted ordnance.

Unlike most other small craft, the Mark VII is equipped with a set of bottom-mounted, chilled-mixture thrusters. These thrusters enable the craft to take off and land vertically, allowing it to get into difficult positions. The cool air mixture emitted by the thrusters will not damage the mounted ordnance.

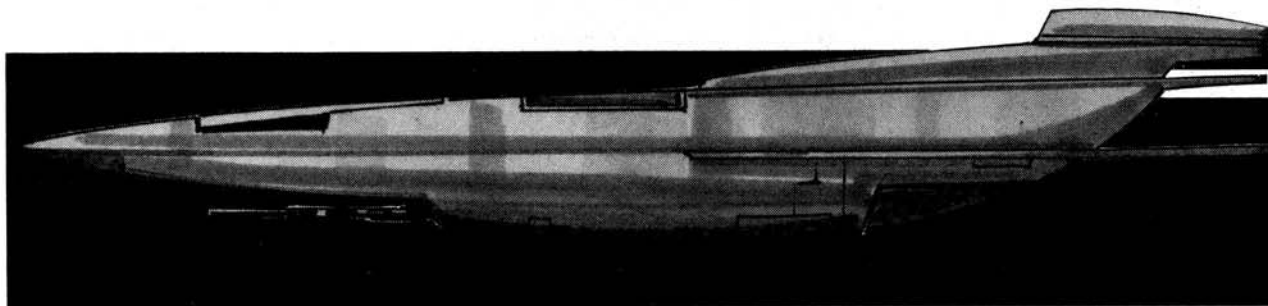
The interior of the craft is mostly open cargo bay, approximately 14 meters long and 8 meters wide, with a clearance of 5 meters. The entire floor of the bay is an elevator capable of lifting 80 tons. When the elevator lowers to the ground, cargo can be easily loaded or unloaded.

The walls of the bay are covered with many fuel pipes, cooling circulation pipes, heat ducts, electrical conduits, and access panels leading to the various drive components and weapons bays. At the front end of the bay is a door leading into the craft's cockpit, which seats a pilot and co-pilot/crew chief.

House Liao possesses a number of Mark VII landing craft with more weaponry, a more powerful engine, and no cargo-carrying capacity, but retaining its landing craft appearance. These "heavy fighters" have fooled Marik and Davion forces during four different planetary assaults. Thinking the crafts to be easy kills, enemy Fighters closed in to find themselves out-gunned. Few pilots have lived to tell of the experience.

The Liao variant gives up its cargo capacity for an extra two tons of fuel, a Rawlings 300 drive, and 15 heat sinks. Also, the craft carries a nose-mounted AC 10 with two tons of ammunition and a third small laser. Replacing the LRM-5 is an LRM-20 with three additional tons of ammunition, and two large lasers replace the cockpit-mounted and aft-mounted medium lasers. Finally, two medium lasers are mounted on the wings.

To improve the Mark VII's maneuverability, House Steiner installed the Pitban 300 into a few of these craft. Because the Pitban weighs over twice as much as the standard Faxxen-70A engine, designers had to cut down the cargo-carrying capacity to 55 tons and remove a half-ton of armor. This version flew much better, making it quite popular with pilots. However, the craft lost the capability to carry the Patton and Rommel tanks. Because these armored vehicles have become increasingly important in the Commonwealth army, few Mark VII conversions were made.





# SMALL CRAFT

**Tonnage:** 100

**Dimensions:**

Length: 21.4 meters

Width: 20 meters

**Crew:** 2

**Cargo Complement:** 65 tons

**Armament:**

LRM-5

2 Medium Lasers

2 Small Lasers

1 Ton of LRM Ammunition

**Drive System:** Faxxen-70A

**First Introduced:** 2841

**Frequency of Sighting:** Rare

**Mark VII Landing Craft**

Thrust: 4

Overthrust: 6

Structural Integrity: 6

Engine 200	Tons 8.5
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Fuel (15 Thrust Points/ton) 45	3
--------------------------------	---

Cockpit	3
---------	---

Heat Sinks 0 + 10	0
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<b>Armor Factor (16 points/ton):</b> 232	14.5
--	------

Nose	50
------	----

Right Side	30
------------	----

Left Side	30
-----------	----

Fuselage	100
----------	-----

Engine	22
--------	----

**Weapons:**

**Nose:**

Small Laser

Small Laser

**Right Wing:**

LRM-5

**Left Wing:**

Medium Laser

**Aft:**

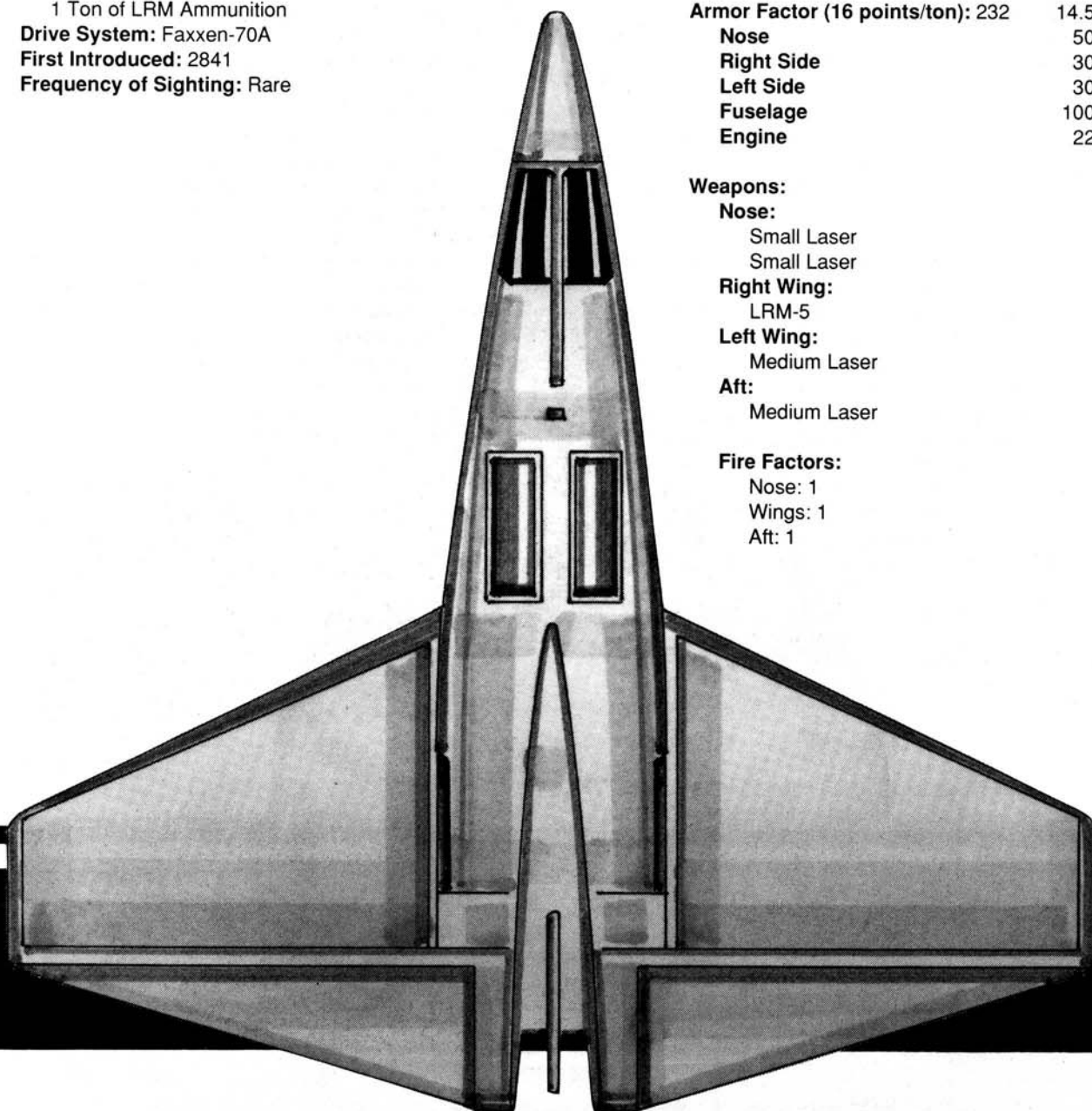
Medium Laser

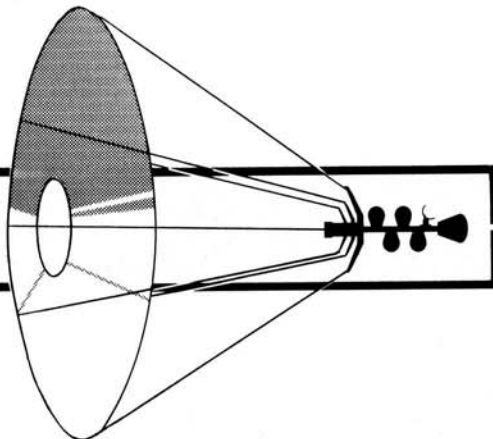
**Fire Factors:**

Nose: 1

Wings: 1

Aft: 1





## KR-61 CLASS LONG-RANGE SHUTTLE

The long-range shuttle is used to transport small goods and personnel from a planet out to jump point and back, thus freeing DropShips to perform larger tasks. The KR-61 is just one of several kinds of long-range shuttles.

The KR-61's streamlined fuselage is similar to that of the ST-46 shuttle, but its interior is organized differently. The craft has a much larger engine than the ST-46 shuttle and carries roughly eight times the fuel (allowing the craft to make the long journey from planet to jump point and back). The fuselage is plated with ten tons of armor, twice that of the ST-46, because more pirate attacks occur away from planetary orbit.

All these capabilities severely limit the long-range shuttle's transportation capability. The craft can carry only eight tons of cargo and has room for only four people, including the pilot and co-pilot.

The cramped interior consists of two main compartments. The forward compartment is a combined cockpit and passenger section containing four bunks, the life support system, the food storage and processing facilities, and a tiny washroom. A door on the rear wall leads directly into the tiny cargo hold.

Measuring only a few meters square, the cargo section can hold up to eight tons of equipment. The cargo compartment serves as the only airlock aboard the craft; all entry and exit is through this compartment. For emergencies, a small access hatch is located underneath the floor of the crew compartment.

**Tonnage:** 100

**Dimensions:**

**Length:** 20.5

**Width:** 18 meters

**Crew:** 2

**Cargo Complement:** 8 tons, 2 passengers

**Drive System:** Pitban 300a

**First Introduced:** 2598

**Frequency of Sighting:** Uncommon

### KR-61 Long-Range Shuttle

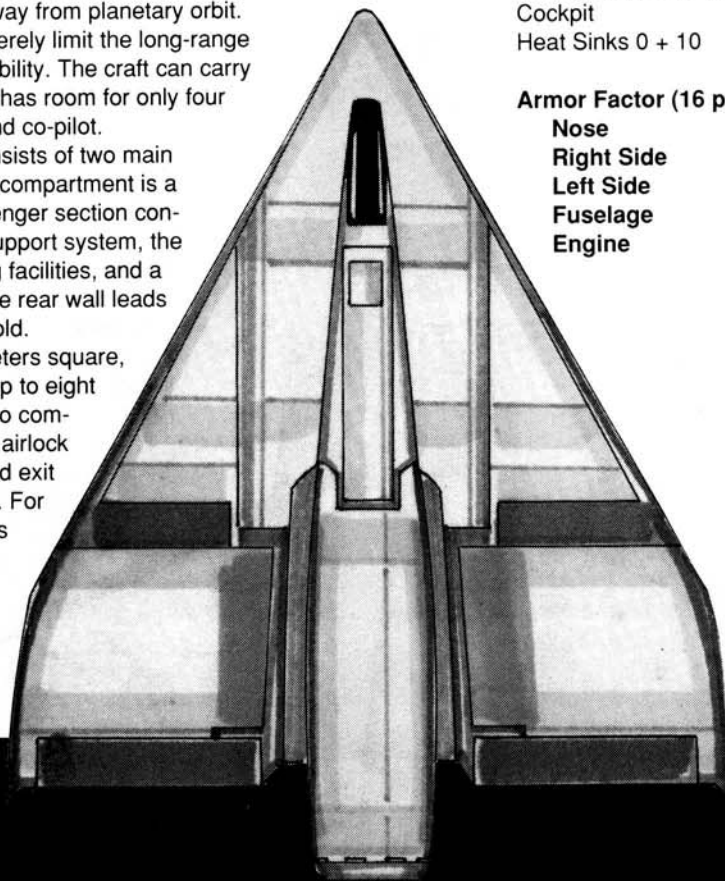
Thrust: 5

Overthrust: 8

Structural Integrity: 5

	<i>Tons</i>
Engine 300	19
Fuel (15 Thrust Points/ton): 600	40
Consumption: 1.12 tons/burn-day	
Cockpit	3
Heat Sinks 0 + 10	0

<b>Armor Factor (16 points/ton):</b> 160	10
<b>Nose</b>	40
<b>Right Side</b>	20
<b>Left Side</b>	20
<b>Fuselage</b>	70
<b>Engine</b>	10



# SMALL CRAFT

## K-1 CLASS DROPSHUTTLE

The DropShuttle is used more often than the KR-61 long-range shuttle due to its higher cargo-carrying capacity and roomier interior. The craft was designed when JumpShips were plentiful and passage aboard one was inexpensive. At 200 tons, the DropShuttle is the smallest space vehicle with a docking collar for attaching to JumpShips.

As the cost of JumpShip travel has precluded using such a small craft, the DropShuttle has taken on the same duties that the long-range shuttle has. On rare occasions, when there is adequate room on a JumpShip, the DropShuttle is used as it was intended.

**Tonnage:** 200

**Dimensions:**

**Length:** 28 meters

**Width:** 22.5 meters

**Crew:** 2

**Cargo Complement:** 55 tons, 6 passengers

**Armament:**

1 LRM 5

4 Medium Lasers

1 Small Laser

1 Ton of LRM Ammunition

**Drive System:** Pratt & Whitney 400

**First Introduced:** 2536

**Frequency of Sighting:** Uncommon

### K-1 Class DropShuttle

Thrust: 4

Overthrust: 6

Structural Integrity: 6

Engine: 400

Fuel (15 Thrust Points/ton): 450

Consumption: 1.06 tons/burn-day

Cockpit

Heat Sinks 0 + 10

*Tons*

52.5

30

3

0

**Armor Factor (16 points/ton):** 192

12

**Nose**

40

**Right Side**

25

**Left Side**

25

**Fuselage**

90

**Engine**

12

### Weapons:

**Nose:**

LRM-5

Medium Laser

**Right Wing:**

Medium Laser

**Left Wing:**

Medium Laser

**Aft:**

Medium Laser

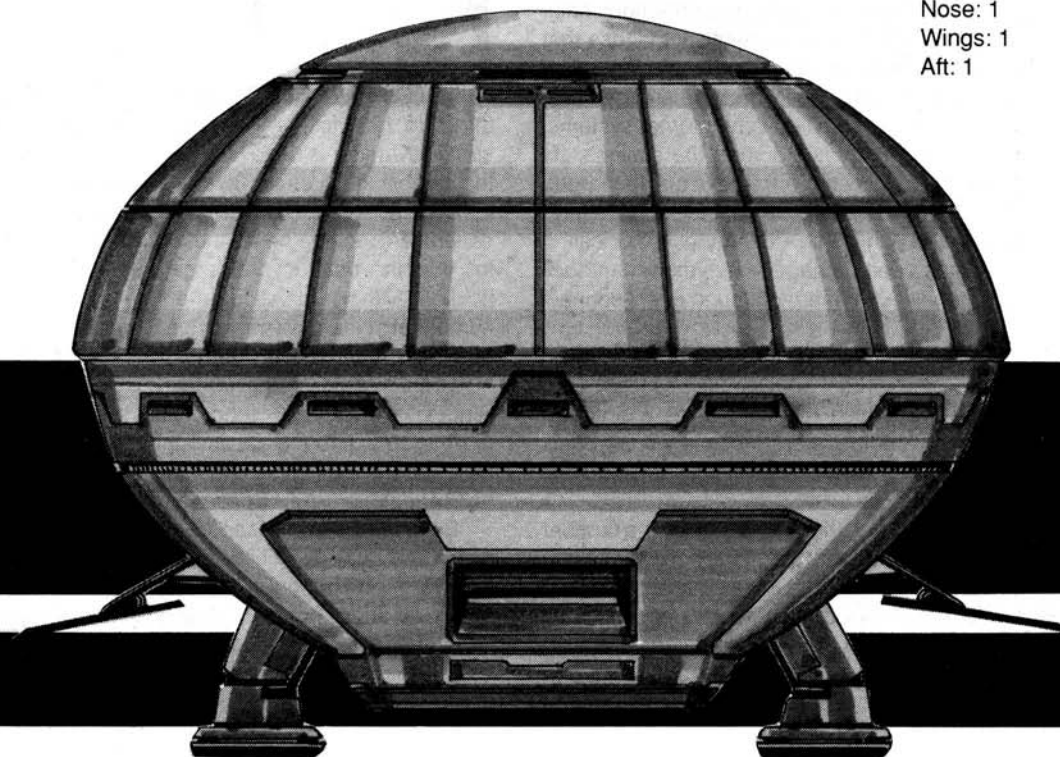
Small Laser

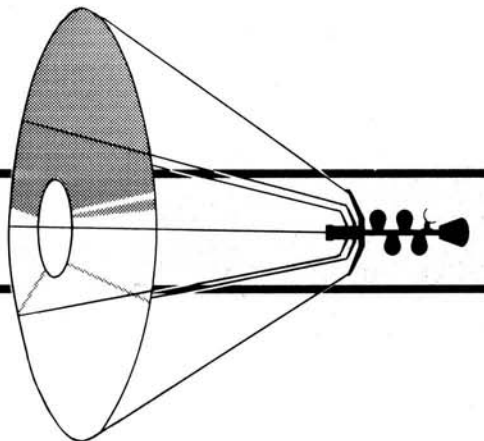
### Fire Factors

Nose: 1

Wings: 1

Aft: 1





Of the many types of space stations once found throughout the Inner Sphere, only a few have survived the Succession Wars. There are no more than 200 of these still in existence.

Though space stations are not as difficult or expensive to build and maintain as JumpShips, construction facilities are geared to churn out needed combat DropShips, leaving few resources for building new space stations. About one space station is constructed in the Inner Sphere every two to three years, just enough to keep up against combat losses.

The space station's lack of mobility makes it a choice target for assaults by DropShips and AeroSpace Fighters. The existing stations are well-armed, however, and can defend themselves quite well against poorly organized attacks. Crack commando units are effective at capturing stations, and so some stations employ marines for defense.

## OLYMPUS CLASS SPACE STATION

The *Olympus* is the largest space station operating in the Inner Sphere. It is dome-shaped, masses roughly one million tons, and measures 1,500 meters in diameter. The station is normally positioned near standard zenith and nadir jump points to provide support and repair facilities for JumpShips and DropShips. In addition, it serves as an early warning site to warn planets of incoming enemy forces.

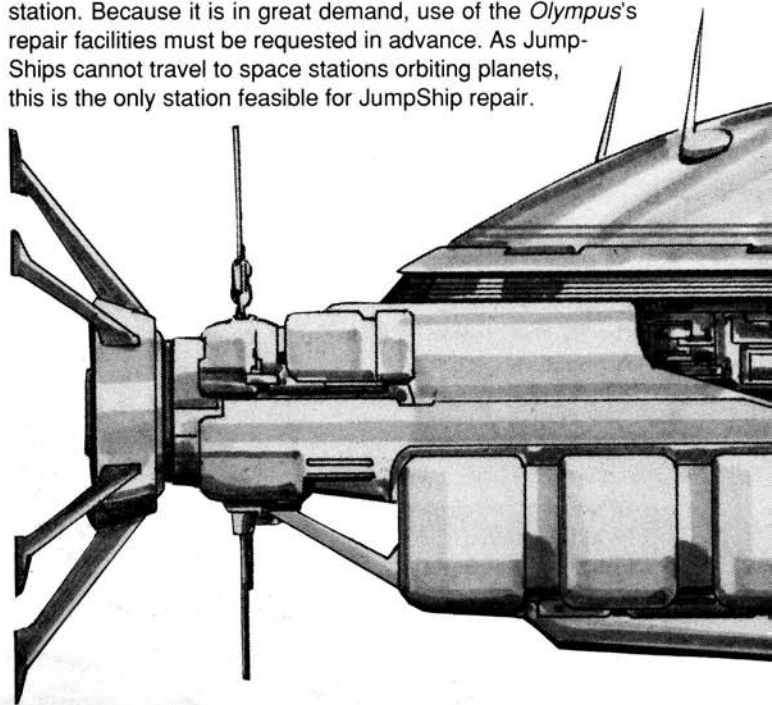
The *Olympus*'s most notable feature is its enormous solar collector sail. Though larger, this sail is identical to those that power JumpShips. Fully deployed, it measures over four kilometers across and collects roughly six times the energy of the largest JumpSail. The station's sail powers internal systems, and the large surplus of energy is stored in the station's six energy banks. If a JumpShip needs a charge (a quick-charge), the energy stored in these banks can be transferred via microwave transmission to the JumpShip's energy collector sail. If the JumpShip's sail has been damaged, the vessel can dock with the station and receive the energy through direct connection.

The station is equipped with deep-space radar for detecting and tracking distant vessels. In addition, it possesses an infrared analysis system, which monitors shifts in infrared radiation from deep space to detect incoming JumpShips before they arrive. The automated system is very accurate and gives very few false alarms.

To serve as a refueling point, the *Olympus* carries a number of fuel tanks with a total capacity of 10,000 tons of liquid hydrogen. Fuel can be transferred either by docking and direct connection or by using one of the station's shuttles as a mini-tanker. The latter is usually preferred because, even though it requires many trips (making it rather expensive and time-consuming), docking operations are always tricky and often dangerous.

The station is also equipped to serve as a cargo way station. It contains twelve cargo bays, each capable of holding over 13,000 tons. Normally, these compartments are rented to merchants and military units in need of temporary storage space.

Within the dome-shaped hull of the station is a pair of minor repair facilities. Vessels massing up to 50,000 tons can be repaired within these repair bays; larger vessels can be repaired at the single large facility located on the front of the station. Because it is in great demand, use of the *Olympus*'s repair facilities must be requested in advance. As JumpShips cannot travel to space stations orbiting planets, this is the only station feasible for JumpShip repair.



The *Olympus* normally carries 150 personnel and has room for up to 126 visitors. Housing is quite comfortable, and the station's interior is quite roomy. It is also equipped with one of the largest grav decks ever constructed, measuring 1,230 meters in diameter. The entire station's personnel accommodations are located here, and, because of its size, it is hard to tell that the deck is one large rotating centrifuge. Besides holding 276 personnel quarters, the deck also contains a number of mess facilities, lounges, recreation rooms, and interplanetary travel offices, shops, and numerous business offices.

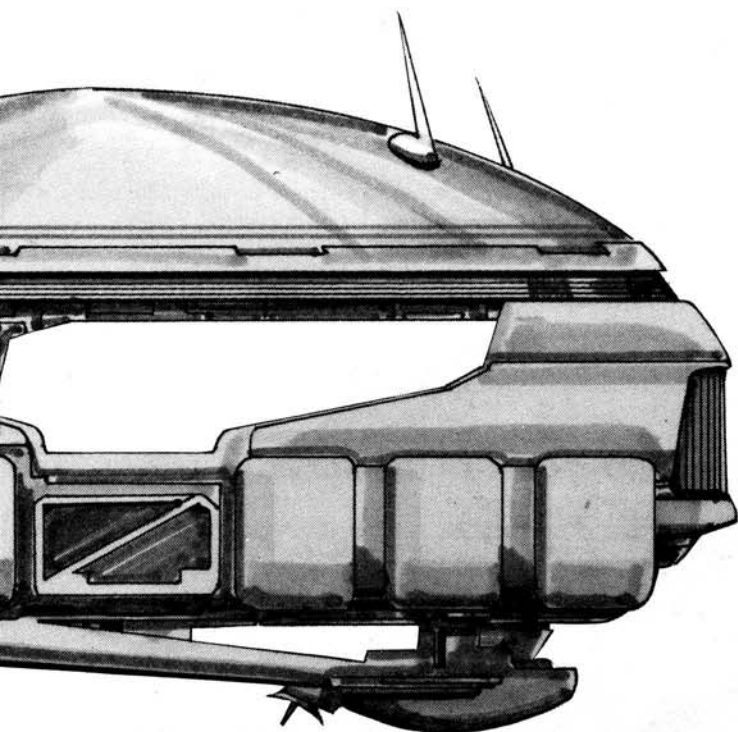
The *Olympus* is equipped with excellent security systems. Ringing its hull are 30 weapons bays, each averaging 20 tons of weaponry. A moderate amount of armor plating protects the hull. The station is also equipped with one dozen small craft, half of which are AeroSpace Fighters.

Because the station cannot maneuver, incoming DropShips and JumpShips do not consider it a major threat. However, it can warn a planet of an incoming invasion force. To prevent this, most attacking fleets send a commando group to destroy or damage the station's long-range communications systems.



# SPACE STATIONS

There are *Olympuses* located at main jump points of many major inhabited systems. Although these stations are no longer being produced, very few are lost in combat. Stations with maintenance problems can draw spare parts from those that have been damaged or have fallen into disrepair.



**Tonnage:** 1,000,000

**Dimensions:**

**Height:** 660 meters

**Width:** 1,500 meters

**Crew:** 276

**Cargo Complement:** 159,200 tons

**Armament:**

- 12 PPCs
- 12 LRM-20s
- 12 AC/5s
- 6 AC/20s
- 12 SRM-6s
- 12 Larger Lasers
- 30 Medium Lasers
- 36 Small Lasers
- 30 Tons of LRM ammunition
- 12 Tons of SRM ammunition
- 12 Tons of AC/5 ammunition
- 18 Tons of AC/20 ammunition

**First Introduced:** 2663

**Frequency of Sighting:** Uncommon

**Olympus Class Space Station**

Structural Integrity:	1,000
	<i>Tons</i>
Fuel:	10,000
Vehicle Cubicles: 12	1,800
Vehicle Repair Bays: 1	10,000
Cargo Doors: 12	0
Station-Keeping Drive	10,000
Energy Banks: 8	800,000
Solar Sail	320
Grav Deck: 2	1,000
Heat Sinks	200

<b>Armor Factor (2 points/ton):</b> 600	300
<b>Each Sector (I – VI)</b>	80
<b>Body</b>	120

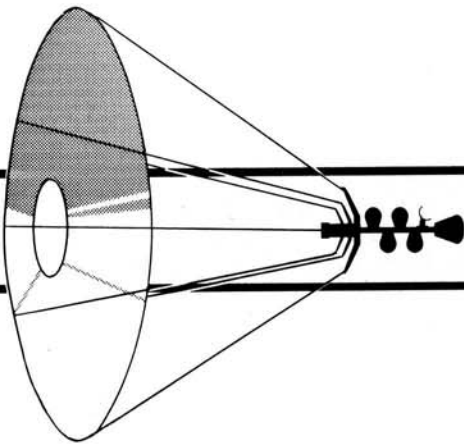
**Weapons:**

**Each Sector (I – VI)**

- PPC
- PPC
- LRM-20
- LRM-20
- AC/5
- AC/5
- AC/20
- SRM-6
- SRM-6
- Large Laser
- Large Laser
- Medium Laser
- Medium Laser
- Medium Laser
- Medium Laser
- Medium Laser
- Small Laser
- Small Laser
- Small Laser
- Small Laser
- Small Laser

**Fire Factors**

Each Sector (I – VI): 15



## BASTION CLASS SPACE STATION

The *Bastion* is one of the few remaining space stations primarily designed to defend a planet. At one time, all major worlds possessed a pair of these orbital fortresses. Since the Succession Wars, however, most of these stations have been destroyed.

The *Bastion* is a spherical station 345 meters in diameter and massing roughly 150,000 tons. It possesses no maneuvering capability except for small attitude correction jets and an orbit-boost thruster. The station's fusion power plant is located in the core of the space station, where it is protected by the bulk of the station.

Located on the bottom of the station's ball-shaped hull is a large array of communications and deep-space tracking gear. Using this equipment, the station can detect DropShips at ranges exceeding 200,000 kilometers, maintain long-range communications with three other stations, and maintain local communications. This communications gear is the station's greatest weakness. If this lightly protected equipment is damaged or destroyed, the station will be cut off from other forces and unable to broadcast or receive warnings from other stations.

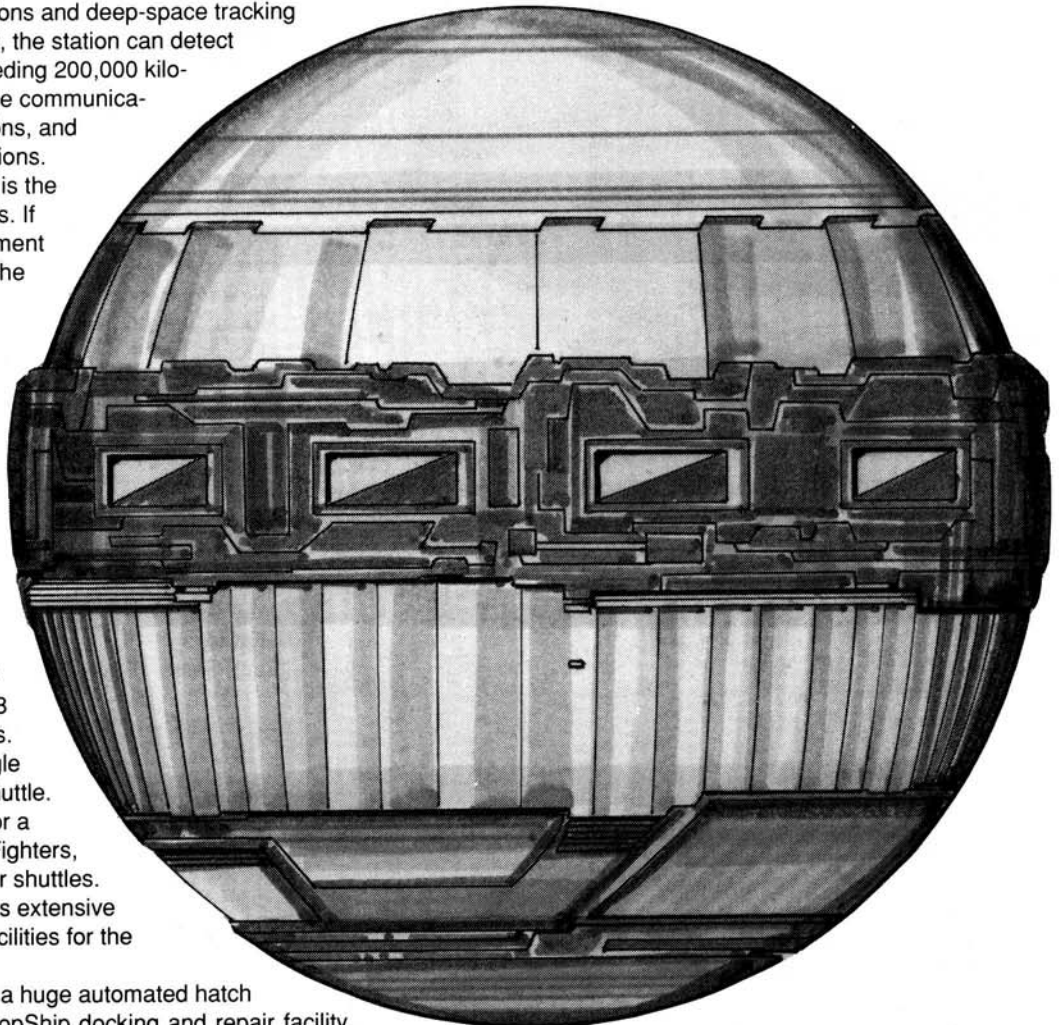
Around the middle of the *Bastion* is a band of armor that protects the station's eight AeroSpace Fighter launch and recovery bays. Each bay is actually a large airlock leading into an even larger inner bay. The inner bays house the station's 48 small craft storage cubicles. Each cubicle carries a single Fighter, assault craft, or shuttle. The normal complement for a *Bastion* is 36 AeroSpace Fighters, eight assault craft, and four shuttles. The inner bay also contains extensive maintenance and repair facilities for the small craft.

On top of the station is a huge automated hatch that opens into a large DropShip docking and repair facility.

Although any DropShip can dock with the station, only vessels with a width under 119 meters and a length under 151 meters can fit inside the bay. For those vessels, the bay can be sealed and pressurized, providing repair and maintenance crews with an easier work environment. When a DropShip is inside the bay, it is hidden from enemy scans and is also well-protected from weapons fire. A concealed DropShip has given many attackers an unpleasant surprise.

Below this repair facility is a large grav deck. This ring-shaped deck is large enough to provide up to 0.5 Gs of artificial gravity without creating any equilibrium problems among its occupants. Measuring ten meters across, the deck is used as a lounge with about a dozen offices and a number of small recreation rooms.

Directly below this are the personnel decks, which house the station's 400 crew, marine, and visiting personnel. Personnel serve tours of about two months. The reason for personnel rotation is because duty aboard a *Bastion* is unpopular due to



# SPACE STATIONS

its static posture in combat. The station is unable to maneuver and thus cannot escape if it is in trouble. In addition, it is so heavily armed that an attacking force will destroy it rather than try to knock out the weapons. The feeling of being aboard a floating tomb permeates the thoughts of most crew members.

The *Bastion's* major design flaw is the channeling of its fusion plant's power. The entire output of the power plant passes through a single high capacity relay before being distributed throughout the station. If this relay is damaged or destroyed, only life support, internal communications, and emergency lighting (which can be run off batteries) will not be affected. Systems rendered inoperative include energy weapons, fire control systems, radar, computers, communications, and lifts.

Even with power out, ammunition-dependent weapons systems can still be fired, though only once. Also, because fire control systems use the ship's main power, those weapons can be fired only at targets within visual range, and the chance of hitting is about half of what it is with active fire control systems.

There are about a dozen to two dozen of these stations still in service. Most are located at major worlds deep within the boundaries of each Successor State. For this reason, few *Bastions* have seen much action in the recent past. Most repair parts for the *Bastion* can still be manufactured, except for the station's fusion power plant.

**Tonnage:** 150,000

**Dimensions:**

**Height:** 345 meters

**Width:** 345 meters

**Crew:** 400

**Cargo Complement:** 84,890 tons

**Armament:**

18 PPCs

6 LRM-20s

12 LRM-15s

6 AC/5s

6 AC/10s

12 Large Lasers

60 Medium Lasers

72 Small Lasers

36 Tons of LRM Ammunition

6 Tons of AC/5 Ammunition

12 Tons of AC/10 Ammunition

**First Introduced:** 2584

**Frequency of Sighting:** Unique

**Bastion Class Space Station**

Structural Integrity: 150

	Tons
Power Plant	1,500
Control Center	150
Fuel	2,000
Vehicle Cubicles: 48	7,200
DropShip Bay: 2	48,000
Cargo Doors: 6	0
Heat Sinks:	1000

**Armor Factor (4 points/ton):** 1,200

**Each Sector (I – VI)**

**Body**

300

120

480

**Weapons:**

**Each Sector (I – VI):**

PPC

PPC

PPC

LRM-20

LRM-15

LRM-15

AC/5

AC/10

Large Laser

Large Laser

Medium Laser

Medium Laser

Medium Laser

Medium Laser

Medium Laser

Medium Laser

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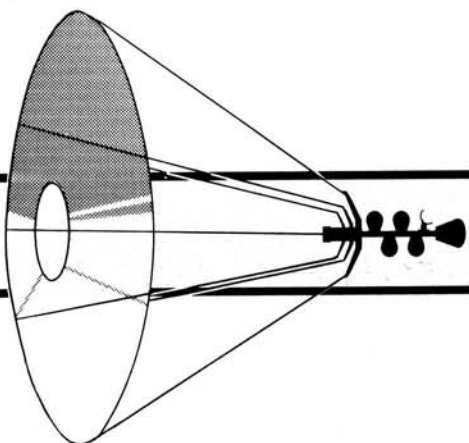
Small Laser

Small Laser

Small Laser

**Fire Factors**

**Each Sector (I – VI):** 18



## ALLIANCE CLASS SPACE STATION

The *Alliance* Class space station is designed to provide major repair and construction facilities for DropShips and small craft. In addition, the station is used to construct some small DropShips. Such stations are normally located in orbit around a major industrial world, particularly those without planet-based construction facilities. Often, stations located at major construction sites serve as administrative centers for orbiting drydocks.

The *Alliance* looks like a long stemmed mushroom with a crossed base. The large dome is the station's main hull, which measures 600 meters in diameter. The cross member at the base of the station is the DropShip docking facility and is 540 meters long. Massing 100,000 tons, the *Alliance* is one of the smallest space stations operating today.

The *Alliance* contains a pair of major repair facilities located on either side of the central connecting column. Each is equipped with a DropShip docking collar, which faces upward during construction and repair. These docking collars can be angled 90° outward, facilitating DropShip docking. Once the ship is securely in place, the collar rotates back into a vertical position, placing the DropShip within easy reach of the construction and repair equipment. This extremely slow process requires approximately two minutes for every 1,000 tons of DropShip mass. In addition, because DropShips are so massive, the repositioning cannot be accomplished without altering the station's attitude by some degrees. Normally, the communications antennae must be readjusted to compensate for the attitude change.

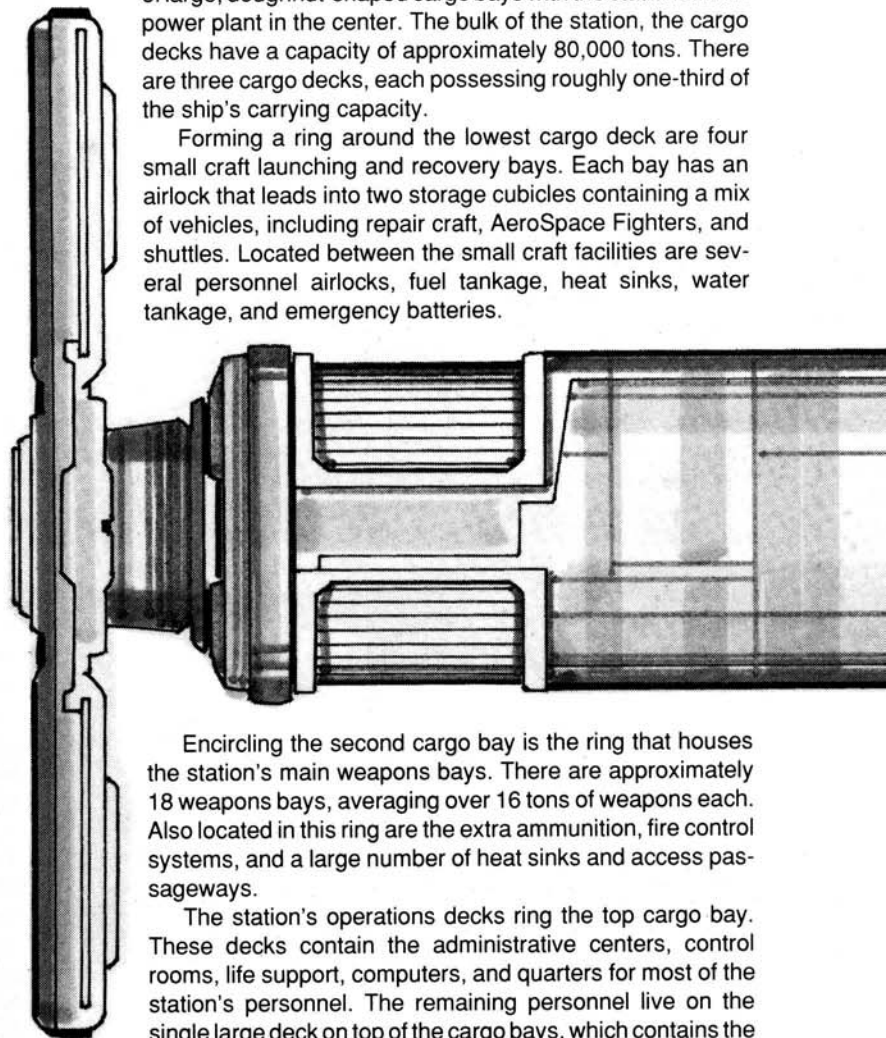
A facility operations center located in the connecting column coordinates ship construction and repair. This large, multi-room area contains operations computers, a communication center, an operations chief's office, a facility master control room, a structural analysis center, an engineering briefing room, an equipment storage room, and a pair of personnel airlocks.

The station is also equipped with a pair of docking collars, which are located at the base of the connection column on either side of the structural cross member. Above each of these is a large repair center for making minor DropShip repairs. Occasionally, the docking stations are used for loading and unloading cargo and personnel. To facilitate this

process, a large cargo airlock is placed in the repair center leading directly into a large lift that can carry 1,000 tons of cargo up to the main cargo bays. These bays are located in the station's main hull at the top of the structure.

The large dome primarily consists of large, doughnut-shaped cargo bays with the station's main power plant in the center. The bulk of the station, the cargo decks have a capacity of approximately 80,000 tons. There are three cargo decks, each possessing roughly one-third of the ship's carrying capacity.

Forming a ring around the lowest cargo deck are four small craft launching and recovery bays. Each bay has an airlock that leads into two storage cubicles containing a mix of vehicles, including repair craft, AeroSpace Fighters, and shuttles. Located between the small craft facilities are several personnel airlocks, fuel tankage, heat sinks, water tankage, and emergency batteries.



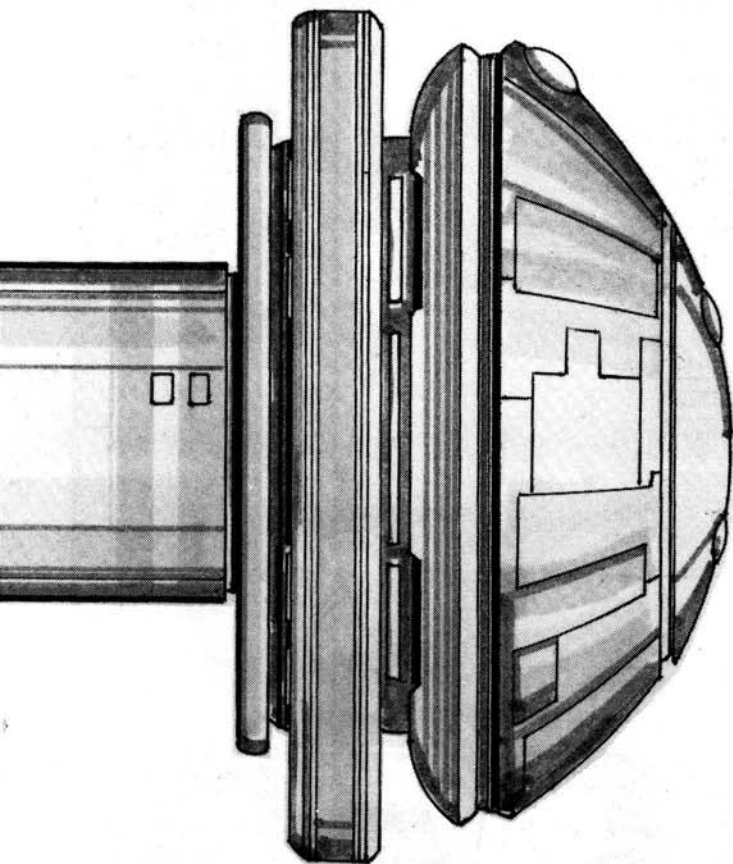
Encircling the second cargo bay is the ring that houses the station's main weapons bays. There are approximately 18 weapons bays, averaging over 16 tons of weapons each. Also located in this ring are the extra ammunition, fire control systems, and a large number of heat sinks and access passageways.

The station's operations decks ring the top cargo bay. These decks contain the administrative centers, control rooms, life support, computers, and quarters for most of the station's personnel. The remaining personnel live on the single large deck on top of the cargo bays, which contains the main mess, recreational facilities, med bay, laundry, and a pair of large hydroponic gardens.

*Alliances* are almost always loaded with DropShips and small craft in need of repair. The station's capacity to handle four DropShips at once makes it an extremely valuable resource. It is nearly impossible to find an *Alliance* that does not possess a long list of DropShips waiting for repair. Unfortunately, the station's usefulness also makes it a prime target for boarding and capture by enemy commandos. Sometimes, commandos will be waiting aboard a DropShip scheduled for repair, and, after the ship has docked, they infiltrate the space station.



# SPACE STATIONS



**Tonnage:** 100,000

**Dimensions:**

**Height:** 975 meters

**Width:** 600 meters

**Crew:** 300

**Cargo Complement:** 80,400 tons

**Armament:**

6 PPCs

12 LRM-15s

6 AC/5s

12 Large Lasers

36 Medium Lasers

26 Tons of LRM ammunition

6 Tons of AC/5 ammunition

**First Introduced:** 2713

**Frequency of Sighting:** Rare

**Alliance Class Space Station**

Structural Integrity: 99

	<i>Tons</i>
Power Plant	1,000
Fuel	10,000
Vehicle Cubicles: 8	1200
Cargo Doors: 2	0
Grav Deck: 1	500
Heat Sinks	400
<b>Armor Factor (4 points/ton):</b> 400	100
<b>Each Sector (I – VI)</b>	50
<b>Body</b>	100

**Weapons:**

**Each Sector (I – VI):**

PPC

LRM-15

LRM-15

AC/5

Large Laser

Large Laser

Medium Laser

Medium Laser

Medium Laser

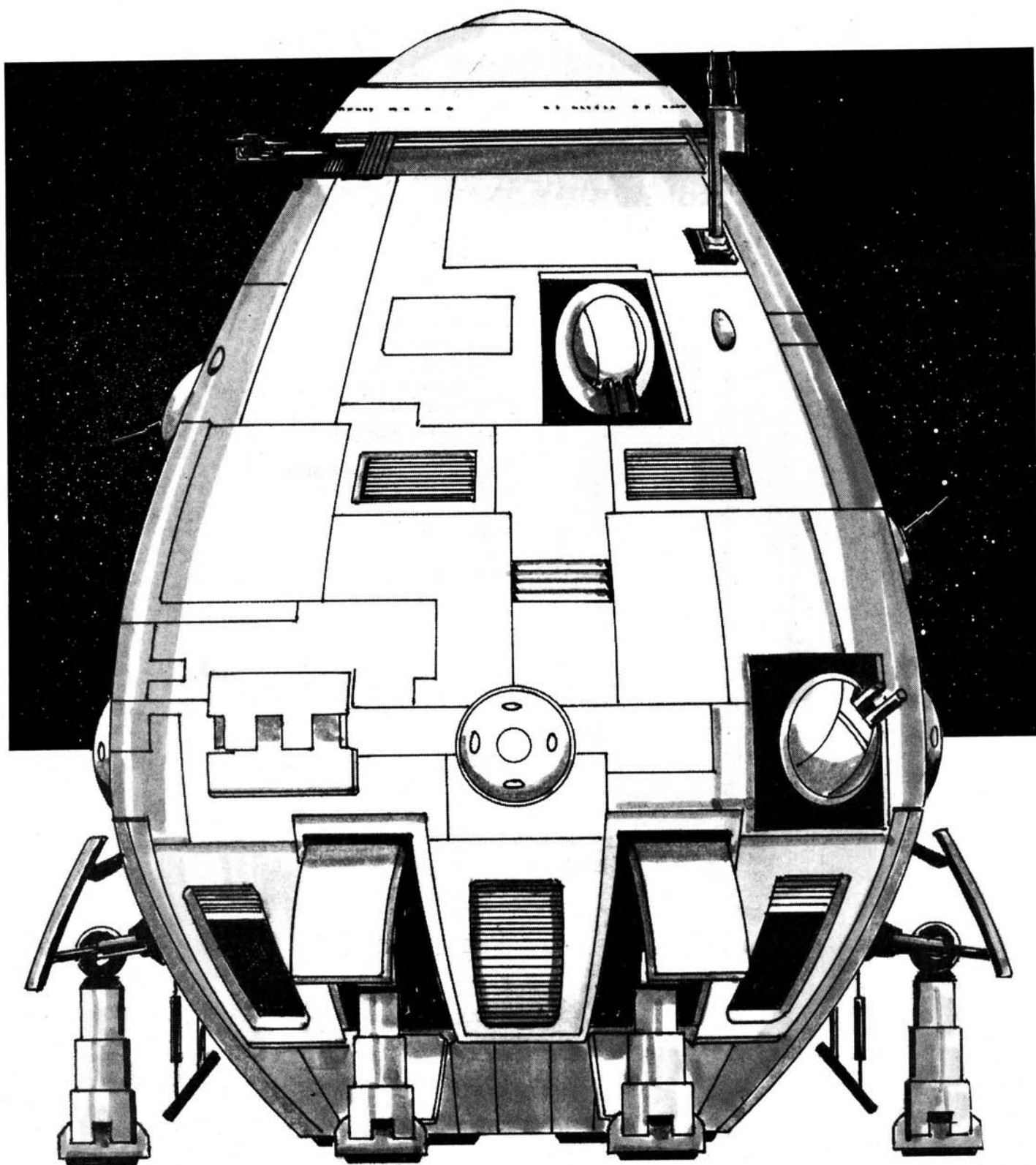
Medium Laser

Medium Laser

Medium Laser

**Fire Factors**

**Each Sector (I – VI):** 8



# DROPSHIPS A N D JUMPSHIPS



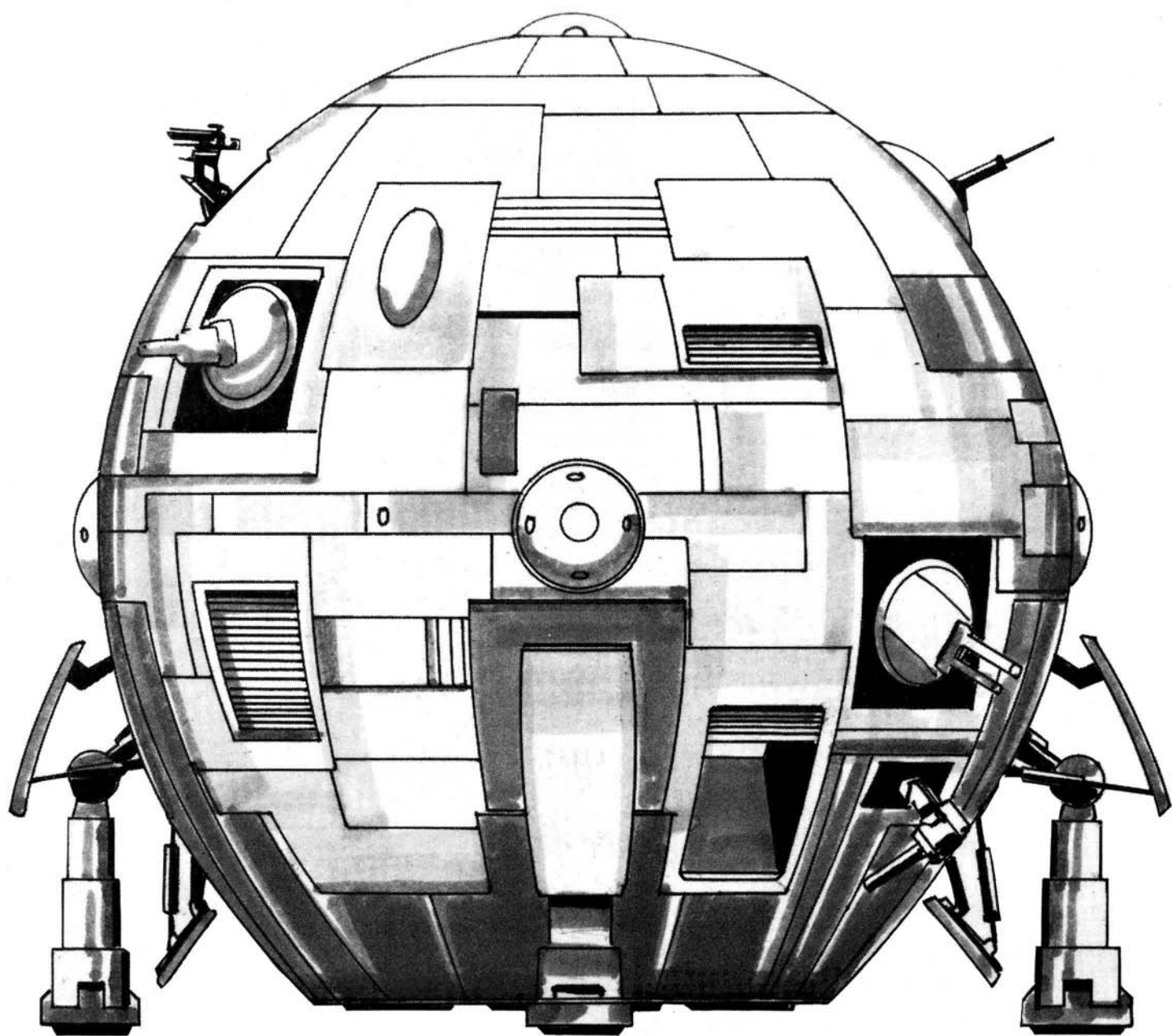
OPERATIONS MANUAL



# **DROPSHIPS**

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# **JUMPSHIPS**





# DROPSHIPS AND JUMPSHIPS

## **DROPSHIPS AND JUMPSHIPS** **ComStar Intelligence Summary**

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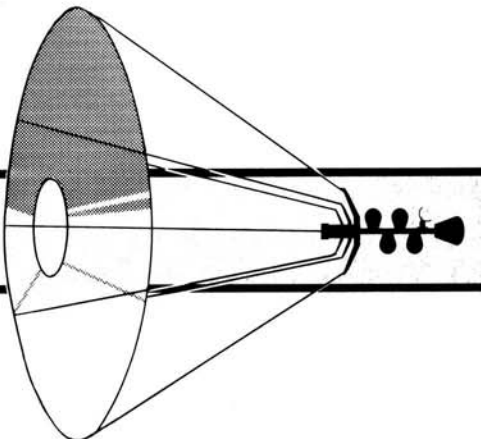
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## DROPSHIP DESIGN

There are approximately 100 different DropShip designs throughout Inner Sphere. These designs range from small military assault ships to gargantuan civilian cargo vessels, and from small passenger liners to large troop transports.

Although these designs vary, they can be grouped into two construction categories. The first category, called aerodynes, consists of all DropShips that use aerodynamic lift to maintain altitude. The second category, called spheroids, consists of all DropShips that maintain altitude by using vectored thrust.

Aerodynes rely on aerodynamic design to maintain altitude in an atmosphere. Winged, aircraft-like constructions, these ships are generally smaller and more maneuverable than spheroids. Their specialized hull structures make them incredibly graceful while in atmosphere. However, this design limits these vessels' space transit capabilities, and most such vessels can rarely exceed 1 G of acceleration for sustained periods of time. In combat, high-thrust maneuvering, and atmospheric flight, the ship uses a separate maneuver drive system. While these systems are usually not oriented for use at long-range, they can provide acceleration of 3 Gs or more for several hours.

A disadvantage of the aerodynes is that most cannot land vertically; instead, like conventional aircraft, they must land on a long, flat stretch of runway. Therefore, these vessels are much less versatile than spheroids. They cannot use their interplanetary transit drives to hover like spheroids because, if the drives on the back of the vessel are pointed toward a planet's surface, the super-heated air that circulates near the drive exhaust would rise up into the body of the vessel, scorching the wings. This heat build-up can overload cooling systems in minutes. The problem becomes even more severe when the ship is on or near the ground. At this altitude, any use of the transit drives causes a large back-blast of super-hot plasma, which can damage the skin of the ship and destroy extended landing gear and other protruding objects not designed to take such punishment.

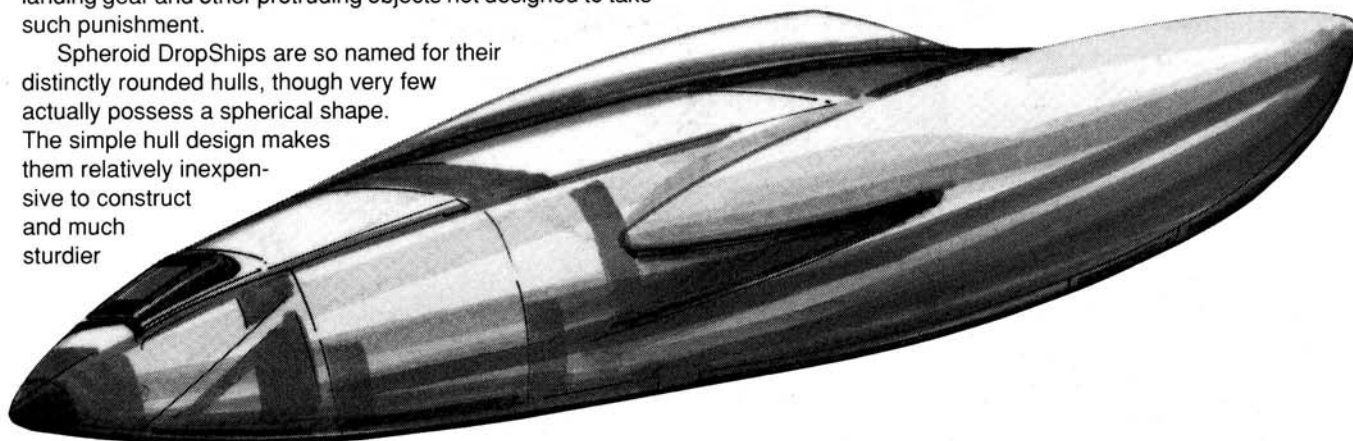
Spheroid DropShips are so named for their distinctly rounded hulls, though very few actually possess a spherical shape. The simple hull design makes them relatively inexpensive to construct and much sturdier

than their aircraft-like cousins. Thus, spheroids can be constructed in much larger sizes than can aerodynes. The largest of these, the Behemoth, masses 100,000 tons, many times larger than the largest aerodyne.

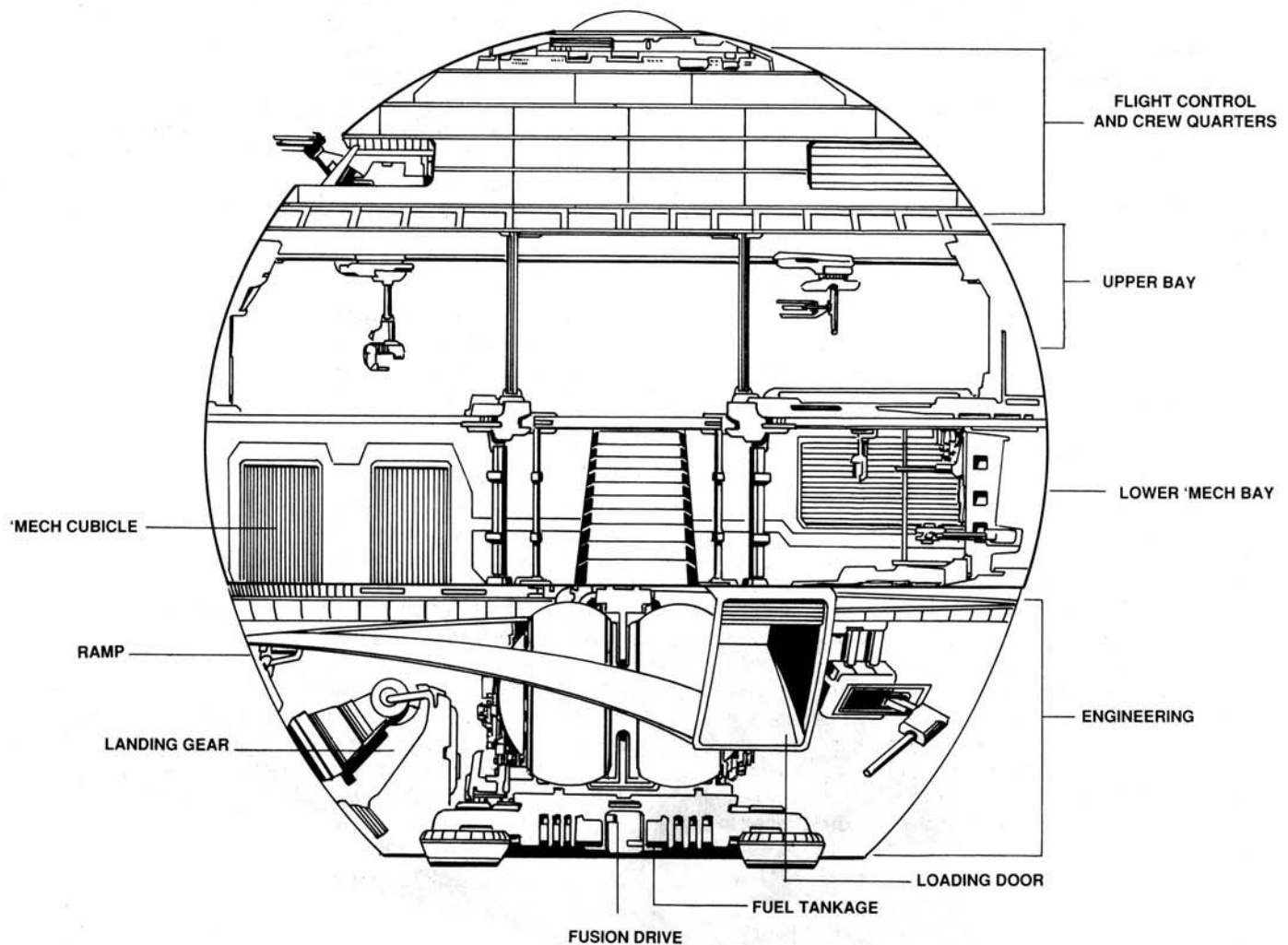
Spheroids maintain altitude by employing their fusion engine core drives against the gravitational pull of a planet. Unlike aerodynes, spheroids have only one drive system (usually referred to as the ship's interplanetary drive system) which is used for both space travel and atmospheric maneuvering. In either case, this drive is roughly equivalent to the aerodyne's maneuver drive. Able to travel under sustained acceleration of about 1 G, the vessels can also accelerate to 3 Gs or more without worrying about the shift of gravitational orientations. Therefore, spheroid DropShips can maneuver at high Gs with significantly less preparation time than aerodynes—in most cases, between 30 seconds to a minute after alerting the crew and passengers. In aerodynes, the preparation process includes the actual moving or packing of all loose equipment and personal items. Depending on the vessel's preparedness, the operation could take anywhere from a few minutes to several hours.

The capability of vertical take-off and landing is probably the spheroid's greatest asset. The ship can land in difficult-to-reach locations and heavy terrain. It does not need a large flat surface on which to land; instead, it needs just enough room to set down. In a heavily wooded area, the scorching blast from the DropShip's fusion drive exhaust always makes plenty of clear ground space on which to land.

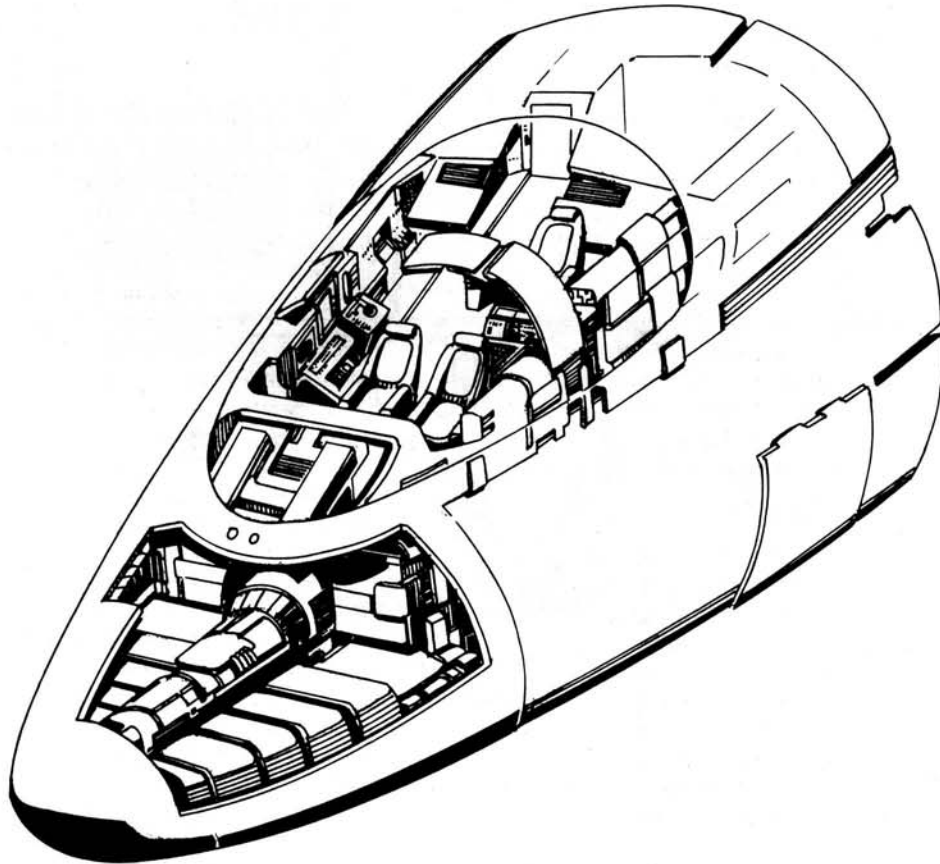
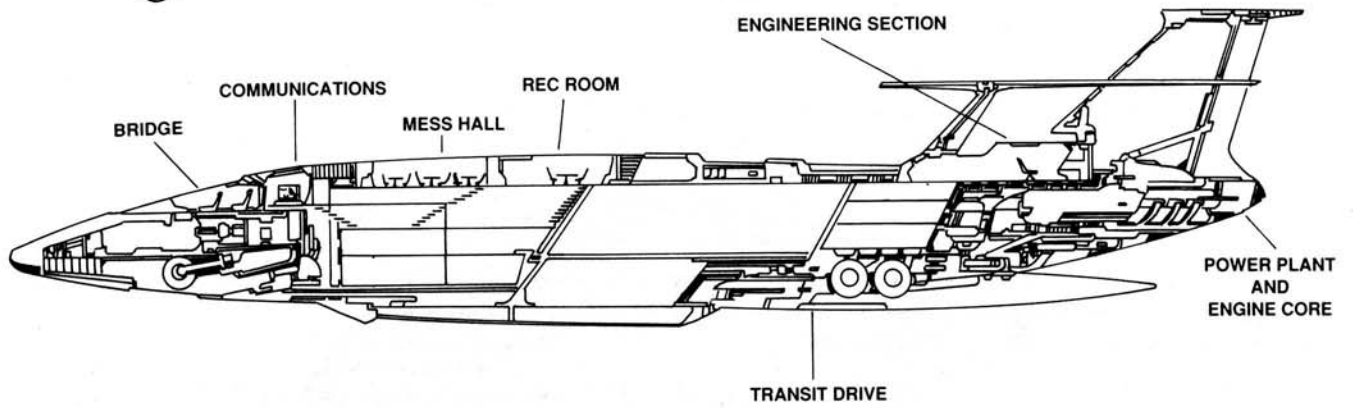
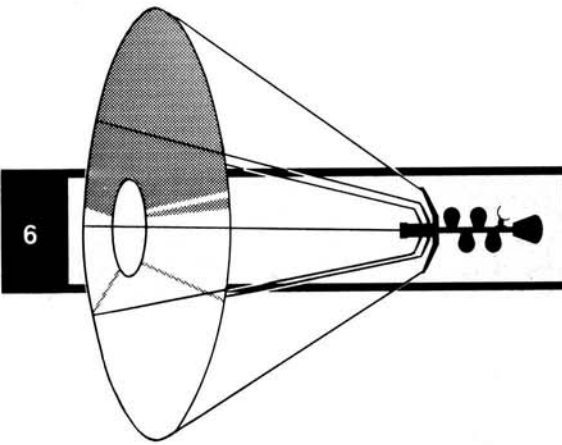
Although vertical flight capability makes this DropShip highly versatile, it also makes it vulnerable. Spheroids use their drive thrust to provide direct lift, and steering and attitude correction are done via reaction control thrusters mounted on the DropShip's hull. Although both aerodynes and spheroids possess these thrusters, they are extremely critical to the stable flight of the spheroid vessel in an atmosphere. If any of these thrusters should malfunction or become damaged, the spheroid will tumble uncontrollably to the planet's surface. Some well-experienced pilots can maintain control of a spheroid DropShip with a damaged thruster, but the task requires tremendous amounts of skill and coordination.



# SPACE VEHICLE DESIGN







# SPACE VEHICLE DESIGN

## ENGINE SECTION

This area is very centralized on spheroid DropShips and is spread out on aerodynes. On spheroids, the section is a cylindrical area at the bottom center of the ship. On aerodynes, the area normally occupies the rear of the DropShip and takes up the entire bottom deck.

The engine sections of each type of DropShip contain the ship's engine core, power plant fuel tanks, and engineering control bay. Though reaction control thrusters are not usually found within the engine section, they are considered to be part of the ship's engineering systems.

### Engine Core

The heart of the DropShip, the fusion engine core provides propulsion power for the ship's drives and back-up power for the life support, weapon systems, and all other functions aboard the ship. The section is located at the aft end of the ship and is lined with a heavy layer of radiation and heat shielding. Cylindrical in shape, the unit is unserviceable except for replacing shielding, cooling systems, energy converters, and other major components.

This area can be entered through one or more special access panels, which require a set of tools to open. Because these areas are radiation and thermal hot-spots, they cannot be safely entered while the core is operating. If shut down for a few hours, these areas can be accessed by personnel wearing engineering suits.

The interior of the engine core is crammed with cooling pipes, electrical cables, control lines, plasma ducting, and fuel lines. A small access crawlway winds its way among and around the numerous component systems.

### Power Plant

The DropShip's power plant contains a fusion engine that provides electrical power to the ship's systems (except for the drives). Located next to the engine core, the plant is also heavily shielded, and the area cannot be entered while the plant is in operation. If the plant is shut down for a few hours, engineers wearing engineering suits can access the area through an access crawlway.

### Drives

The ship's drives provide the thrust required to carry a DropShip across enormous interplanetary distances. They are generally located at the aft end of the engine core. On aerodyne vessels equipped with separate maneuver and transit drives, the latter drive is located in the bottom deck of the ship.

When activated, the engine core initiates a fusion reaction and shoots the by-product, plasma, to the drives and then out the heavily shielded exhaust nozzles, providing a large amount of thrust. This controlled and continuous explosive force is difficult to control and requires constant attention, especially during combat maneuvers.

The drives are accessible to engineering personnel, but are difficult to repair. As long as the magnetic containment system functions, there is little radiation hazard. If these systems fail while the core or drive is operating, serious radiation contamination may occur.

## Fuel

The DropShip's engine core is powered by the fusion of liquid standard diatomic hydrogen, which is stored in large storage tanks located in the engine section. There are two types of fuel feeding systems, each with their own special characteristics.

The first system is simple and requires only moderate maintenance. Small amounts of liquid hydrogen are pumped to smaller storage tanks, where the hydrogen is heated. The resulting increase in pressure feeds the fuel into both the engine cores and the power plant's fusion reaction chambers. The only maintenance required is periodic checking of the lines and the small transfer pumps. This system is best used when the demand for fuel is constant, as in interplanetary flight or JumpShip-to-planet transits. However, it cannot supply the surges in fuel demand needed during combat.

The second system of fuel feeding uses high-speed pumps to keep the system under the constant pressure required by the fusion reaction, regardless of how much fuel is demanded. This system is prone to breakdown because the pumps must operate for extended periods at near absolute zero temperature.

All combat DropShips carry both systems. Not all civilian DropShips carry the second pump system.

### Attitude Control Thrusters

Grouped in clusters at various locations on the ship, attitude control thrusters are used to change and control the ship's orientation and heading. In addition, they are used while the ship is in the atmosphere, either to augment existing control mechanisms or, as with most spheroid vessels, to provide the sole means of maneuvering control.

There are a few different ways that thrust is generated in these systems. On very small ships, pressurized or liquified gas can be used. However, because this does not provide much power, larger ships carry oxidizing agents that, when combined with hydrogen from the fuel system, act as small rockets to move the ship. This type of system can be used on ships of any size just by making the rockets larger.

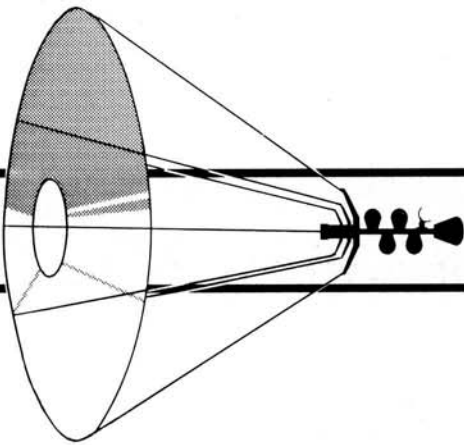
Some ships are equipped with miniature versions of the ship's main drives. These systems, though very powerful, are extremely complex, bulky, and expensive.

### Engineering Control Center

This large bay, the control center for the DropShip's drive systems, is present on all but a few DropShips. From here, Engineers control just about every engineering function of the ship, including power routing between various decks, power plant operation, cooling systems, drives, and attitude control thrusters. If this room had access to navigational data, the ship could be flown from here.

The engineering control center, normally referred to as simply engineering, is kept under constant 24-hour watch. On most DropShips, this includes at least one Engineer and a pair of Second Engineers. On larger DropShips, this may include as many as three Engineers with a half-dozen seconds.

Access into engineering is usually under strict control, and only engineering personnel and senior officers have access.



## CARGO SECTION

The DropShip's cargo section is generally spread out through the interior of the hull. This is the largest section aboard most DropShips, military or civilian, and takes up anywhere from 30 percent of the ship's mass to 75 percent or more on larger vessels.

The composition and layout of the cargo section depends on the nature of the DropShip. Civilian ships generally have one or more large cargo bays, and may or may not be equipped with a small craft bay or weapons bays. Military vessels always carry weapons bays and cargo bays, and may also be equipped with 'Mech, vehicle, or Fighter bays as well. All landing-capable vessels are also equipped with heavily reinforced ramps for loading and unloading cargo, ammunition, and supplies.

### Cargo Bay

The cargo bay is used for storing supplies, equipment, or bulk goods. Numerous tie-down hooks are recessed at three-meter intervals across the bay's floor, walls, and ceiling. Aside from these small depressions, all surfaces inside the cargo bay are flat and smooth. This allows personnel to secure cargo with magnetic clamps, which can be used in lieu of the cable tie-downs.

Cargo bays are often equipped with cranes mounted on tracks in the ceiling. Personnel can operate these cranes either with a remote control unit or from a small booth attached to the bay's ceiling or walls.

To gain access to a cargo bay, personnel may use a cargo door in the hull of the DropShip or a large cargo elevator. On larger vessels, cargo doors are equipped with airlocks.

### 'Mech Bay

This cavernous section houses the 'Mech storage cubicles, which are large framework enclosures that hold a 'Mech in place during transit. These may or may not be covered by a thin metal skin. Minor maintenance and ammunition loading may be performed on a 'Mech while it is secured inside a cubicle.

'Mech bays usually contain large open areas where BattleMechs may be repaired. Such areas are equipped with retractable repair platforms and cranes. Tie-down hooks are located on the floor so that a 'Mech under repair can be tied down to prevent drifting during zero-G operations.

These bays are also equipped with numerous hook-ups, including fuel lines, air lines, and power cables, to supply 'Mechs. The fuel lines normally tie directly into the DropShip's liquid hydrogen fuel supply. The lines themselves are heavily reinforced hoses equipped with automatic cut-off valves to prevent accidents. Equipped with the same safety features found on the fuel lines, air lines can be directly connected to the 'Mech's liquid oxygen tanks. The power cables are used to power 'Mech systems while the 'Mech's fusion reactor is shut down. In addition, they can provide boost power to start up the 'Mech's power plant.

DropShips designed to carry BattleMechs are normally equipped with drop pack and reentry kits that allow a 'Mech to be dropped safely from high altitude or low planetary orbit. While the ship is on a planet, BattleMechs enter and exit the 'Mech bay via heavily reinforced ramps leading down to the large, 'Mech-sized doors. On smaller vessels, these entry doors lead directly into the DropShip's 'Mech bay.

### Loading/Unloading Ramp

Almost every DropShip with cargo-carrying capacity has loading/unloading ramps. These heavily reinforced panels are designed to handle the weight of even the heaviest 'Mechs and vehicles. Although most ramps are extendible, some larger vessels have permanently fixed ramps that reach the cargo, vehicle, or BattleMech bays.

### Weapons Bay

All combat DropShips and many civilian DropShips carry weapons bays. Each bay contains a mount, many of which are retractable, equipped with a combination of lasers, autocannons, missiles, and particle projector cannons. Each mount uses a radar-guided targeting system, a separate cooling system, and ammunition stores. Because the ammunition capacity of a weapons bay is quite limited, additional ammo is fed either by self-contained conveyor systems or by the ship's crew.

A central fire control system normally directs and controls the DropShip's weaponry. However, weapons bays on many vessels (especially those designed for combat) are equipped with individual gunnery stations located inside the bay, which can be used to control the bay's weaponry in an emergency. Within these tiny rooms, one person operates the weapons firing controls, and another handles ammunition feeding systems and cooling system controls.

## COMMAND SECTION

The command section houses the crew and all the electronic systems needed to operate the DropShip. This is usually the smallest area on the vessel, as the crew and control systems require only a small amount of space. On vessels primarily designed to carry personnel (such as passenger liners and troop transports), this section houses them as well, although they are usually separated from the ship's crew.

The design of the command section varies from DropShip to DropShip, but the components remain the same. These include the KFFC boom, docking collar, avionics, bridge, and crew accommodations.

### KFFC Boom

The Kearny-Fuchida field-conducting boom is integral to the attachment of a DropShip to the interstellar JumpShip. After the DropShip has docked, it extends this long, antenna-like device into a receptacle near the docking collar of the JumpShip. The purpose of the unit is to ensure that the DropShip is contained in the Kearny-Fuchida field during hyperspace jump.

Before a JumpShip's hyperdrive is engaged, all docked DropShips must be connected via the KFFC boom. If any DropShip is not properly attached, the JumpShip cannot jump. Anyone less than an engineering genius cannot override this tamper-proof safety system.

# SPACE VEHICLE DESIGN

## Docking Collar

An extremely sturdy device found on all DropShips, the docking collar allows the vessel to dock safely and securely with JumpShips and other DropShips. Directly attached to the DropShip's structural framework, it is a complex, interlocking structure equipped with a number of coupling devices, allowing the docked vessels to transfer fuel, power, air, coolant, or water. These units are also equipped with a transfer tube for transferring personnel and small pieces of equipment without the need for protective gear.

In addition, docking collars are equipped with high-security systems to prevent accidental separation of the ships during supply or personnel exchange. Docking controls are usually located on the bridge and are protected by an electronic lock to prevent tampering.

## Avionics

Powered by the power plant, the ship's avionics include all electrical systems necessary for operating the DropShip. This includes the ship's long-range radar detection and tracking systems, on-board computer systems, and inertial guidance systems. Also, this area houses many non-essential systems, including electronic counter measures apparatus, weapons fire control computers, communications gear, and ship identification transponder.

The electronic components are normally located in a well-shielded section of the DropShip's nose. The numerous antenna arrays are located in a sturdy, non-metallic section of the DropShip's hull, usually in the nose.

## Bridge

The bridge is the brain of the DropShip. The size of this room varies from the small cockpit of the *Leopard* to the large central command center of the *Overlord*. Included in this room are the primary controls for the ship's flight, navigation, computer, weapons, and communications systems.

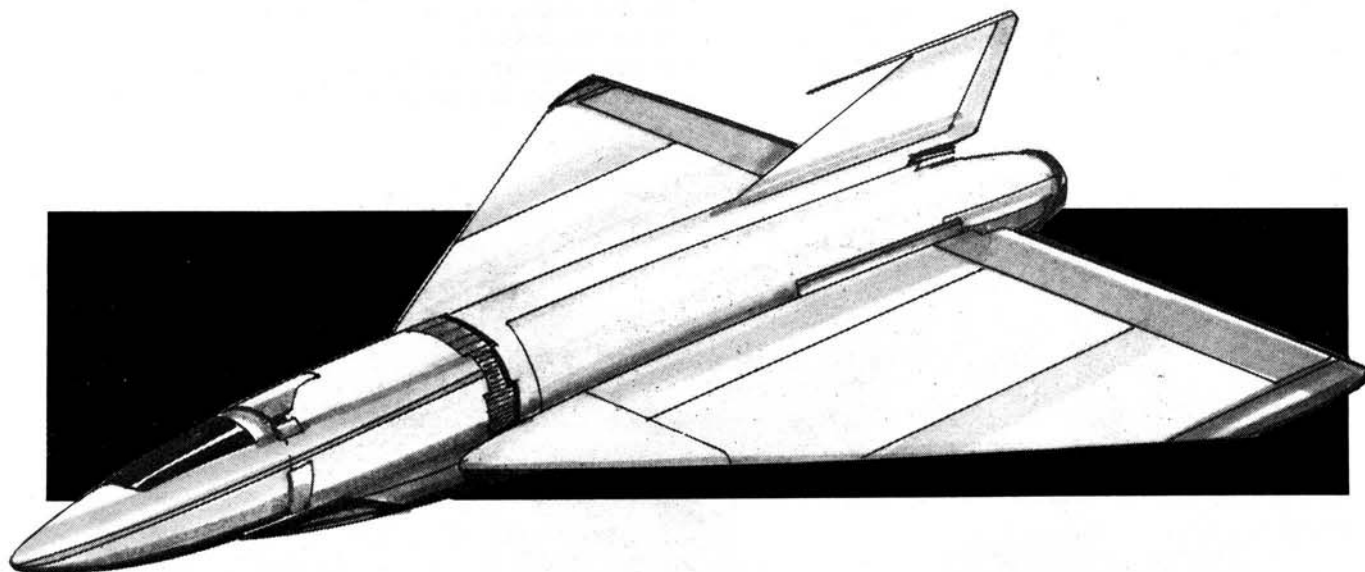
Bridges of different vessels have varying levels of internal security control. On some vessels, the bridge controls a very complex security system in that may be used to seal off and control life support systems in any area of the ship. On other vessels, security is decentralized, preventing the bridge crew from having absolute control of the ship.

One or more bridge crew members keep the DropShip's bridge under 24-hour watch. Although this duty is considered dull, it is also important to the safe operation of the vessel.

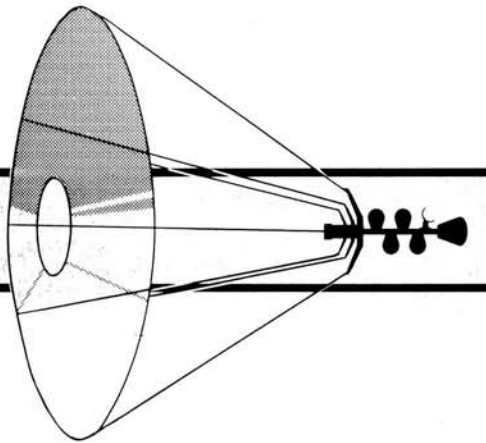
## Crew Area

This section contains the crew quarters, mess facilities, medical bay, recreation room, life support, and supply storage. The layout of this area varies from ship to ship. Some house the crew in double or even single occupancy rooms; other vessels, primarily those designed for combat, house the crew in barracks-style quarters with large shared washrooms.

The crew area is usually equipped with a number of escape pods or life boat stations. Each pod or boat can allow four to six persons to escape the ship in an emergency.







## JUMPSHIP DESIGN

There are approximately two dozen varieties of JumpShips still operating today. The most common versions are used to transport one or more DropShips between star systems, where they are then released to make their long drop to a planet.

All JumpShips are similar in construction and share many major design components. Some older versions, designed for independent use and not for carrying DropShips, are extremely rare. It is believed that there are fewer than half a dozen of these ships remaining.

Most JumpShips resemble an arrow due to the long, thin Kearny-Fuchida drive stretching from one end to the other. The command section is at the head, the cargo section is in the middle, and the engine section is at the tail. DropShips attach themselves to reinforced docking collars mounted on the exterior of the cargo section. The number of docking collars ranges from one on the *Scout* to nine on the *Monolith*.

During recharging operations, the JumpShip unfurls a large circular sail, which collects solar energy to supply the vessel's Kearny-Fuchida drive. JumpShips are capable of travelling up to 30 light-years in a single, nearly instantaneous jump. After each jump, the vessel must recharge its K-F drive before it can jump again. Usually, the solar energy collector sail is used to recharge the drive, which takes about six to eight days, depending on the star's energy output. In interplanetary space, however, the ships are virtually immobile. Though equipped with fusion drives, JumpShips can accelerate to only .1 to .2 Gs maximum.

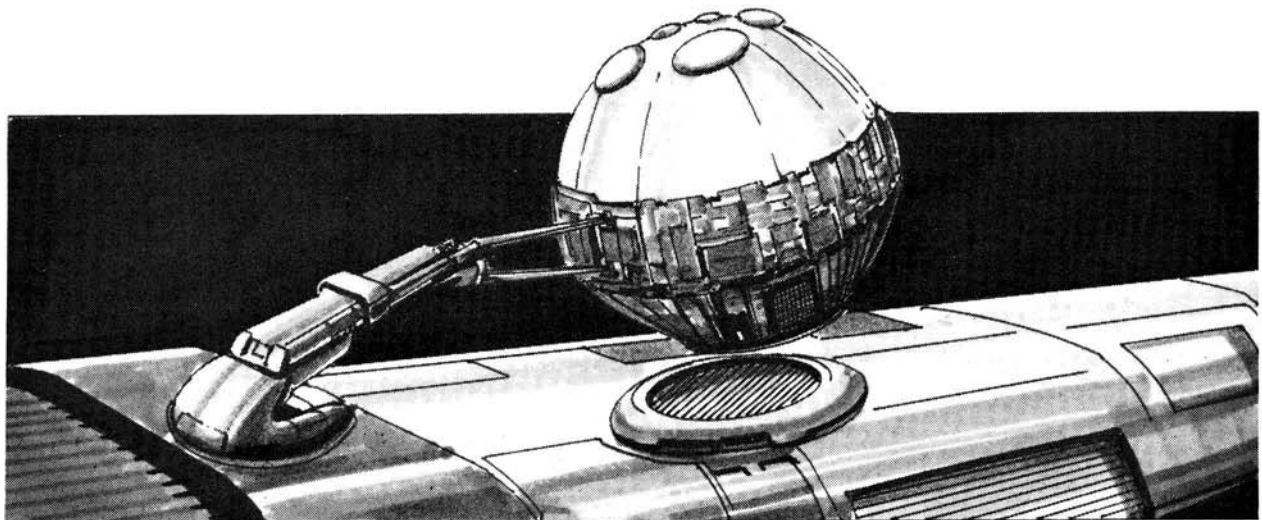
## KEARNY-FUCHIDA DRIVE

The Kearny-Fuchida drive is the long cylindrical section that gives the JumpShip its arrow-like appearance. Called the heart of the JumpShip, the K-F drive makes possible interstellar travel throughout the Inner Sphere and beyond. The drive can transport the JumpShip and its DropShips from one star system to another up to 30 light-years away. To perform a hyperspace jump, the drive must be charged from the JumpShip's solar energy collector sail; the sail can charge a K-F drive in about one week.

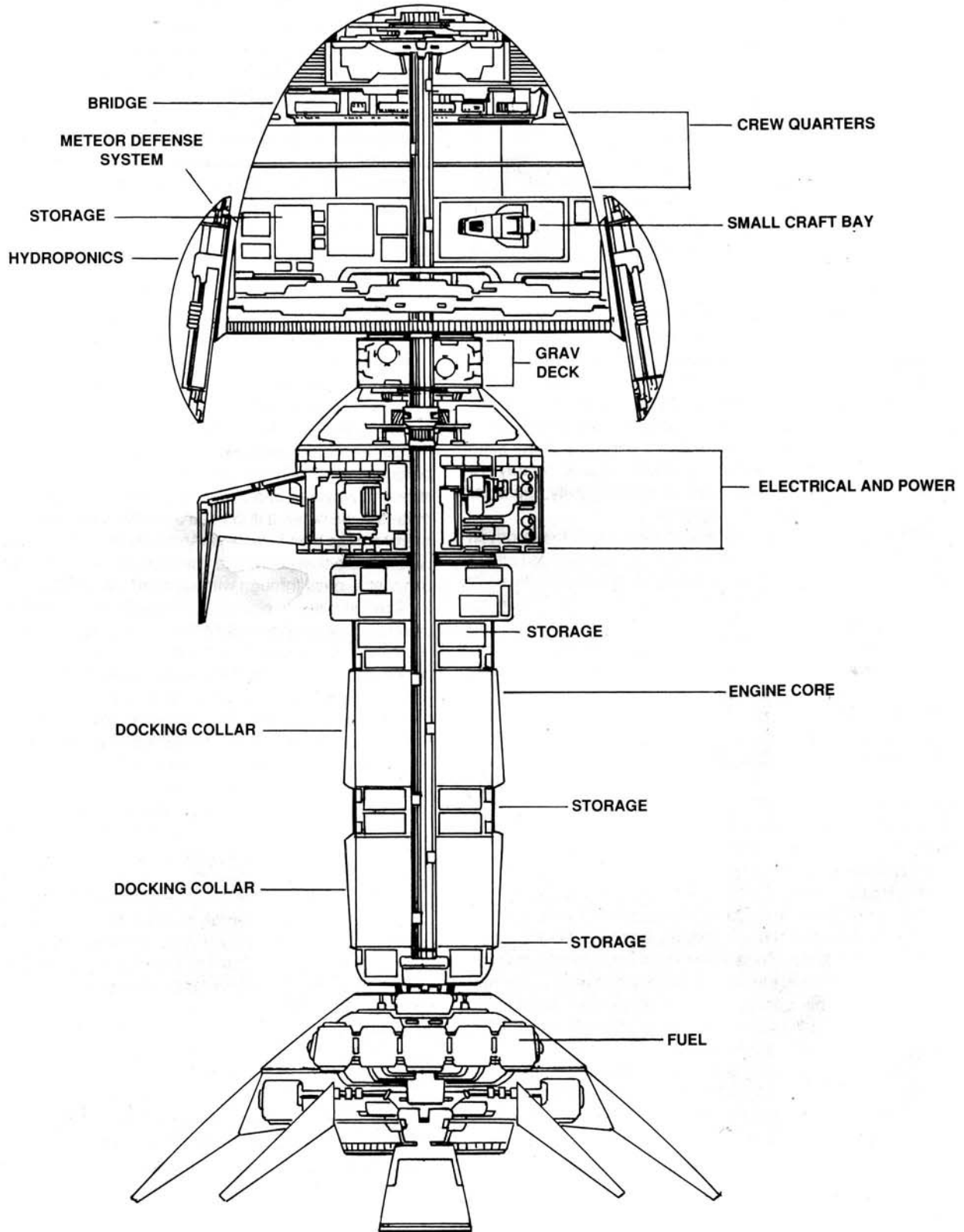
The Kearny-Fuchida drive is composed of a titanium/germanium alloy suspended in a long tube of liquid helium. This turns the unit into a gigantic superconductive capacitor that stores the energy collected by the solar energy collector. At the aft end of the K-F drive housing is the field initiator machinery, which generates the hyperspace field and amplifies it through the main body of the K-F drive. Behind this is the power converting equipment from the ship's recharging systems. The K-F drive is the most massive component of the JumpShip, ranging from 75,000 to over 350,000 tons. Because of technical limitations, these drives cannot be built any smaller than 75,000 tons.

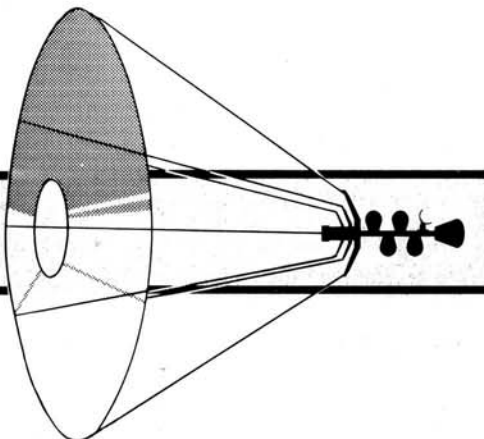
Engineers can easily access the components of the K-F drive through numerous corridors running between the exterior wall of the drive and the armored skin surrounding it. However, repairing the drive is very difficult due to the lack of knowledge about it. Although the drive can take a limited amount of damage and still remain functional, any damage beyond this level disables the drive completely, dumping the drive's liquid helium coolant. Repairs are usually simple to make, but this requires the facilities of a major repair installation.

Kearny-Fuchida drives are quite rare; only about a dozen new ones are constructed each year, which barely compensates for the number of drives destroyed in the same period.



# SPACE VEHICLE DESIGN





## ENGINE SECTION

The bulk of the JumpShip, the engine section starts from just behind the cargo section and stretches to the back of the ship. This section is identical on all JumpShips, and the only difference is the size and mass of the components, which consist of the station-keeping drives, engine core, power plant, fuel, energy collector sail, engineering control, and a large engine emergency control room.

### Station-Keeping Drives

Powered by the ship's engine core, this component is essentially a large version of the drives found aboard DropShips. Although large, they are very small in comparison with the JumpShip's mass, and thus can only produce about .1 to .2 Gs of acceleration. This makes it very inefficient for the ship to perform any interplanetary travel. Generally, the station-keeping drives are used to perform minor maneuvers at the jump point or to travel to a recharging station located nearby. At traditional jump points, the forces of stellar gravity and solar wind are almost completely negligible.

Off-limits to any but engineering personnel, these drives can be accessed through a set of maintenance hatches located in a corridor that rings the engine section. As with the drives of a DropShip, the JumpShip's drives must be shut down for several hours before any personnel may enter. Also, due to radiation levels, they must wear protective clothing.

### Engine Core

The fusion engine core provides JumpShip systems with a back-up power supply and provides propulsion power to the ship's station-keeping drives. This fusion engine is identical to the engine core aboard DropShips, except that it is much larger.

The engine core is encased in a cylindrical housing that is well shielded. Access into the engine core is the same as aboard DropShips. Because the JumpShip's engine core is many times larger than that of a DropShip, it is quite a bit roomier and easier to work on.

### Power Plant

The fusion power plant provides electrical energy for most systems in the JumpShip. In addition, it can be used to quick-charge the K-F drive. Because of the increased possibility of jump failure or damage to the K-F drive, however, this method is used only in emergencies. A quick-charge can take as little as a few hours, but the shorter the charging time, the greater the chance of jump problems occurring.

Located next to the engine core, the power plant has a well-shielded cylindrical casing. After the plant has been shut down for a few hours, engineers wearing engineering suits may access the area through a series of hatches.

## Fuel

Although the Kearny-Fuchida drive itself uses no fuel, the JumpShip's power plant and engine core do. The fuel that both use to sustain fusion reactions is standard diatomic hydrogen. This fuel is held in small storage tanks located near the outer edges of the JumpShip's engine section. The miniscule fuel requirements of the vessel mean that only a small amount of fuel needs to be carried. Because JumpShips located on House Command Circuits must have a quick response and readiness time, they are often fitted with extra fuel tanks inside their cargo bays. Their power plants often use this fuel to charge the K-F drives, due to the long time required in furling and unfurling the solar energy collector sails.

Most JumpShip captains try to keep fuel consumption at a minimum due to the cost of the hydrogen as well as the cost of having a tanker fly out to the jump point. Energy collected by a solar collector sail is free and saves the captain from planning out fuel resupplying.

### Energy Collector Sail

This is the JumpShip's primary source of energy for charging the Kearny-Fuchida drive. The energy collector sail, also called the jump sail, is a large circular sheet made from a high-strength polymer and measuring between 800 and 1,300 meters in diameter. It is located aft of the ship, and a number of heavy cables hold it in place. At the center of the sail is a large circular hole that allows the JumpShip's station-keeping drive exhaust to pass through without damaging the sail.

The jump sail is coated with an extremely efficient photochemical that absorbs visible light, ultraviolet, infrared, microwave, and radio waves, and converts the energy into useful power. Because of this energy absorbing quality, these sails produce little or no echo on deep space radar. The collected energy is transferred to the JumpShip via two sets of power transmission lines located on opposite sides of the sail.

Although the jump sail is composed of high-strength polymers, its sheer size makes it fragile, and it is highly susceptible to rips, meteorite damage, and weapons fire. Because of its delicate nature, furling and unfurling a jump sail can take from 100–200 minutes, depending on the size of the sail.

### Engineering Control

Located at the front end of the engine section, the engineering control room is used to monitor the K-F drive, station-keeping drives, power converters, cooling systems, engine core, and power plant. Unlike the engineering control center aboard DropShips, the JumpShip's engineering room has little control over the operation of the vessel; it is used only to monitor and organize damage control crews and maintenance teams. The drive systems are controlled from an engineering station on the bridge.

The engineering control room contains several ship systems displays that take up much of the wall space. These displays show damaged areas of the ship, and can be tied into a communications panel to keep track of repair and maintenance teams.

# SPACE VEHICLE DESIGN

## CARGO SECTION

The JumpShip's cargo section consists of many bays that are spread throughout the ship. All JumpShips have cargo bays, and nearly all have small craft bays. The average JumpShip's cargo section generally masses under 10,000 tons and is limited, not by space, but by function. As the primary mission of the JumpShip is to carry DropShips, there is little need for large amounts of cargo storage or small craft. Also, due to the noncombative nature of the JumpShip, there is little need for offensive weaponry.

### Cargo Bay

Cargo bays aboard JumpShips are large, open areas closely resembling those found aboard DropShips. They are located within the crew section along the neck of the ship, where the DropShips dock. Although the cargo bays are often equipped with large airlocks, most cargo carried aboard JumpShips is not harmed by vacuum.

The JumpShip's cargo-carrying capacity is limited because the JumpShip can transfer its cargo only to a DropShip. For DropShips to operate at maximum profit, they must keep their cargo holds full at all times, and thus have little or no room to take cargo from a JumpShip. For this reason, the JumpShip's cargo holds are generally used only to carry extra supplies. Some vessels have internal cargo bays equipped with manipulator cranes and tie-down hooks.

Access to cargo bays is through either a large cargo door or a small personnel door, which is normally equipped with an airlock.

### Docking Collar

Most JumpShips are equipped with from one to nine DropShip docking collars. Similar to the DropShip's docking collar, this collar holds the DropShip securely during the critical moments of hyperjump. On most JumpShips, the collars are located on reinforced hardpoints along the exterior of the Kearny-Fuchida drive. They are equipped with the supply transfer fittings, and the control valves and switches for these connections are located in a small docking control booth located next to each collar. Many JumpShips have additional equipment located near the docking collars, ranging from manipulator cranes to extendible platforms for making DropShip repairs.

### Small Craft Bay

All JumpShips carry one or more small craft, which are used to transport personnel, supplies, and equipment between the JumpShip and nearby ships and stations. Small craft bays are equipped with fueling gear and power hook-ups for starting a vehicle's fusion power plant. Some bays are also equipped with platforms, manipulator cranes, and other equipment used to maintain and repair small craft.

Located in this bay are the storage cubicles used to store small craft. These cubicles are similar to those used to carry 'Mechs—they are sturdy frameworks that surround the small craft and hold it securely in place. The main difference between the 'Mech cubicle and the small craft cubicle is that, instead of being vertically mounted, small craft cubicles are oriented horizontally.

## Meteor Defense System

To protect them from meteor hazards, many JumpShips are equipped with one or more large lasers or particle projector cannons. Most of these weapon systems are not strong enough to damage other space vessels as JumpShips, by accepted codes of conduct, are not considered military targets. Anyone attacking a JumpShip faces severe repercussions from both friend and enemy alike. Meteor defense systems are usually mounted in large turrets outside the JumpShip's command section housing. This position gives the system a large field of fire.

Engineers can access the turret housing through a maintenance hatch located at the base of the turret. Most turrets also possess one or more external access hatches for large-scale repairs.

## COMMAND SECTION

The large command section is mounted at the forward end of the JumpShip, forming the head of the vessel's arrow-like appearance. Although the shape of the command section varies, it is usually bullet- or egg-shaped. Included in this large pod is the JumpShip's control facilities and crew accommodations. In addition, cargo and small craft are often housed in this section as well.

Running through the center of the command section, from the back to the nose, is a shaft containing the forward portion of the Kearny-Fuchida drive machinery. Well-shielded from the rest of the command section, the shaft cannot be entered except through engineering access hatches located outside the hull of the command section.

On some vessels, a set of meteor defense weapons, mounted in large turrets, are fixed onto the sides of the command section. Because these are self-contained weapons mounts, containing their own cooling systems and fire control, they are not considered part of the command section.

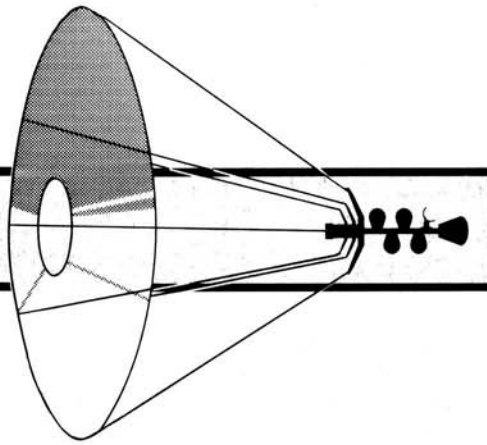
### Bridge

The bridge of the JumpShip is generally quite large in comparison with the bridge of the DropShip because the function of each is different. Aboard DropShips, the atmosphere on the bridge is tense. Many decisions require split second timing, and the pilot and captain must be able to concentrate on their duties with minimal distractions. The DropShip's bridge, then, has limited functions, thus reducing the number of personnel present.

On the JumpShip bridge, however, things are different. Because there is little maneuvering to be done and because the role of the JumpShip is passive, bridge duties are much less demanding. This gives the bridge greater control over the function of the ship without creating confusion among the operating personnel.

The JumpShip's bridge is about twice the size of the average DropShip's bridge. This area contains controls for the vessel's interplanetary maneuvering and navigational systems, as well as hyperspace flight and navigational systems. Also located here are the communications station, internal





security systems, environmental controls, and engineering systems controls.

The engineering systems stations contain monitors that duplicate the information received by the engineering control room. Unlike that room, however, the stations have complete control over the power plant, K-F drive recharging systems, jump sail deployment equipment, and the Kearny-Fuchida drive itself.

#### **Avionics**

The JumpShip's avionics are spread throughout the command section. These systems include deep-space detection and tracking systems, interplanetary and interstellar navigational systems, radio and laser communications systems, identification transponders, and multi-purpose computers.

Security in these areas is rather high, with alert indicator lights mounted on the internal security board of the JumpShip's bridge. Also, the areas are usually protected by electronic or sophisticated mechanical locks. Entry is available only to engineering personnel and specific bridge personnel.

#### **Grav Deck**

Found exclusively aboard JumpShips and space stations, this large, ring-shaped section provides the crew with an artificial gravity environment. Too small to contain living accommodations for the crew, it is commonly used as a lounge for off-duty personnel.

The grav deck produces artificial gravity by spinning slowly, like an enormous centrifuge. As the deck spins, all objects on it are pushed away from the center. The wall becomes the floor of the deck, and "up" is toward the central hub of the deck. This can cause a slight disorientation among the inhabitants, as "up" is generally considered to be in the direction of the JumpShip's nose.

Access into the grav deck is through a passageway located near the deck's central hub. Transferring to or from this section is a dizzying experience, and can be dangerous to those who are inexperienced with the procedure.

Because the deck's drive motors and bearings are delicate, several locking arms must brace the deck in position before the JumpShip performs any maneuvering more complex than station-keeping.

#### **Crew Decks**

The crew deck contains the living quarters and other accommodations for the JumpShip's crew. Normally consisting of two or more decks, this section occupies a cylindrical area in the middle of the command section. Components include personal storage rooms, mess and recreation facilities, medical facilities, food and water storage, life support and waste processing systems, and hydroponic gardens.

Living accommodations for the JumpShip's crew are quite good to compensate the crew for the long periods of time spent in zero-G. Crew quarters consist of single occupancy rooms containing a bed, desk, and chair, a small dresser, and a number of cabinets. Bathing facilities are shared between two rooms.

There are a number of life boat stations located in and around the crew decks. These are easily accessible from any of the crew decks and, in an emergency, can be reached in seconds.

Personnel travel between the crew decks and the rest of the ship through a pair of elevators that run the length of the command section. These elevators are located against the outside of the Kearny-Fuchida drive, and a single access tunnel is located next to them.

## **SHIPBOARD DETAILS**

The systems and mechanisms described below are common to both DropShips and JumpShips.

### **CONTAINMENT DOOR**

These large doors can seal off compartments of the ship, should decompression, fire, or combat threaten the ship. These doors can be manually operated from the bridge or from a control panel set near the door; they operate automatically if a compartment loses air quickly or if a fire breaks out. Doors that close automatically will reopen automatically as soon as the environment within the sealed compartment returns to normal.

The bridge manual controls override the local containment door controls on most vessels. However, if a person with an engineer's portable console ties into the containment door electrical lines, he can override the bridge's control.

Containment doors are often constructed in pairs to form a small airlock between them; thus can crew members access a depressurized compartment. Some vessels, instead of having two heavy containment doors, have a single door with an airlock next to it. The airlock allows personnel to pass into adjacent compartments without opening the containment door. These airlocks operate using the same safety and security systems as the containment doors.

### **AIR HOOK-UPS**

Every compartment contains at least one set of air hook-up connectors, which tie directly into the ship's emergency life support system. Using air masks located in a nearby cabinet, a person can tie directly into a hook-up to get fresh air. Air hook-ups are used mostly if a compartment has an atmosphere that contains harmful elements; they cannot save a person in a depressurized room unless he is wearing some type of pressurized suit. In this case, the air line can provide him with an external supply of air, saving the suit's air supply.

# SPACE VEHICLE DESIGN

## POWER HOOK-UPS

Adjacent to every air hook-up connector is a power hook-up connector, a wall outlet that ties into the ship's main power system. This connector can provide power as long as the ship's power plant is operating; it does not tie into the emergency power system. Using a special adapter, any battery-powered item can be attached to a power hook-up, allowing laser weapons, lights, and other electrical devices to operate almost indefinitely.

## COMM PANEL

One comm panel is located within each compartment. By using a special selector keypad, the user can contact any other comm panel aboard the ship, and conversations on this line are private unless tapped into by either the bridge or someone with an engineer's portable console. In addition, the selector allows the user to broadcast a message across the ship's loudspeaker system.

The comm panel also has a built-in receiver/transmitter, which can hook-up to an intercom-link (see the New Equipment section of Game Additions.)

## EMERGENCY LIGHTING

Emergency lighting is located throughout all sections of a ship. These low-power lights draw power from a set of emergency batteries, located beneath the floor panels in each compartment. Continually charged by the power plant to keep a full charge, the batteries can keep the corridors lit and maintain life support for up to 48 hours. A switching relay triggers the lights to turn on whenever the main power is cut off and to shut off as soon as power is restored. The dim light enables personnel to read if they hold the material directly under the light. The primary function of this emergency lighting is to provide enough light for personnel to find an escape pod or an undamaged section of the ship.

## ENVIRONMENTAL MONITOR

Environmental monitors are a set of readouts displaying a compartment's atmospheric information. Located on corridor walls, each device gives a continual display of the area's air pressure, temperature, humidity, and percent of oxygen and carbon dioxide. On some vessels, these units also indicate pressure changes, sound frequencies, and air currents. These particular models often tie directly into a special intruder detection system, which uses the monitors' information to track the movements of personnel through the ship.

## FIRE SUPPRESSION SYSTEM

A fire on a ship must be stopped quickly, not only because fire will damage the ship, but also because the large amounts of toxic chemicals generated can quickly overload a ship's life support system. For these reasons, all space vessels carry fire suppression systems, consisting of an array of pipes that lead to every room and corridor on the ship. If a fire breaks out, containment doors automatically seal off the burning room or corridor, and then the pipes release a blast of halon, carbon dioxide, or some other fire retardant into the room.

The mechanism that triggers the system is a series of heat sensors and smoke detectors, which are also tied into the environmental monitor panels. When these units are triggered, the fire suppression system switches on, a warning bell sounds, and a fire detection panel on the bridge indicates the location of the fire.

## MANEUVER WARNING

The maneuver warning is a simple alarm system used to alert the crew before the ship performs any maneuvering and before engines are activated or shut down. This allows the crew to brace themselves before the ship changes course or velocity. Activated from the bridge, the warning system is a set of rotating, amber-colored beacons located at each end of a corridor. Along with this visual warning is a computer-generated voice, warning of the coming maneuver. The beacons draw power from the ship's power plant.

## COMBAT ALERT WARNING

The combat alert warning operates exactly like the maneuver warning except that the beacons are red instead of amber. Located next to the amber beacons, these beacons operate off the emergency batteries and can continue operating even if the vessel has been crippled.

## PRESSURE INDICATOR

The pressure indicator is a simple display located above every containment door. When the pressure between the adjacent compartments is equal, the indicator displays a green light. These devices draw power from emergency batteries.

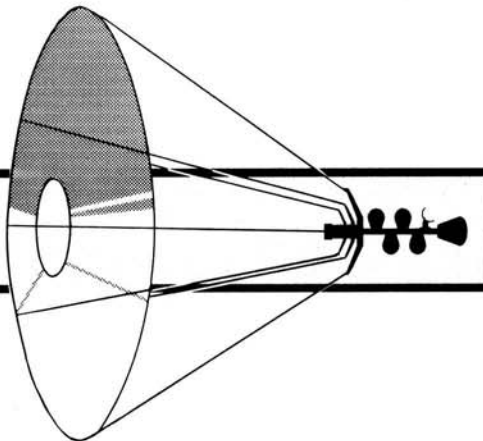
## MANUAL HATCH/DOOR MECHANISM

Located beneath the floor panel on each side of a door, this device is a hand crank for opening a door after its power has been cut off. Every sliding door or hatch has two of these units. It takes approximately ten seconds to crank open a door; however, the door must be unlocked before it can open. To lock or unlock an unpowered door, a person must use an engineer's portable console with an external power pack.

## FLOOR PANELS

All decks except those designed to bear heavy mass are covered with removable floor panels, solid metal plates that bolt to braces beneath the floor. In engineering access corridors and most other places not located in the main crew areas, the floor panels are metal grids, allowing repair and maintenance crews to spot damaged areas beneath the floor.

Beneath these panels is a large number of pipes, conduits, and control units. The pipes, including water lines, insulated coolant lines, air ducts, and sewage lines, have built-in safety devices that automatically close the lines if they lose pressure too quickly. This prevents the ship's entire water, air, and coolant supplies from completely draining if a compartment experiences uncontrolled decompression. To prevent an entire section of the ship from being thus cut off, every compartment is fed from at least two sets of lines.



## DROPSHIP OPERATIONS

DropShips are versatile vehicles that shuttle passengers and cargo from planet to planet and from planet to JumpShip. DropShips are designed to be transported by JumpShip from one star system to another. Once in the new star system, the DropShip can then resume interplanetary transport duties.

Most DropShips are landing-capable, requiring reinforced landing surfaces. Without these prepared areas, landing and lift-off become more difficult and leave an area heavily scorched and cratered.

## SPACE OPERATIONS

Interplanetary travel is a carefully orchestrated operation, requiring a high degree of precision and timing. With their powerful fusion drives, these vessels fill in where the JumpShip's capabilities are lacking. Most DropShips are capable of maintaining a constant acceleration of from one to three Gs. Thus can DropShips travel from a planet to a jump point in a matter of days, depending upon the size of the system's star.

Space operations are divided into three areas: deep-space transit, deep-space rendezvous, and docking operations.

### Deep-Space Transit

Deep-space transit is simply travelling in space from one point to another, pre-determined point. Although this operation is most commonly associated with DropShips travelling from planet to jump point and vice versa, it also includes travel from one planet to another within the same star system.

The procedure normally involves accelerating toward the destination point at a constant rate of one G, then at midway point decelerating at a constant rate of one G. At the destination point, the ship will have the same velocity that it had when it began the maneuver. This form of travel ensures that the passengers and crew spend a minimal amount of time in zero-G, avoiding space sickness and re-adjusting to a gravity environment.

The following guidelines are for detailing space travel times and fuel consumption when a ship is using the standard transit procedure.

#### Determine Transit Time

To determine the transit time, first divide the total travel distance in half. Then determine the length of the journey from the starting point to the halfway point using the following formula:

$$T = \sqrt{(2 \times D/A)}$$

"D" is the distance from the starting point to the midway point (in meters), and "A" is the acceleration rate in meters/second/second (1 G = 9.8m/s/s). The result (T) is in seconds. To determine how many days it will take to travel from starting point to midpoint, divide by 86,400. To find the total length of the journey, multiply the time (T) by 2.

#### Piloting/Aerospace Modifiers

Any pilot can take the ship through an interstellar journey with little difficulty. However, experienced pilots may be able to cut off a small amount of time (and fuel) from the trip.

To calculate this factor, the pilot must roll 2D6 and compare it to his target for his skill in *Piloting/AeroSpace*. For every point below his target, subtract one percent from all travel times and fuel consumption figures. If the roll fails, add one percent for every point above his target to all travel times and fuel consumption figures.

#### Determine Fuel Consumption

Under this system, fuel is measured in burn-days. One burn-day is the amount of fuel consumed when a ship accelerates at a constant rate of one G for one day. The actual tonnage of one burn-day of fuel varies from ship to ship. If this information is needed, consult the ship's data chart in the **ComStar Intelligence Summary**.

To determine the number of burn-days of fuel used in transit, use the following formula:

$$F = T \times A$$

"T" is the total number of days that the engine is burning, and "A" is the average rate of acceleration expressed in Gs. The result, "F", is the total amount of burn-days used in the journey.

Note that this calculation is simple if the ship follows standard transit procedure. If it accelerates at a constant rate of one G, performs a relatively fast turn-around with little zero-G time, and then decelerates at constant one G, the number of burn-days of fuel used is equal to the length of the trip in days.

The following chart is intended to simplify the process of determining travel times and fuel consumption. To use this chart, find the distance of the journey in one of two ways. If the distance in kilometers is known, use the Jump Point Distance column. If the star type is known and the journey is from inner system to a standard jump point or vice versa, use the Star Type column. Cross-index with the amount of acceleration applied during the entire journey (standard acceleration is one G). The resulting number is the length of the journey in days.

To determine fuel consumption, multiply the length of the journey by the ship's acceleration. For example, a vessel travels from the jump point of a class F3 star to the inner system at 1.5 G. The journey takes 21.26 burn-days (14.17 days x 1.5G) of fuel. If the exact tonnage or fuel point figure is required, then consult the ship's statistics sheet in the **ComStar Intelligence Summary** for that ship's conversion factor.

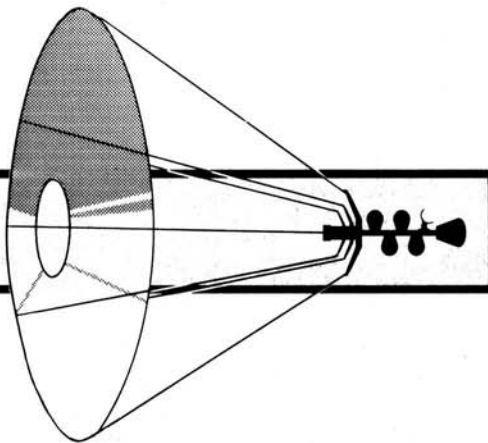
The amount of fuel consumed should be adjusted for the pilot's skill level in *Piloting/AeroSpace* (see the preceding section). Note that the same roll affects both journey length and fuel consumption.

# SHIP OPERATIONS

TRAVEL TIMES TABLE

Star Type	Jump Point Distance (km)	Acceleration (Gs)				
		0.5 G	1 G	1.5 G	2.0 G	3.0 G
M9	75,000,000	2.86	2.03	1.65	1.43	1.17
M8	82,192,147	3.00	2.12	1.73	1.50	1.22
M7	90,197,803	3.14	2.22	1.81	1.57	1.28
M6	99,120,895	3.29	2.33	1.90	1.65	1.34
M5	109,080,037	3.45	2.44	1.99	1.73	1.41
M4	120,210,786	3.63	2.56	2.09	1.81	1.48
M3	132,668,292	3.81	2.69	2.20	1.90	1.55
M2	146,630,374	4.00	2.83	2.31	2.00	1.63
M1	162,301,133	4.21	2.98	2.43	2.11	1.72
M0	179,915,179	4.44	3.14	2.56	2.22	1.81
K9	199,742,590	4.67	3.30	2.70	2.34	1.91
K8	222,094,749	4.93	3.48	2.85	2.46	2.01
K7	247,331,200	5.20	3.68	3.00	2.60	2.12
K6	275,867,748	5.49	3.88	3.17	2.75	2.24
K5	308,186,014	5.81	4.10	3.35	2.90	2.37
K4	344,844,735	6.14	4.34	3.55	3.07	2.51
K3	386,493,164	6.50	4.60	3.75	3.25	2.65
K2	433,886,958	6.89	4.87	3.98	3.44	2.81
K1	487,907,078	7.30	5.17	4.22	3.65	2.98
K0	549,582,283	7.75	5.48	4.48	3.88	3.16
G9	620,115,976	8.23	5.82	4.75	4.12	3.36
G8	700,918,272	8.75	6.19	5.05	4.38	3.57
G7	793,644,393	9.32	6.59	5.38	4.66	3.80
G6	900,240,718	9.92	7.02	5.73	4.96	4.05
G5	1,023,000,099	10.58	7.48	6.11	5.29	4.32
G4	1,164,628,460	11.29	7.98	6.52	5.64	4.61
G3	1,328,325,100	12.05	8.52	6.96	6.03	4.92
G2	1,517,879,732	12.88	9.11	7.44	6.44	5.26
G1	1,737,789,950	13.79	9.75	7.96	6.89	5.63
G0	1,993,403,717	14.76	10.44	8.52	7.38	6.03
F9	2,291,092,549	15.83	11.19	9.14	7.91	6.46
F8	2,638,462,416	16.99	12.01	9.81	8.49	6.93
F7	3,044,611,112	18.25	12.90	10.53	9.12	7.45
F6	3,520,442,982	19.62	13.87	11.33	9.81	8.01
F5	4,079,054,583	21.12	14.93	12.19	10.56	8.62
F4	4,736,208,289	22.76	16.09	13.14	11.38	9.29
F3	5,510,915,132	24.55	17.36	14.17	12.27	10.02
F2	6,426,153,651	26.51	18.74	15.30	13.25	10.82
F1	7,509,758,447	28.66	20.26	16.55	14.33	11.70
F0	8,795,520,974	31.01	21.93	17.91	15.51	12.66
A9	10,324,556,364	33.60	23.76	19.40	16.80	13.72
A8	12,147,004,515	36.45	25.77	21.04	18.22	14.88
A7	14,324,152,109	39.58	27.99	22.85	19.79	16.16
A6	16,931,086,050	43.03	30.43	24.84	21.51	17.57
A5	20,060,019,352	46.84	33.12	27.04	23.42	19.12
A4	23,824,470,101	51.04	36.09	29.47	25.52	20.84
A3	28,364,525,294	55.69	39.38	32.15	27.85	22.74
A2	33,853,487,850	60.84	43.02	35.13	30.42	24.84
A1	40,506,291,619	66.55	47.06	38.43	33.28	27.17
A0	48,590,182,199	72.89	51.54	42.09	36.45	29.76
B9	58,438,309,136	79.94	56.53	46.15	39.97	32.64
B8	70,467,069,133	87.78	62.07	50.68	43.89	35.84
B7	85,198,295,036	96.52	68.25	55.73	48.26	39.41
B6	103,287,722,257	106.28	75.15	61.36	53.14	43.39
B5	125,561,609,863	117.18	82.86	67.65	58.59	47.84
B4	153,063,985,045	129.38	91.48	74.70	64.69	52.82
B3	187,117,766,777	143.05	101.15	82.59	71.52	58.40
B2	229,404,075,188	158.39	112.00	91.44	79.19	64.66
B1	282,065,439,915	175.63	124.19	101.40	87.81	71.70
B0	347,840,509,855	195.03	137.91	112.60	97.52	79.62





### Non-Standard Transit

Non-standard transit is not for the weak-hearted. This type of fuel-efficient journey has the DropShip travelling under power for limited burns interspersed with coasting. If a ship captain is intent on doing this, the simplest method is for the gamemaster to make a guess using his own judgement. If more accuracy is desired, use the Velocity/Distance Chart.

The table shows the velocity of a ship and the distance covered after a specified number of days of acceleration. To calculate fuel consumption, see **Determine Fuel Consumption** above.

In the table, the figure in the first column for each acceleration rate is the velocity in thousands of kilometers per second.

The figure in the second column for each acceleration rate is the distance traveled in millions of kilometers.

The best method of getting from one point to another on a limited supply of fuel is to accelerate at maximum thrust, getting the ship's velocity up as quickly as possible, and then to coast for a long duration. The main drawback to this is the long period of time that the crew and passengers must spend in zero-G.

To use this method, determine the amount of fuel, in burn-days, that the captain wishes to burn in getting the vehicle up to speed. Divide this number by the desired acceleration to yield the number of days of acceleration allowable with the desired amount of fuel expenditure. This number can then be used to determine the ship's velocity and distance travelled, both of which can then be used with the Transit Chart to determine the total travel time and fuel consumed. Note, however, that a ship that burns some amount of fuel to get up to speed will have to burn an equal amount of fuel to come to a rest again.

VELOCITY/DISTANCE CHART

Days	Acceleration (Gs)									
	.5	1	1.5	2	3					
1	0.42	18.29	0.85	3.73	1.27	5.60	1.69	7.46	2.54	11.20
2	0.85	73.16	1.69	14.93	2.54	22.39	3.39	29.86	5.08	44.79
3	1.27	164.60	2.54	33.59	3.81	50.39	5.08	67.18	7.62	100.78
4	1.69	292.63	3.39	59.72	5.08	89.58	6.77	119.44	10.16	179.16
5	2.12	457.23	4.23	93.31	6.35	139.97	8.47	186.62	12.70	279.94
6	2.54	658.41	5.08	134.37	7.62	201.55	10.16	268.74	15.24	403.11
7	2.96	896.17	5.93	182.89	8.89	274.34	11.85	365.78	17.78	548.67
8	3.39	1170.51	6.77	238.88	10.16	358.32	13.55	477.76	20.32	716.64
9	3.81	1481.42	7.62	302.33	11.43	453.50	15.24	604.66	22.86	906.99
10	4.23	1828.92	8.47	373.25	12.70	559.87	16.93	746.50	25.40	1119.74
12	5.08	2633.64	10.16	537.48	15.24	806.22	20.32	1074.95	30.48	1612.43
14	5.93	3584.67	11.85	731.57	17.78	1097.35	23.71	1463.13	35.56	2194.70
16	6.77	4682.02	13.55	955.51	20.32	1433.27	27.10	1911.03	40.64	2866.54
18	7.62	5925.69	15.24	1209.32	22.86	1813.99	30.48	2418.65	45.72	3627.97
20	8.47	7315.66	16.93	1492.99	25.40	2239.49	33.87	2985.98	50.80	4478.98
25	10.58	11430.72	21.17	2332.80	31.75	3499.20	42.34	4665.60	63.50	6998.40
30	12.70	16460.24	25.40	3359.23	38.10	5038.85	50.80	6718.46	76.20	10077.70
35	14.82	22404.21	29.64	4572.29	44.45	6858.43	59.27	9144.58	88.91	13716.86
40	16.93	29262.64	33.87	5971.97	50.80	8957.95	67.74	11943.94	101.61	17915.90
45	19.05	37035.53	38.10	7558.27	57.15	11337.41	76.20	15116.54	114.31	22674.82
50	21.17	45722.88	42.34	9331.20	63.50	13996.80	84.67	18662.40	127.01	27993.60
60	25.40	65840.95	50.80	13436.93	76.20	20155.39	101.61	26873.86	152.41	40310.78
70	29.64	89616.84	59.27	18289.15	88.91	27433.73	118.54	36578.30	177.81	54867.46
80	33.87	117050.57	67.74	23887.87	101.61	35831.81	135.48	47775.74	203.21	71663.62
90	38.10	148142.13	76.20	30233.09	114.31	45349.63	152.41	60466.18	228.61	90699.26
100	42.34	182891.52	84.67	37324.80	127.01	55987.20	169.34	74649.60	254.02	111974.40

# SHIP OPERATIONS

## Deep-Space Rendezvous

Deep-space rendezvous is extremely difficult for any DropShip pilot to attempt. Although similar to deep-space transit operations, it involves a moving destination point. Predicting the position and velocity of the target at the time of arrival is hard because the pilot cannot know his arrival time because he does not know where to go. Because there are so many factors to consider, it is almost impossible to achieve a successful rendezvous without the aid of the ship's computer.

To estimate the time and fuel expenditures required for a rendezvous, treat the target objects as stationary and determine travel time and fuel consumption using the procedures outlined in **Deep-Space Transit**. Instead of using the *Piloting/Aerospace* skill modifier, use the following modifier.

Subtract the *Piloting/Aerospace* skill level of the pilot making the rendezvous maneuver from 2D6. Divide this total by 3. Multiply this number by the transit time and fuel consumption calculated above. If the ship's computer is not being used, add 1 to the multiplier. If the maneuvering ship maintains constant communications with the target ship and has operations deep-space radar, subtract 1 from the multiplier. The minimum value of the multiplier is 1; if it ever falls below 1, then use 1 as the multiplier.

## Docking Operations

Docking with either a JumpShip, space station, or another DropShip is one of the most difficult operations for the DropShip to perform. It is similar to a rendezvous only at a much smaller scale. The target vessel remains stationary or maintains a con-

stant velocity, while the DropShip does all the work. In some ways, docking is simpler to perform than a rendezvous, as the target ship is constantly within tracking range and accurate calculations concerning velocities and distances can be easily performed.

Because this operation demands absolute accuracy, the ship's computer is always used to provide precise approach trajectories and velocities. If the ship's computer is unavailable, experienced DropShip pilots can sometimes "eyeball" the maneuver. This is only done as a last resort; most docking operations can wait for the computer to come on-line again.

Before docking procedure can begin, both the maneuvering DropShip and the target must have the same course and velocity and be within 6,500 kilometers of one another (within the same AeroTech hex).

To determine the outcome of a docking attempt with either a space station or another DropShip, subtract 2D6 from the pilot's *Piloting/AeroSpace* Target Number. If the result is less than or equal to four, then the attempt was successful. If the roll is greater than four, a mishap has occurred. Consult the Docking Damage Table to determine the outcome. (For DropShip-to-JumpShip docking operations, see **Docking Operations** under the **JumpShip Operations** section.)

Once contact is made between the docking ship and the target, docking adapters lock the two together. These sturdy adapters attach directly to both the DropShip's and the Target's skeletal structures. The docking adapters are also equipped with coupling transfer tubes, which allow the safe passage of individuals and small equipment.

**DOCKING DAMAGE TABLE**

**Piloting/Aerospace  
Target Number  
Minus 2D6**

4 or less

5

6

7

8

9+

### Effect

Docking Successful. No Damage.

Docking successful. However, there is minor damage to both docking collars. No further docking may be made until both are repaired. Repairing each collar takes 1D6 hours.

Docking unsuccessful. DropShip takes 5 points of damage to its nose. The Target takes 5 points of damage to its armor.

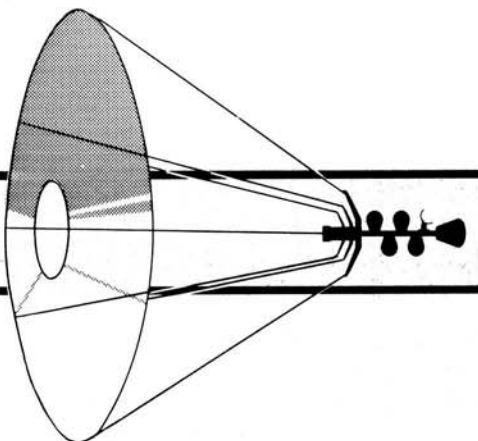
Docking unsuccessful. DropShip takes 10 points of damage to its nose. The Target takes 10 points of damage to its armor.

Docking unsuccessful. DropShip takes 15 points of damage to its nose and loses two points of Structural Integrity. The Target takes 15 points of damage to its armor and also loses two points of Structural Integrity.

Docking unsuccessful. DropShip and Target docking collars are damaged beyond repair. Docking may not be attempted until both devices are replaced. DropShip takes 25 points of damage to its armor. Both lose three points of Structural Integrity.

## DOCKING MODIFIERS

DropShip is under a movement restriction	+3
Docking is conducted under fire	+2
DropShip masses over 20,000 tons	+2
DropShip masses under 5,000 tons	-1
Operation lasts over 30 minutes	-2
Docking is handled by a docking pilot	-2



## PLANETARY OPERATIONS

For a DropShip to load and unload passengers, cargo, food, and other supplies, the vessel must have on-board or local shuttle services or be able to land on the planet's surface. Most DropShips possess the capacity to perform planetary operations.

Planetary operations cover the maneuvers performed in an atmosphere and some that are performed in vacuum. These operations are atmospheric flight, atmospheric entry, landing, and lift-off.

### Atmospheric Flight

Atmospheric flight operations cover any type of flight performed within a planet's atmosphere (except for landing and lift-off). Aerodynamic flight and vectored thrust flight are the two basic forms of atmospheric flight, corresponding to the two major categories of DropShips.

### Aerodynamic Flight

In aerodynamic flight, lift is achieved by the forward movement of the aerodyne DropShip through the air on the same principles used by standard atmospheric craft. The underside of most aerodynes are equipped with interplanetary drive exhaust nozzles, which in an emergency, can be used to provide lift. Drives used in such a manner, however, cause a great deal of heat build-up in a vessel's wings. In addition, because these bottom-mounted drives are not designed for atmospheric work, they can become quite unstable if used in any manner other than augmenting the vehicle's aerodynamic lift.

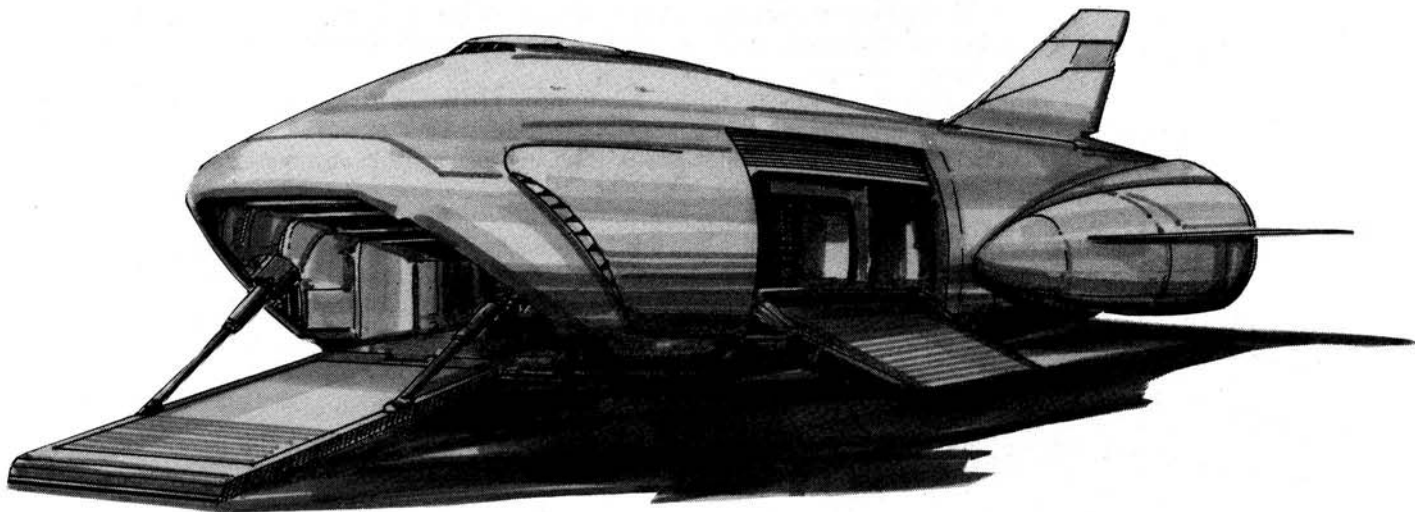
During the first turn that the aerodyne's bottom-mounted drives are active, the DropShip gains 10 heat points. Every turn thereafter increases the heat by 5 points. Thus, on Turn 1, the ship gains 10 heat points; on Turn 2, it gains 15 heat points; on Turn 3, 20. This build-up continues until the bottom-mounted drives are shut down. The heat build-up dissipates by normal means.

Each turn that the ship uses its bottom-mounted drives in an atmosphere and travels one hex or remains stationary, the pilot must make a *Piloting/Aerospace* Skill Roll to maintain control of the vessel. If he fails this roll, the craft moves one hex in a random direction. On the following turn, the vehicle is out of control.

Aerodynes are equipped with wings that are highly susceptible to damage. If all the armor of either or both wings is completely destroyed, the vessel loses altitude rapidly. During the Movement Phase of each turn after the ship has lost control, the ship drops to the next lower altitude. A ship at high altitude will drop to low altitude; a ship at low altitude crashes unless the pilot can either regain control or successfully land.

At the beginning of each turn that the ship is out of control, the pilot may attempt to regain control of his plunging vessel. To do this, the pilot must make a successful *Piloting/AeroSpace* Skill Roll. If the roll fails, he may attempt to engage the ship's bottom-mounted interplanetary drive, if the ship is so equipped. The pilot must make a second Skill Roll subtracting 1 from the Target Number. If either roll succeeds, the vessel does not lose altitude for that turn, but the procedure must be repeated until the vessel has either landed or crashed. If both rolls fail, the vessel drops one level. If the vessel is at low altitude, the pilot must attempt a forced landing or crash, destroying the ship and its cargo, and killing the passengers and crew.

To attempt the landing, use *AeroTech*. The pilot's Target Number should be modified for terrain, the craft's movement restriction, and any other modifier that may apply. For further information on landings, consult the **Landing** section in this chapter.



# SHIP OPERATIONS

## **Vectored Thrust Flight**

Unlike aerodynamic flight, vectored thrust flight uses the force of the DropShip's drive exhaust to keep the ship in the air. Because this form of flight is quite unstable, the ship's computers control attitude adjustments and keep the ship from tumbling out of control.

For spheroid DropShips without a functioning computer, atmospheric flight can be tricky. During a Movement Phase in which the DropShip makes a course or velocity change, the pilot must make a *Piloting/Aerospace* Skill Roll, subtracting 2 from his Target Number. If the roll fails, then the DropShip moves one hex in a random direction. The pilot may then attempt a second Skill Roll with no modifiers. If he succeeds, then he has maintained control; otherwise, the ship tumbles out of control at the beginning on the next turn. Follow the same procedure as aerodyne DropShips that lose control.

Spheroid drive exhausts do not build up heat as those of aerodynes do. This is due to the structural design of the spheroid hull and to the heavy shielding that lines the ship.

During atmospheric flight, there is little movement within the ship. All crew members are at their stations, and passengers are fastened into maneuver couches. If the DropShip performs any maneuvering, each character not properly seated must make a DEX Saving Roll to avoid falling. A character that falls must make a second roll to avoid injury. If this second roll fails, the character takes 1D6 points of damage to a random location.

## **Atmospheric Entry**

Atmospheric entry involves a DropShip travelling at high speed and entering atmosphere, thus reducing its speed to supersonic or subsonic levels. This dangerous maneuver builds up large amounts of friction, generating heat on the skin of the vessel. Although heat pumps quickly dissipate a great deal of this heat, excessive entry velocity may damage the ship.

Immediately upon entering the atmosphere, the ship begins atmospheric flight operation at high altitude. If the entry attempt fails, the ship may skip across the atmosphere and "bounce" back into near orbit, causing some degree of structural damage.

Consult the rules in **AeroTech** to determine the results of an atmospheric entry attempt.

Preparation for atmospheric entry is the same as for any other major maneuver. Prior to entry, the crew must secure all equipment and cargo, and all personnel must be securely seated in maneuver couches. Any unsecured person must make a DEX Saving Roll or fall, automatically taking 2D6 points of damage to a random location.

## **Landing**

Vertical landing and the horizontal landing are the two types of landing methods used by DropShips.

### **Vertical Landing**

Of the two types of landing, vertical landing requires the least amount of space. It is also much more difficult to perform, requires more fuel, and creates much more ground damage. All spheroid DropShips in an atmosphere and both spheroid and aerodyne DropShips in orbit around an airless world can make vertical landings.

Vertical landing follows the procedure in **AeroTech** with two exceptions. Cut all terrain modifiers given in the Landing Modifiers Table in half, rounding fractions up. In addition, the ship must remain stationary above the landing zone for one turn prior to landing; the fuel cost for this is 4 fuel points. If the terrain in which the DropShip lands is not an airfield, a concrete surface, or water, the hex becomes a Depth One crater. Vertical landing burns up 4 fuel points.

### **Horizontal Landing**

Only aerodynes in atmosphere can perform horizontal landings. This type of landing is identical to those made by most atmospheric craft and AeroSpace Fighters except that the vessel requires 600 meters (20 **BattleTech** hexes) of long, flat surface on which to land. When landing on shorter runways, experienced pilots tilt up the nose of the DropShip, cut the aft drives, and use the bottom-mounted drives to provide braking thrust. To perform this maneuver, the pilot must make a *Piloting/Aerospace* Skill Roll. If the roll is successful, the runway requirement for this landing attempt is halved. If the pilot fails the roll, he must consult the Failed Braking Maneuver Table. In either case, the maneuver consumes 1 fuel point.

**FAILED BRAKING MANEUVER TABLE**

**Difference Between  
Skill Roll Target  
and Actual Skill Roll**

**Result**

1-4

Landing takes full runway length. Pilot may either attempt to land normally or abort the attempt and try another landing area or try the same area.

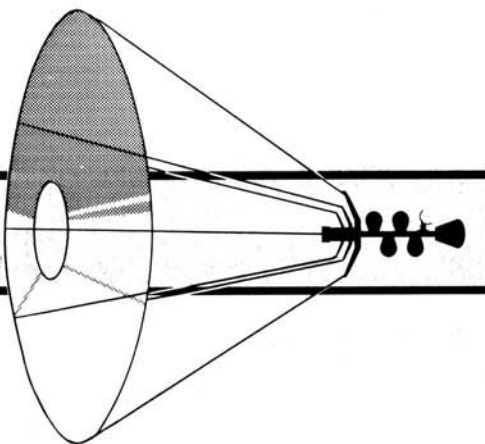
5

Vessel must attempt to land, but landing takes the full runway length. Add 1 to the Target Number for the landing attempt.

6+

Landing takes full runway length. One point of Structural Integrity is lost, landing gear is destroyed, and vessel receives an automatic +2 modifier when landing.





Whether or not he attempts a breaking maneuver, the pilot may make a *Piloting/Aerospace Skill Roll* while landing, applying the modifiers from the Failed Braking Maneuver Table and the Landing Modifiers Table below.

#### LANDING MODIFIERS TABLE

Effect	Modifier
<b>Craft Condition Modifiers</b>	
Craft under movement restriction	+4
If craft's nose armor is destroyed	+2
If craft has lost 1/2 thrust capability	+2
If no thrust is available	+4
If no thrust is available on any spheroid DropShip	+8
<b>Terrain Modifiers</b>	
Craft landing in manned, friendly airfield	-2
Craft landing in unmanned, friendly airfield	-1
Craft landing on road or other paved surface	0
Craft landing on unfriendly airfield	+1
Craft landing in open, clear hex	+2
Craft landing in water hex	+3
Craft landing in elevated hex	+3
Craft landing in light woods	+4
Craft landing in heavy woods	+5

#### DROPSHIP FAILED LANDING TABLE

Difference Between  
*Piloting Skill Roll Target*  
and Actual Skill Roll

	Effect
1	Landing gear crushed. Take 10 damage points on the front table.**
2	Landing gear crushed. Take 10 damage points on the front table and 10 damage points on one wing or side armor. One door is destroyed.
3	Landing gear crushed. Take 20 damage points on the front table and 15 damage points on one wing or side armor. Two doors destroyed.**
4	Crash. If secured, pilot and crew escape with no damage. Any non-secured personnel receive 2D6 points of damage. All 'Mechs and vehicles are undamaged, but will take 1D6 + 6 turns for 'Mechs to get out. Vehicles are trapped unless the ship is upright and at least one door is intact.
5	Crash. All secured personnel take 2D6 points of damage. Others receive 4D6 points of damage distributed in 5-point increments. Roll 2D6 for each 'Mech and vehicle. If the result is a 2, 3, 11 or 12, it takes 8D6 + 10 points of damage allocated in 10-point increments. Otherwise, it receives 2D6 points of damage. 'Mechs and vehicles may exit in 1D6 + 6 turns.
6	Crash. All secured personnel take 6D6 points of damage allocated in ten point increments. All others are killed. Roll 2D6 for each 'Mech and vehicle. If the result is 2-4 or 10-12, it takes 8D6 + 10 points of damage allocated in 10-point increments. Otherwise, it receives 2D6 point of damage. 'Mechs and vehicles may exit in 1D6 + 6 turns.
7	Crash. All secured personnel take 8D6 points of damage allocated in 10-point increments. All others are killed. Roll 2D6 for each 'Mech and vehicle. If the result is 2-5 or 9-12, it receives 8D6 + 10 points of damage allocated in 10-point increments. 'Mechs and vehicles may exit in 1D6 + 6 turns.
8+	Crash. Craft explodes on impact. No survivors or surviving equipment.

Crash: The craft is destroyed.

\*\*For all spheroid DropShips, apply damage to aft tables instead of front tables.

# SHIP OPERATIONS

For the effects of exhaust damage on ground units, consult the **Game Additions** chapter.

## Lift-Off

For aerodyne DropShips to lift off, the vessel accelerates using the aft drives until it reaches lift-off velocity. For short runways, the pilot can activate the bottom-mounted drives to provide enough lift for take-off. Eventually, the ship attains lift velocity, and the pilot can shut off the bottom-mounted drives. As long as use of the bottom-mounted drives does not exceed one turn, heat build-up and fuel expenditure is normal.

Vertical lift-off is trickier, as the DropShip is especially unstable at low velocity. To provide required attitude corrections, the pilot must tie in the ship's computer. If the computer is unavailable, the pilot may attempt the lift-off, but it is difficult and dangerous. In either method, the ship must burn a number of fuel points equal to its overthrust rating or six, whichever is lower.

To lift off, the pilot must make a *Piloting/Aerospace* Skill Roll using the modifiers in the Vertical Lift-Off Modifiers Table. If the roll is successful, the DropShip ends the turn at low altitude. If the roll fails, calculate the difference between the Target Number and the actual Skill Roll and locate this number on the Failed Lift-Off Table.

For the effects of exhaust damage on ground units, consult the Game Addition chapter.

## SPECIAL OPERATIONS

Special operations is a diverse category covering everything from cargo/passenger transfer to 'Mech drops. Below are five types of special operations: cargo/passenger transfer, 'Mech drop, combat, small craft operations, and jump operations.

### Cargo/Passenger Transfer

Both merchant and military DropShips conduct cargo and passenger transfer. Whether performed in space or on planetary surfaces, the goal is to load or unload the DropShip quickly and efficiently.

To move cargo, personnel use Industrial Exoskeletons, devices similar to BattleMechs but smaller and specifically designed for cargo handling. During a manpower crunch, some military units use their BattleMechs to move cargo.

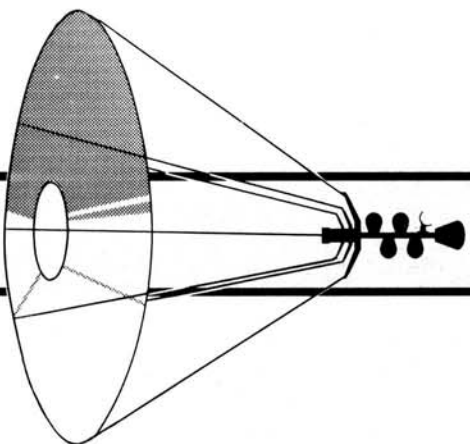
Either an IE or 10 people can load or unload cargo at a rate of one ton per minute, which can be modified by the operating environment and the organizer's *Shipboard Operations* Skill Level. The basic cargo handling figures are given in the table below. Note that any unit operating in zero-G must have some form of maneuvering device to be usable. In vacuum, all personnel except for 'Mech pilots must wear space environment suits.

**VERTICAL LIFT-OFF MODIFIERS TABLE**

Effect	Modifier
Landing gear has been damaged	+1
Vessel is under movement restriction	+3
Vessel is lifting off from a crater	+2
Vessel's computer is not functioning	+2
Vessel is lifting off from an airfield	-1

**FAILED LIFT-OFF TABLE**

Difference Between <i>Piloting</i> Skill Roll Target and Actual Skill Roll	Effect
1-2	Vessel lifts off, but 1D6 + 2 burns extra fuel points and takes 2 points of damage to the engine armor.
3-4	Landing gear is destroyed, and the engine armor takes 10 points of damage. The pilot must make a <i>Piloting/Aerospace</i> Skill Roll with no modifiers. Success indicates that the ship has lifted off. Otherwise, the lift-off must be retired.
5	Landing gear is destroyed, and the engine armor takes 15 points of damage. In addition, the vessel strikes the ground, doing 15 points of damage to a random location and giving 2D6 points of damage to each unsecured person, 'Mech, or vehicle.
6+	Same as above, but the vessel takes 20 points of damage to a random location, and each person, 'Mech, and vehicle takes 1D6 points of damage if secured and 4D6 points of damage if unsecured.



CARGO TRANSPORT TABLE

Equipment Used	Tons per Minute
<b>In Zero-G</b>	
IE with null-G packs	0.5
10 men in space environment suits	0.5
2 men in suits with 2 null-G packs	1
BattleMech in zero-G	weight/30
<b>In Gravity</b>	
IE	1
10 men	1
Cargo Platform, Heavy	2
Cargo Platform, Light	1
BattleMech	weight/20
<b>In Gravity and Vacuum</b>	
IE	1
10 men in space environment suits	0.75
Cargo Platform, Heavy	2
Cargo Platform, Light	1
BattleMech	weight/20

To calculate the number of tons of cargo that can be moved per minute, determine whether the operation is being handled in zero-G or in gravity (real or artificial). Determine which resources will be used, and find their rate of cargo transfer on the Cargo Transport Table. Total these values, and divide the amount of cargo to be transferred by this number.

For example, 100 tons of cargo must be moved off a ship sitting on a planet's surface. The planet has an atmosphere, and so the second of the three tables is used. To unload the cargo, there are one IE, 23 men, and two light cargo platforms. The IE and the cargo platform each require one operator, leaving 20 men for general cargo handling. The IE and each platform can move one ton of cargo per minute, and the men can move two tons of cargo each minute. Therefore, five tons of cargo can be moved each minute. Dividing the 100 tons of cargo by 5 shows that it will take 20 minutes to unload the cargo.

If the cargo must be loaded into another DropShip, then the reverse process must be performed, thus doubling the total operation time. If the cargo is being loaded onto a shuttle or other vehicle outside the ship, add 10 percent to the total time (multiply the total cargo transfer time by 1.1).

Because of the amount of people and cargo involved, most cargo transfer operations require a great deal of organizational skill to run smoothly. If the supervisor has *Shipboard Operation* skill, he may attempt a Skill Roll to reduce the total required time. If the roll is successful, reduce the time required to transfer the cargo by 10 percent. If the roll is failed, follow the above procedure with no reductions for the supervisor's skill. The effects of a single roll lasts for one full day. If the operation is conducted on a subsequent day, the roll must be attempted again.

In space, passenger transfer often involves docking with another ship or station, to or from which the passengers will transfer. In most cases, however, small craft such as shuttles and buses are used to transport the passengers after the DropShip has come within a reasonable distance to the other ship or station.

On the surface, passengers usually walk off the DropShip and into a special vehicle equipped with an elevating passenger holding section. Some space ports use elevators, while others use large ramps.

### 'Mech Drop

The 'Mech drop is a major part of almost every major military maneuver. The operation allows BattleMechs to reach a planet's surface without requiring the transporting DropShip to land. To perform this operation, a DropShip must maintain a relatively stationary position over the target drop zone to keep the dropping 'Mechs from scattering. After exiting the ship through one or more drop doors, 'Mechs fall planetward and use either their jump jets or a thruster pack to control their descent.

Only *Leopard*, *Union*, and *Overload* Class DropShips are equipped with BattleMech drop mechanisms. This device ejects the 'Mech out a drop door on a trajectory away from the ship's hull to give the 'Mech a stable orientation for the drop and to prevent the 'Mech from hitting the hull or the fusion exhaust. Although these devices are not mandatory, they make the drop procedure much safer for the 'Mechs and their MechWarriors.

Prior to making a drop, each 'Mech unequipped with jump jets must be fitted with a thruster pack. This liquid- or solid-fuel thruster is strapped onto the back of the BattleMech, adding three tons to the mass of the 'Mech (a spent pack adds two tons). The packs are fitted with explosive bolts that, when triggered from the BattleMech's cockpit, blow the pack off the 'Mech. A well-equipped team can fit a drop back onto the back of a BattleMech in five minutes. This is done before the 'Mech is stored away in its ceramic-and-metal cocoon.

On some occasions, the exact amount of time for various stages of the drop may be required. Refer to the Drop Time Table for a rundown of the amount of time required to prepare the 'Mech for a drop and the sequencing of the drop operation itself. The time column shows how long the phase takes in **BattleTech** turns (ten seconds). Note that nearly all of the phases can be handled while the ship is en route to the planet.

DROP TIME TABLE

Phase	Time
<i>Drop Preparation</i>	
Exit from storage cubicle	1 turn
Fit thruster pack	30 turns
Mounting cocoon and DropPod	60 turns
<i>Drop Procedure</i>	
Fitting 'Mech into drop mechanism	2 turns
Taking elevator to drop door	1 turn
Placing 'Mech into drop position	1 turn
Recovery of drop mechanism	2 turns

# SHIP OPERATIONS

For a 'Mech to drop from space the 'Mech must be fitted with an ablative DropPod. The pod is a ceramic-and-metal capsule that encases the 'Mech and its cocoon. During atmospheric entry, the pod absorbs the heat of friction until timed explosives blow the capsule apart. Then, the cocoon melts as it absorbs the heat. Once this has occurred, the BattleMech may use its jump jets or its thruster pack to slow its descent. The remaining journey is identical to the standard atmospheric drop described in **AeroTech**.

Judge atmospheric entry as outlined in **AeroTech** for AeroSpace Fighters and DropShips, but use the following set of charts. Upon entering the atmosphere, the MechWarrior must make a *Piloting Skill Roll*. Add any applicable modifiers to the Target Number. If the roll is successful, the 'Mech takes an amount of heat equal to ten minus the difference between the die roll and the Skill Roll target. If the roll fails, consult the Failed Atmospheric Entry Table.

## Small Craft Operations

Small craft are aerospace vehicles massing under 200 tons. These vehicles vary in use and design from the ponderous space bus to the highly maneuverable AeroSpace Fighter. Most DropShips carry one or more of these crafts to transport cargo and personnel, provide recon information, and perform offensive and defensive combat operations. Small Craft are housed within protective enclosures called storage cubicles.

They are located in or near a small launch and recovery bay, which range in size depending on the number of vehicles that they are accommodating.

Small craft operations covers the loading, unloading, launching, and recovery of small craft. During the loading phase, the vehicle is fueled and loaded with cargo and supplies. Armed craft may also have their ammunition supplies replenished, but this is normally accomplished before the vehicle is placed into its storage cubicle. If the craft is an AeroSpace Fighter, it may be loaded with bombs and external fuel tanks at this time.

This craft is fueled while it is still within its storage cubicle, which is equipped with special power and fuel hook-ups. All other steps of the loading phase can be done only after the small craft is outside its berthing facility. While loading, the DropShip must continue accelerating or coasting without making course or velocity changes.

Refueling and resupplying the small craft takes about ten minutes. To reduce the launch time, the vehicles are often fueled and resupplied before they are placed in cubicles.

Launching small craft is performed with the DropShip accelerating or coasting without making course or velocity changes. Although the launching of small craft is not recommended while the DropShip is accelerating, it can be performed without harm as long as the ship maintains a straight course. The effect on the small craft is similar to being shoved off the top of a cliff; the craft seems to fall as the DropShip accelerates away.

## ATMOSPHERIC ENTRY MODIFIERS

Pilot is unconscious	+6
The 'Mech's sensors are damaged	+3
DropShip was not stationary at drop time	+2
'Mech has a current velocity greater than 2	+1

## FAILED ATMOSPHERIC ENTRY TABLE

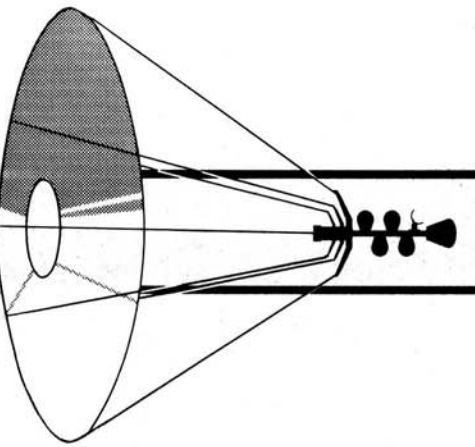
### Difference Between Target Number and

#### Actual Roll

#### Result

1	Take 5 points of damage on the Front/Back table, and add 15 heat points
2	Take 10 points of damage on the Front/Back table, and add 20 heat points. Damage should be allocated in 5-point increments.
3	Take 15 points of damage to the Front/Back table, and add 25 heat points. Damage should be allocated in 5-point increments.
4	Take 20 points of damage on the Front/Back table, and add 30 heat points. Damage should be allocated in 5-point increments. Pilot takes 2D6 points of damage in a random location.
5	Take 25 points of damage on the Front/Back table, and add 35 heat points. Damage should be allocated in 5-point increments. Pilot takes 2D6 points of damage in a random location and must make a consciousness saving roll at +2 or pass out from the heat. Thruster pack or jump jets fail unless a saving roll of 6+ is made.
6	Take 30 points of damage on the Front/Back table, and add 40 heat points. Damage should be allotted in 5-point increments. Pilot takes 3D6 points of damage in a random location and must make a consciousness saving roll of +4 or pass out from the heat. Thruster pack or jump jets fail unless a saving roll of 8+ is made.
7+	'Mech burns up in entry.





Small craft recovery requires the DropShip to shut down its drives until recovery has been completed. This is normally done after combat, as a drifting ship is easy prey for enemy AeroSpace Fighters and DropShips. Recovery is basically the same as docking; refer to the **Docking Operations** section under **Space Operations**. The one modification is that, instead of using the Docking Damage Table in that section, use the Recovery Damage Table below.

Following recovery of the small craft, any necessary unloading, refueling and refitting may take place. Unloading the small craft takes the same length of time as loading, after which the craft is either returned to its storage cubicle or is launched again.

#### Jump Operations

The hyperspace jump is one of the simplest operations for the DropShip crew to perform. Because there is no real maneuvering to make, there is no worry about loose items or cargo. The crew needs only to strap themselves in, sit back, and wait for the effects of the jump to wear off. As a precaution, the crew is placed in a state of combat alert; if they appear close to enemy vessels, they must be ready to take action.

#### Combat Preparations

To prepare for combat, the captain organizes the entire crew into various teams. Medical teams gather all the gear necessary for treating combat casualties. Damage control teams perform similar tasks, and both must locate themselves at strategic locations throughout the ship. Gunnery personnel test their weapons, ammo loaders, cooling systems, sighting mechanisms, and targeting systems. All the ship's pilots station themselves on or near the bridge, testing out flight control systems or preparing to replace possible bridge casualties. Engineers suit up in full gear and prepare to push the ship's power plant and engine core to their limits.

The final phase of the alert is sounded either when all preparations have been completed or shortly after making contact with enemy ships. Throughout the ship, rotating red lights flash warnings to the crew. The containment doors close, sealing off sections of the ship's interior. Passengers and damage control and medical teams brace themselves for the violent maneuvers to come.

Because damage control and medical teams must be able to move about the ship during DropShip combat, they are not secured as other persons are. Therefore, their duties are dangerous to perform, and injuries to these team members is common. To minimize the dangers, these teams keep in contact with the ship's bridge. Bridge personnel must keep these people well-informed on the status of the ship—not only to

RECOVERY DAMAGE TABLE

Difference Between Skill Roll Target and Actual Roll	Effect
5	Recovery successful. Small craft takes damage to a control surface. Make one control surface hit roll as in <b>AeroTech</b> .
6	Recovery successful. Small craft takes 5 points of damage to its nose. The interior of the recovery bay is slightly damaged.
7	Recovery unsuccessful. Small craft takes 5 points of damage to its nose. The recovering DropShip takes 5 points of damage to its armor.
8	Recovery unsuccessful. Small craft takes 10 points of damage to its nose. The recovering DropShip takes 10 points of damage to its armor.
9	Recovery unsuccessful. Small craft takes 15 points of damage to its nose. The recovering DropShip takes 15 points of damage to a side. Roll to determine damage location just as if the vessel were hit by weapons fire.
10+	Recovery unsuccessful. Small craft takes 20 points of damage to its nose and loses two points of Structural Integrity. The recovering DropShip takes 20 points of damage to a side. Roll to determine damage location just as if the vessel were hit by weapons fire.

#### DOCKING MODIFIERS

Craft is under a movement restriction	+3
Recovery is conducted under fire	+2
Craft masses over 100 tons	+1
Craft masses under 50 tons	-1
Operation lasts over 10 minutes	-2

# SHIP OPERATIONS

direct them to damaged locations and injured personnel, but also to warn them before the ship performs a major maneuver.

Whenever the ship performs an unexpected maneuver, each person who is not strapped in must make a DEX Saving Roll to avoid injury. Anyone who braces himself may subtract 2 from their target numbers. Additionally, maneuvers that the game-master judges to be extremely violent add 2 to the target. Accordingly, any mild maneuvers should subtract 2 from the target.

If a character fails his roll, he must make a second DEX Saving Roll with no modifiers. If successful, the character should take 1D6 points of damage. Failure causes the character to take a full 2D6 points of damage. All damage goes to random hit locations in groups of 5 points each.

## ROUTINE OPERATIONS

Life aboard the DropShip varies greatly from the hectic moments of ship-to-ship combat to the tedious hours on watch duty to the stomach-churning experience of the hyperspace jump. The operation of the space vessel requires peak alertness from the crew during some hours, but leaves little for the crew to do during off-hours.

Interplanetary transit takes up a large portion of the DropShip's time, and the crew spends almost half its shipboard time in transit. This is also one of the most unexciting times for the crew. A journey can last anywhere from three days to two weeks or more, with the average travel time being about one week.

### Watch Duty

During bridge watch duty, the person assigned spends his shift monitoring communications, watching radar scans, and checking on internal systems. The bridge watch is usually a solitary position, and the person given the duty has usually proven to be bright, responsible, and loyal. Anyone caught sleeping on duty or who has abandoned his post for any reason is in a great deal of trouble. Bridge watch is important because automatic alarm systems (especially radar systems) are too unreliable. Automatic systems alert the entire crew every time an object is detected, no matter how small, including enemy vessels. Human judgement is necessary to screen unimportant information and report important information. Regardless of his actual rank, the person on bridge watch is referred to as the Watch Officer. Though normally in command of the engineering watch, he has little actual power, as he cannot tell the engineering watch how to perform their jobs.

Though not quite as critical, the engineering watch is just as necessary as the bridge watch. Personnel on engineering watch monitor the ship's power plants, cooling systems, generators, drives, thrusters, electrical systems, and life support systems. Without someone constantly making adjustments, any one of these systems can fail or edge out of safe operating range, automatically shutting down the system. If personnel closely monitor these systems, however, everything can be kept within safe ranges without the threat of shutdown.

The person in charge of the engineering watch is a qualified Engineer and has the temporary title of watch chief. On many vessels, the watch chief is aided by one or more Assistant Engineers. Although the watch chief is required to be in engineering at all times, his assistants are not. Therefore, the watch chief can diagnose any problems and dispatch his assistants to check it out.

### Maintenance Duty

Maintenance duty is required almost constantly aboard most ships. According to ComStar estimates, the average age of space vessels today is between 25 and 50 years, with civilian ships averaging about 50 percent higher, and military ships averaging about 25 percent lower than these figures.

To keep the numerous aging components from breaking down, a lot of on-board maintenance is necessary. Performing the up-keep of the ship are maintenance teams, the exact composition of which depends on the type and number of personnel available. Usually, one or more Engineers run a team of two or more Assistant Engineers through the various decks of the ship, performing preventative maintenance on anything that could break down. When an Engineer is unavailable, the most experienced Assistant Engineers are given charge of the teams. For the entire shift, the leader of the maintenance team receives the title of team chief and has authority over and responsibility for the team and its duties. Usually a maintenance team does not work together; the team chief assigns tasks to his assistants, and he himself takes up a maintenance task.

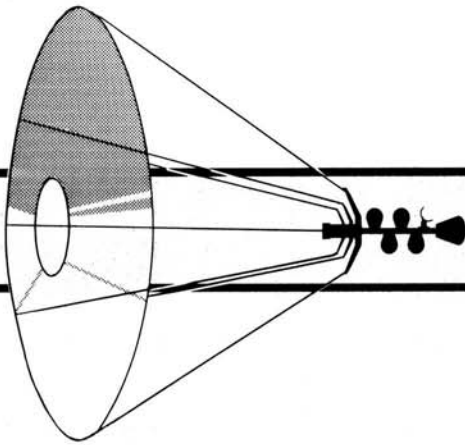
Shipboard maintenance covers everything from changing light bulbs in the emergency lighting system and cleaning dust out of control circuitry to replacing damaged control panels and putting new chemical charges in the life support systems.

### Security Systems

The last major duty position is security duty. This is normally required aboard ships with large crews and always required aboard combat vessels. A security team normally consists of two persons, each equipped with a flak vest and some type of sidearm, such as a tranq gun or stunner. When in enemy-controlled territory, however, security personnel are often equipped with lasers and swords in case ship-to-ship combat is initiated and a boarding attempt is made. The security team's presence is mostly to keep troops and off-duty personnel from getting out of hand and for preventing any possible take-over attempts.

### Off-Duty Time

Free time causes a few problems because crew members are stuck within the confines of the ship. Because they cannot go anywhere, they must find activities to keep themselves occupied. The standard recreation aboard the ship consists of reading and playing board games and card games. However, after a few days, the crew can become restless and show signs of sinking morale. To prevent this, a ship captain can take a number of measures.



The simplest method to boost spirits is to let crew members organize a party. For these occasions, captains often allow alcoholic consumption, even in excess. This is allowed because a ship in the middle of transit is travelling so fast that even if an enemy ship appears in the vessel's path, it would not be within weapons range long enough for either side to fire.

Another morale booster commonly used is a ship-wide sporting event. Often, this is some form of zero-G activity held in the ship's cargo bay or some other large room.

#### Turn-Over

Turn-over is quite an event for crew members as it marks the midway point of an interplanetary journey. Often, turn-over is a time for the crew to celebrate and is used as a reason to have a party. It is one of the few times that the DropShip will not be under acceleration, leaving the crew in zero-G. For a few, this is a nauseating event that is best experienced while under the influence of some nerve-deadening medication. Most, however, anticipate this part of the journey when everything is thrown into a state of weightlessness.

Preparation for turn-over, just as for any other maneuver, requires the crew to check and secure all objects. If this is not done, a loose item may become damaged, damage the interior of the ship, or cause injuries.

Moments before turn-over, the pilot activates internal maneuver alert lamps, warns the crew over the ship's loudspeakers, and gives a short countdown to the maneuver.

#### Zero-G

Zero-G is both an asset and a hindrance to the DropShip crew. As an asset, zero-G allows interesting forms of recreation impossible under the influence of gravity. Also, bulky or massive items are much easier to manipulate in zero-G, thus aiding shipboard, vehicle, and 'Mech repairs. The bad part of zero-G is that it takes experience to work in such an environment. If unaccustomed to living and working in zero-G, personnel will find that the lack of gravity complicates tasks. In addition, if a ship spends weeks in zero-G, the crew will need a few hours to become reoriented to a gravity environment.

## JUMPSHIP OPERATIONS

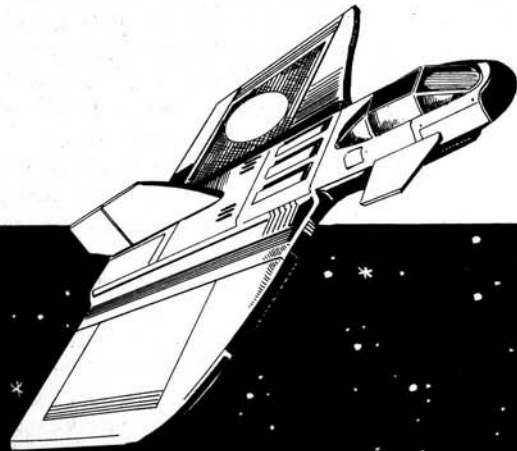
The JumpShip travels through hyperspace using its Kearny-Fuchida drive. The K-F drive operates by opening a hole into hyperspace, or K-F space, and instantaneously moving the JumpShip through it.

The Kearny-Fuchida drive begins this process by generating a field that engulfs the JumpShip and all DropShips attached to it. This field is completely transparent except that any light passing into or out of the field is distorted. As the field gets stronger, the light becomes increasingly distorted. At maximum strength, the field opens a hole into hyperspace and slides the ship through. An observer would see the JumpShip become blurry and then simply dissolve out of existence, leaving no trace except for a large amount of residual infrared radiation. This heat trace lingers for several minutes before completely dissipating.

At the destination point, a similar occurrence takes place, but in reverse. The entry point begins to emit infrared radiation moments before the arrival of the JumpShip. When the vessel arrives, it appears as a blurry image that coalesces in to the JumpShip in the instant that the field is deactivated. Upon completion of the hyperspace journey, the JumpShip shows no signs of the jump except for short-lived radiation emissions and the lack of the deployed jumpsail, which normally trails the vessel.

## HYPERSPACE TRANSIT

To perform the hyperspace jump safely, the Kearny-Fuchida field must be free from gravitational influences. Therefore, the JumpShip must maintain a safe distance from a system's star and planets at the time of departure. The distance depends on the mass of the star, varying between 75 million and 350 billion kilometers. For a medium star, such as Sol, the distance is approximately 1.5 billion kilometers.



# SHIP OPERATIONS

## Distance Calculations

To determine the exact distance from the jump point to the inner system, use the Proximity Point Distance Table. Cross-index the primary star's spectral type with its spectral subtype. For instance, Sol is a class G2 star. To determine the distance from the star to the closest jump point, cross-index "G" in the spectral type column with "2" in the row across the top. The result is 1.52. Because the numbers are given in billions of kilometers, this means that the distance from the inner system to the nearest jump point is 1.52 billion kilometers.

The two primary jump points of a system are located at the zenith and nadir of the gravity well, along the line that passes through the system's gravitational center and is perpendicular to the plane of the star system. These two points lie at the minimum safe jump distance from the system's primary. Although these are not the only jump departure and destination points in the system, they are the easiest points for which to make navigational calculations.

It is important to note that Kearny-Fuchida drive system has a built-in tamper-proof safety mechanism that prevents a ship from arriving in a system closer than this minimum safe distance.

Hyperspace travel has an adverse effect on nearby objects. The K-F field puts a great deal of stress on the fabric of space itself, creating tidal stresses that can damage objects up to 2,000 meters away. The force can literally rip apart objects within 1,000 meters. For safety, it is standard practice to ensure that all vessels are over 2,000 meters away before making a jump.

To determine the amount of damage sustained by an object close to a JumpShip entering or exiting a system, use the Proximity Damage Table. Find the distance from the vessel to the JumpShip under the distance column. The damage column shows the number of dice to roll to determine the amount of damage taken. This damage goes directly to the vessel's fuselage armor.

In addition, individuals on board the vessel may be injured. Use the same damage die roll made for the ship, but multiply this number by 5 to determine the damage sustained by each person aboard the ship. Characters may attempt to make saving rolls against their BODY scores. A successful roll means that the character takes only half the specified amount of damage.

Damage done to personnel should go directly to HTK. For player characters, the damage is broken down as follows: The first 20 points of damage go directly to the character's HTK. For every 10 additional points of damage, roll for hit location and any resulting critical hits as if the character were hit in combat.

**PROXIMITY DAMAGE TABLE**

Distance	Damage
Under 100 meters	8D6
100 to 250 meters	4D6
250 to 500 meters	2D6
500 to 1,000 meters	1D6
1,000 to 2,000 meters	1D6/2 (round up)
Over 2,000 meters	None

Proximity damage makes it difficult for an enemy vessel to board a JumpShip. If the JumpShip has had time to recharge, it can wait for the enemy vessel to close and then jump out-system, possibly inflicting some damage. For this reason, most boarding assaults take place shortly after a JumpShip enters a star system, when it is the most vulnerable.

## Jump Procedure

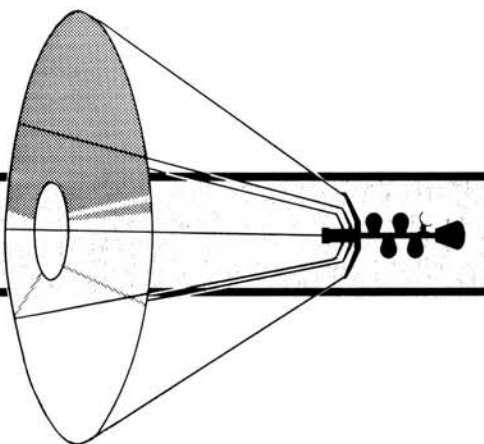
Before the JumpShip enters hyperspace, the bridge crew must perform a number of steps. The first step is to make the navigation calculations necessary for the jump. When the vessel is located at either the zenith jump point or the nadir jump point, most variables involved in the calculations can be easily determined through the use of star charts. If the ship is located at a non-standard jump location, gathering the navigational data and making the calculations could take a number of hours, depending on the navigational data.

**PROXIMITY POINT DISTANCE TABLE**

(In billions of kilometers)

Star Type	Star Subtype									
	0	1	2	3	4	5	6	7	8	9
M	.18	.16	.15	.13	.12	.11	.10	.09	.08	.07
K	.55	.49	.43	.39	.34	.31	.28	.25	.22	.20
G	1.99	1.74	1.52	1.33	1.16	1.02	.90	.79	.70	.62
F	8.80	7.51	6.43	5.51	4.74	4.08	3.52	3.04	2.64	2.29
A	48.59	40.51	33.85	28.36	23.82	20.06	16.93	14.32	12.15	10.32
B	347.84	282.07	229.40	187.12	153.06	125.56	103.29	85.20	70.47	58.44





## JUMP POINTS

The conventional jump points for all star systems are published in the standard navigation data banks of all JumpShips. Travel to the zenith and nadir points is considered routine. This is where installations can be found and where DropShips wait for spots on JumpShips and where JumpShips can expect to fill any open spots for their next jump. Here are located any rescue and repair facilities in case of an emergency. But these points are also home to tax collectors, customs inspectors and sometimes even aerospace assets of military units. To those who wish to avoid these problems and are willing to take the chance, there are other possibilities.

The location of a jump destination is solely limited by the local gravitational forces acting on the area. The safeguards built into the K-F drive require a minimum value. In any star system these conditions can be found at any point which is at least as far away from the star as the distance listed on the Jump Point Distance Table. The zenith and nadir points are the two most commonly used, but there are an infinite number of others. They create a sphere with a radius of the jump point distance centered on the star of the system. This sphere may be distorted by the gravitational forces of large planets.

As can be seen on the diagram on page 31, the skillful navigator can use knowledge of the planetary orientation of a destination system and calculate a destination jump point which is substantially closer to a desired planet than the zenith or nadir point. This vastly reduced travel time can save on fuel and other consumables normally used on the transit trip, as well as making trips possible to planets located in systems with massive stars. The other advantage to jumping to these non-standard points is that planetary defense forces do not normally keep as close of an eye in all directions of space and in any case their preparation time or reaction time is now much smaller.

Raiding forces, invasion forces, smugglers, pirates and other ner-do-wells are the more traditional users of these jump points and have created the term pirate point to describe these locations.

The risks of using these points are many. First of all, the time to perform the necessary calculations to jump to a pirate point is substantially longer than for the standard points. This is because of the ever changing orbits of the planets in the system and the fact that the detailed information on these orbits is not normally carried in the ship's data banks. Usually only the most skilled navigators will attempt such a trip. The chance that a malfunctioning JumpShip or DropShip will be stranded or held hostage to the financial demands of the salvage companies is great. There are many cases where crews have died or lost their ships because the required supplies could not be delivered in time to save them because no other DropShip was willing or able to make the trip in time.

Once the navigational computations have been completed, the next step is to program the K-F drive by feeding in the results of the navigational computations. This normally takes less than 15 minutes.

Once the drive has been programmed and the ship is secured, the jump programming is initiated. During this time, the Kearny-Fuchida drive's control computers assimilate the data and fire up the K-F drive. At this point, the ship is committed to the jump—the process cannot be stopped. At the end of this step, which usually lasts less than five minutes, the actual jump process begins.

The jump process goes from K-F field expansion, through the hyperjump, to materialization and field contraction. As soon as the JumpShip re-enters normal space, the K-F drive automatically shuts down. The jump process is completed in a matter of seconds.

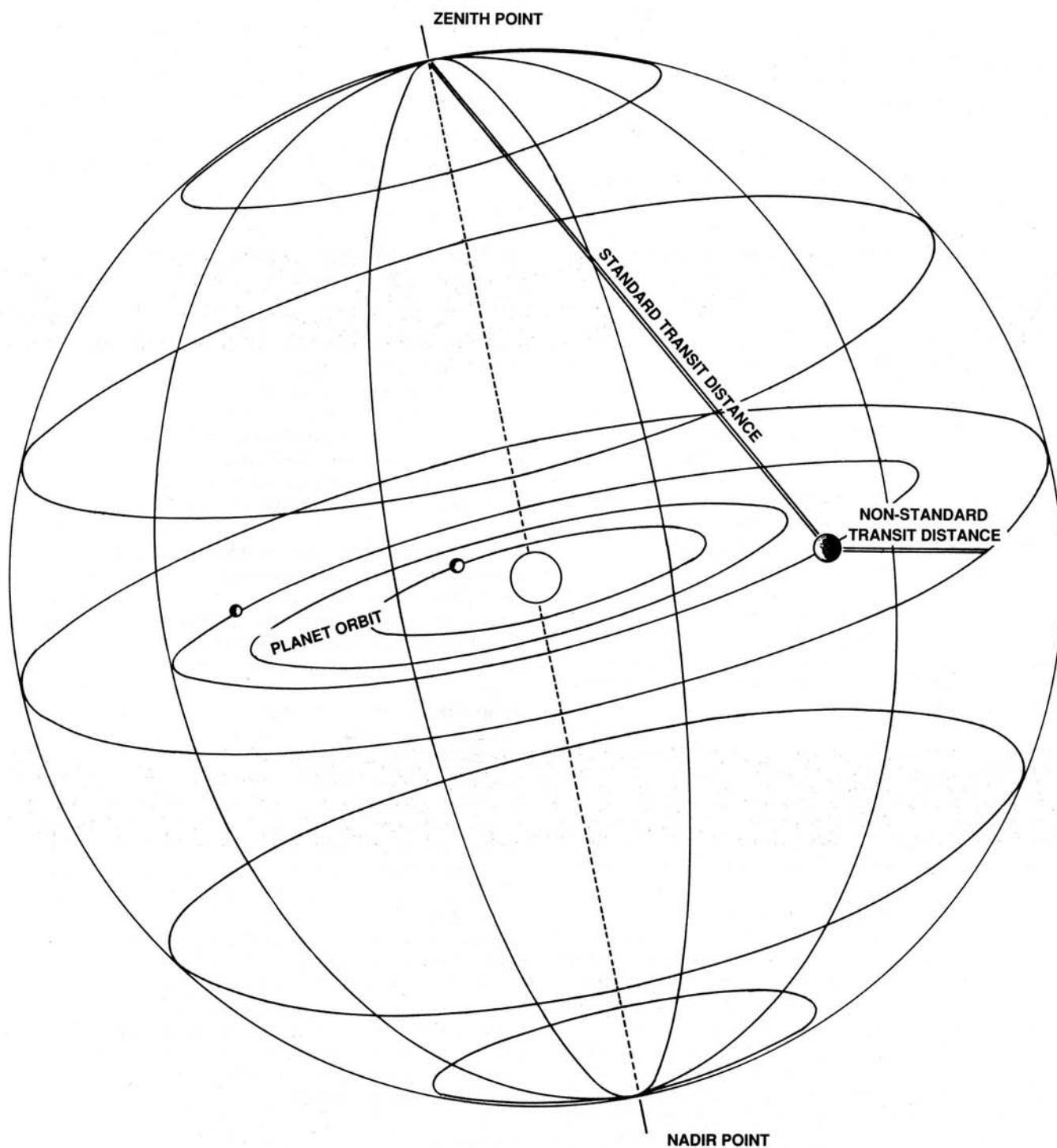
To determine the duration of each stage, use the Hyper-space Transit Chart. Each stage is listed in the left-hand column in order of occurrence. Note that the duration of the navigation calculations stage depends on the location of the JumpShip prior to the jump and on the availability of the ship's computer. If the JumpShip's computer is not available, another may be used instead. In addition, note that the length of some stages depends on the vessel's DropShip capacity—not how many are being carried, but rather how many the JumpShip is capable of carrying.

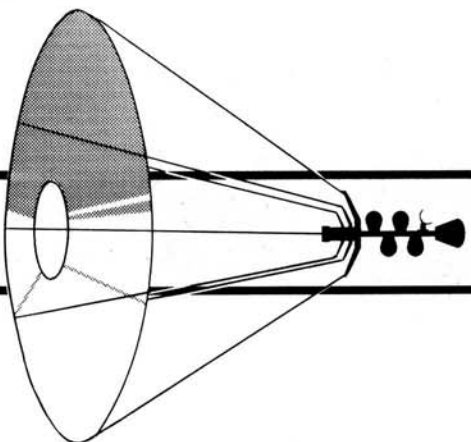
Because the actual time for each stage depends on a number of other factors, feel free to modify these values. They are only a guideline of an average jump in average circumstances, and can vary greatly due to damage to the Kearny-Fuchida drive or to the ship's computer.

## HYPERSPACE TRANSIT PROCESS CHART

Stage	Time
Navigation Calculations	
At Zenith or Nadir Point	
With Computer	$(2D6 - \text{skill}) \times 10$ minutes
Without Computer	$(2D6 - \text{skill}) \times 1$ hour
At Non-standard Jump Point	
With Computer	$(2D6 - \text{skill}) \times 30$ minutes
Without Computer	Impossible
Drive Programming	2D6 minutes
Program Initiation	$2D6/2$ minutes (round up)
Jump Process	
K-F Field Expansion	JumpShip capacity $\times$ 1 second
Hyperjump	$(\text{Light years travelled}/2) \times$ 1 second
K-F Field Contraction	$(\text{JumpShip capacity}/2) \times$ 1 second

# SHIP OPERATIONS





### K-F Drive Damage

Damage to the Kearny-Fuchida drive can prevent the proper initiation of a jump. Multiple safety devices built into the drive will not allow the unit to jump if such action would either destroy or critically damage the JumpShip.

There are five major types of damage to the Kearny-Fuchida drive that affect the probability of a successful jump. These include charging system damage, liquid helium tankage damage, field initiator damage, drive coil damage, and drive controller system damage.

Damage to the drive charging system does not have any effect on the jump itself; it simply affects the amount of time it takes to charge the Kearny-Fuchida drive. For details on these effects, consult the **Recharging Operations** section in this chapter.

One of the least critical forms of Kearny-Fuchida drive damage is the loss of liquid helium tankage. This should not be confused with the JumpShip's liquid hydrogen fuel tankage, which is used for the engine core's and the power plant's fusion reactors. The liquid helium used in the Kearny-Fuchida drive is not fuel, but is critical to the power storing system of the jump drive. If this tankage is damaged, a saving roll must be made in order to bypass this problem. The target for this roll is 5. For each point of damage sustained beyond the first, add 3 to the target. If there is no tankage remaining, jump is impossible. Should the jump attempt fail, all jump systems need time to reset, which takes one hour. This type of jump failure occurs before any of the drive's charge is used, and so the drive will still be charged following the failure.

The third type of damage to the jump drive is damage to the unit's field initiator. If this unit is damaged, the Kearny-Fuchida field may not activate properly and the drive controller system may automatically abort the jump attempt. To determine if a damaged field initiator unit works, a saving roll must be made. If the result is 8 or greater, the jump proceeds without incident. If the roll fails, jump failure occurs, and five percent of the drive's charge has been depleted. Further jump attempts may be made, but only after the drive has been recharged.

The fourth type of K-F drive damage is to the drive coil, the heart of the jump drive. If it is damaged, there is high probability that the jump will fail. To prevent jump failure, a saving roll must be made. If this roll is less than 9, the jump fails and all the drive's charge is expended. The ship can create the K-F field but cannot pass through it and immediately returns to the same location. The crew is affected as if the jump were successful, and any nearby objects are affected by proximity damage. The jump may be attempted again, but only after the drive has been recharged.

The final and most dangerous form K-F drive damage to the drive controller system. This system is the brain of the jump drive and contains all the safety systems that prevent the

disastrous effects of a misjump. To prevent drive controller failure, a saving roll must be made. If the roll is 6 or greater, the jump is completed as normal. However, if the roll is less than 6, there are a number of possible results. Determine the extent of the failure by consulting the Controller Failure Table.

**CONTROLLER FAILURE TABLE**

Die Roll (1D6)	Result
1	Jump success, drive coil damaged
2	Jump success, drive coil damaged, controller destroyed
3	Off course, drive coil damaged
4	Off course, drive coil destroyed
5	Misjump, drive coil damaged
6	Misjump, drive coil destroyed

The first result is Jump Success. This means that, though the controller failed, the failure did not prevent a normal jump. The ship arrives at its calculated destination point.

The second category is Off Course, which means that the jump was completed, but the ship drifted during the journey. To determine where the JumpShip ended up, divide 2D6 by 3 (round down) and multiply the result by the distance from the new inner system to its proximity point. This result is the distance from the JumpShip to the new inner system.

Misjump, the third result, is the worst thing that can happen to a JumpShip. It is up to the gamemaster to determine how far the JumpShip is from the nearest star system. It may be possible, if enough resources are available and if the distance is short enough, to make the journey via DropShip. This may take months or years to accomplish or may be completely unfeasible.

### Jump Effects

Only a small fraction of people experience unpleasantness from travelling through hyperspace. To determine if a person is susceptible to these effects, roll 2D6. If the result is 12, then that person will become nauseated and get a headache after a jump. The physiological effects of the jump are only temporary, however, and wear off after a few minutes.

If an affected character should make a BODY Saving Roll with a Target Modifier of +2, he has managed to fight off the effects sooner than normal. Failure indicated that recovery takes the normal length of time. The normal recovery period is approximately 15 minutes. Characters who make their saving rolls recover within 5 minutes. Each character who did not make his recovery roll adds 1D6 to their BODY, DEX, and LRN Saving Roll targets for rolls attempted during the recovery period. Each character who made his recovery roll adds 1D6 divided two (rounded up) to their BODY, DEX, LRN Saving Roll targets for rolls attempted during the recovery period.

For both DropShips and JumpShips, the first several minutes after a jump are the most vulnerable. Any action performed by either JumpShips or DropShips that have just exited hyperspace receive an automatic +1 Target Modifier.

# SHIP OPERATIONS

**JUMP SAIL RECHARGING TABLE**  
(Results in hours)

Star Type	0	1	2	3	4	5	6	7	8	9
M	201	202	203	204	205	206	207	208	209	210
K	191	192	193	194	195	196	197	198	199	200
G	181	182	183	184	185	186	187	198	189	190
F	171	172	173	174	175	176	177	178	179	180
A	161	162	163	164	165	166	167	168	169	170
B	151	152	153	154	155	156	157	158	159	160

## RECHARGING OPERATIONS

The JumpShip's standard method of charging the K-F drive is through an enormous energy collector sail, which can absorb enough energy to power the drive in approximately six or eight days. When not in use, the solar sail is stored in a ring-shaped recess in the aft section of the JumpShip. Immediately after entering a star system, the ship orients itself in the direction of the system's primary star and deploys the solar sail. Once the sail is deployed, a critical set of maneuvers is required to keep it in position. The JumpShip's station-keeping drives are powerful and delicate enough to do the job.

Because the sail is extremely delicate, unfurling it must be a careful procedure. The deployment equipment operates by slowly unfolding the sail and moving it out into position. The deployment operation takes about 100 minutes to perform.

Retraction of the sail is done in a similar manner. The sail's heavy stay cables slowly fold the sail for storage. This process takes longer than deployment does; furling and stowing the jump sail take between 150 and 200 minutes.

Standard recharging procedure calls for the JumpShip to maintain its position at the zenith or nadir jump points until the Kearny-Fuchida drive has accumulated enough energy to make a jump. This normally takes about a week. The exact amount of time needed to recharge the K-F drive depends upon the amount of energy emitted by the star.

To determine the exact amount of time spent for recharging, use the Jump Sail Recharging Table. Cross-index the star's spectral type in the left-hand column with the star's subtype in the row across the top to find the minimum number of hours required to bring the drive's charge up to full.

If the JumpShip's energy collector sail has sustained any damage, increase the number of hours needed to recharge the drive by ten percent of the total recharge time for each point damage taken by the sail. If the sail has no points remaining, then it cannot be used for recharging at all.

Alternately, the JumpShip's power plant may be used to recharge the drive in one hour. The delicate machinery of the Kearny-Fuchida drive is not made to handle this kind of treatment, however. Because any damage done to the jump drive may not ever be repairable the power plant usually charges the drive at the same rate as if the jump sail were being used. The power plant is used to power the drive if the jump sail has been damaged or destroyed or to save the time required to deploy and recover the jump sail.

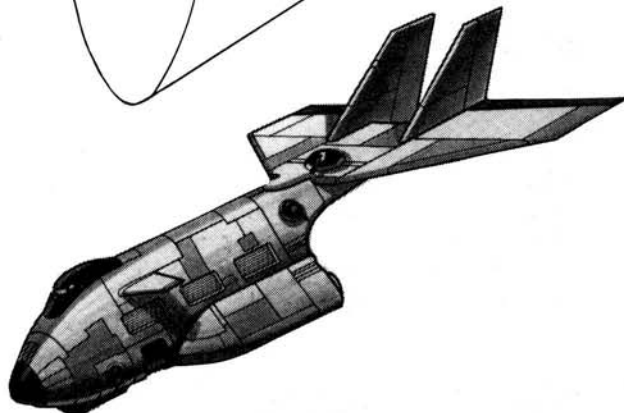
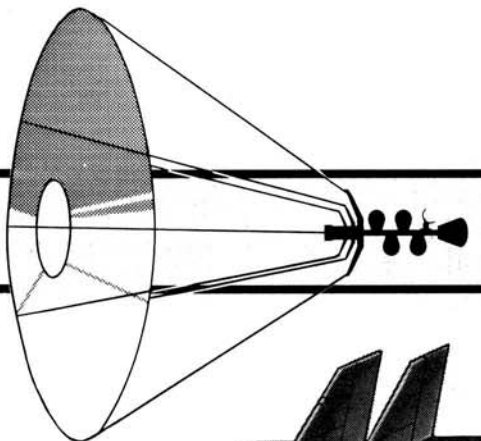
Quick-charging can often be accomplished without any negative side effects. If a misjump does occur, the result can be anything from simple jump failure to a completely burned-out drive coil. Use the Quick-Charge Table to determine if the quick-charge is successful. Locate the total amount of charging time in the column on the left. If the value falls between two values on the chart, use the line containing the lower of the two values. For example, if a quick charge is to take 90 hours, use the line for 75 hours.

The target is the number that must be matched or exceeded by rolling 2D6 after the ship has committed itself to the jump. If the roll fails, then consult the Quick-Charge Failure Table to determine the results.

**QUICK-CHARGE TABLE**

Time Spent (hours)	Target
150+	2
125	3
100	4
75	5
25	6
22	7
20	8
19	9
18	10
17	11
16	12
15	N/A





**QUICK-CHARGE FAILURE TABLE**

Die Roll (2D6)	Result
2	40% charge lost
3	60% charge lost
4	80% charge lost
5	80% charge lost
6	100% charge lost
7	100% charge lost
8	100% charge lost, charging system damaged
9	100% charge lost, field initiator damaged
10	100% charge lost, drive coil damaged
11	100% charge lost, drive controller damaged
12	100% charge lost, drive coil burned out

The second alternative is usable only in star systems with a recharging station, a large space platform that contains power storage units and a solar energy collector sail similar to those used by JumpShips. Each storage unit, called banks, can store enough energy to power the largest Kearny-Fuchida drive. Recharging stations are normally equipped with four to six banks, which function just like jump sails for recharging purposes.

The standard method for this type of energy transfer requires the receiving JumpShip to deploy its solar collector sail. The recharging station then transfers the energy stored in the banks to the sail. The only problem with this method is that, to prevent damaging the JumpShip's Kearny-Fuchida drive, the charging process must be spread out over 150 hours. The banks can quick-charge the K-F drive, but this runs the risk of damage to the drive. For quick-charging, refer to the Quick-Charge Table and, if necessary, the Quick-Charge Failure Table.

## MANEUVERING OPERATIONS

JumpShips are equipped with an engine core that provides propulsion in real-space and functions identically to that found on DropShips. The principal difference between the two is the maximum performance of the drives. DropShip engines provide up to two Gs or more of acceleration; because of their enormous masses, JumpShips have relatively small drives and can accelerate only to about 0.1 Gs. With such a low thrust output, the engines have a limited usefulness.

The primary job of the JumpShip's station-keeping drives is to keep the vessel from drifting. Drifting is caused by a star's gravitational pull and by the solar wind blowing against the jump sail. In some cases, these two minute factors cancel each other out. In most instances, however, one or the other prevails, and, over an extended period of time, the ship drifts. It is very important for the JumpShip to remain stationary, as jump calculations and the calculations for DropShips to dock with the JumpShip are based upon the position of the JumpShip. If this position keeps changing, constant recalculations must be made.

Besides being used for station-keeping, the drives are occasionally used to propel the JumpShip short distances. This is very rare as it is very time consuming and usually unnecessary.

Some small JumpShips unequipped with grav decks sometimes use the acceleration generated by their drives to provide the crew with artificial gravity. The vessel accelerates toward some distant point, and at the halfway point, the vessel decelerates, stopping at the destination point. Although many consider this maneuver to be an unnecessary waste of fuel, the artificial gravity provided helps keep the crew healthy and efficient.

Before conducting any maneuvers, the JumpShip's crew first prepares the vessel. Everything on the ship must be packed away or tied down. Even under the mild acceleration of 0.1 Gs, unsecured objects can damage the ship and its crew.

On board a JumpShip, maneuver is a mild experience; even when people are unprepared for maneuver, it is unlikely that they will get hurt. As a precaution, however, the pilot sounds the maneuver alarm before firing the drives. Because the acceleration is so low, few crew members pay much attention to the warning. They simply orient their floor toward the deck and fall into a standing position. For anyone used to the violent maneuvers of a DropShip or AeroSpace Fighter, the JumpShip maneuver is somewhat boring.

Once the ship is at constant acceleration, there is just enough gravity to keep oriented. Movement through the ship is made in long, bouncing strides. One must be careful, however, as it is easy to get carried away and collide with the ceiling.

# SHIP OPERATIONS

## DOCKING OPERATIONS

There are two basic types of docking operations involving the JumpShip. The first is when the JumpShip docks with a stationary object, which is referred to as "docking." The second operation is when DropShips attach themselves to the JumpShip's hull, which is commonly referred to as "receiving DropShips."

Docking involves a great deal of calculations by the pilot and short, accurate bursts from the station-keeping drives. Because the ship's enormous mass makes it hard for a pilot to perform delicate maneuvers, JumpShips seldom dock with other ships or stations. If cargo is needed, the normal procedure is to dispatch a small shuttle; it is safer and uses fewer resources.

To the JumpShip's crew, DropShip receiving is rather frightening. The JumpShip's pilot, whom the crew usually trusts, has little to do with the procedure, and they must rely on the skill of the DropShip pilot to dock with the JumpShip's hard point. Because few JumpShip captains trust the skill of a DropShip pilot, they often employ an extra pilot whose primary job is to dock the DropShip. This procedure is not safe either, as the pilot

docks a different ship each time without getting a great deal of proficiency on any of them. Nevertheless, he is usually an expert in docking with JumpShips and is quite careful about his work. Nearly all JumpShips carry small craft for shuttling the pilot to the approaching DropShip.

To dock with another vessel, a ship must match speed and course with the target and then make a slow approach from the proper angle. Numerous course corrections are made throughout the approach, as it is difficult to keep track of all the forces and motions involved.

To determine the outcome of a docking attempt, subtract 2D6 from the pilot's *Piloting/AeroSpace* Target Number. If the result is less than or equal to zero, then the attempt was successful. For any other result, a mishap has occurred. Consult the Docking Damage Table to determine the outcome.

Once contact is made between the docking ship and the JumpShip, docking adapters lock the two into place. The docking adapters are also equipped with coupling transfer tubes, which allow the safe passage of individuals and small equipment, and the KFFC Boom, which allows the DropShip to be contained within the Kearny-Fuchida field.

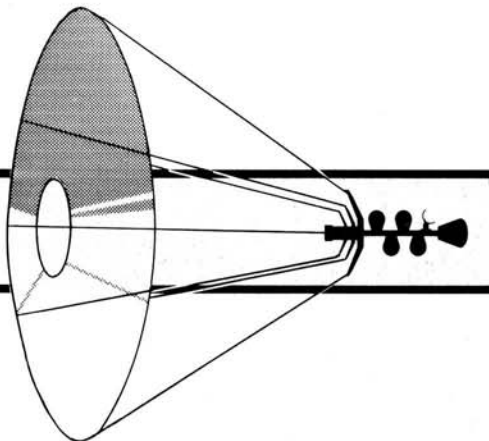
**DOCKING DAMAGE TABLE**

**Piloting/Aerospace  
Target Number  
Minus 2D6**

Effect	
0 or less	Docking Successful. No Damage.
1	Docking successful. However, there is minor damage to both docking collars. No further docking may be made until both are repaired. Repairing each collar takes 1D6 hours.
2	Docking unsuccessful. The DropShip flies clear of the JumpShip, and there is no damage. The DropShip may try again.
3	Docking unsuccessful. There is minor damage to both docking collars. No further docking may be made until both are repaired. Repairing each collar takes 1D6 hours.
4	Docking unsuccessful. DropShip takes 5 points of damage to its nose. The JumpShip takes 5 points of damage to its side armor.
5	Docking unsuccessful. DropShip takes 10 points of damage to its nose. The JumpShip takes 10 points of damage to its side armor.
6	Docking unsuccessful. DropShip strikes nearest docked DropShip. Docking vessel takes 15 points of damage to its nose. The docked vessel takes 15 points of damage to a random side. If no vehicles are docked, the JumpShip takes the damage to its side.
7	Docking unsuccessful. DropShip takes 15 points of damage to its nose and loses two points of Structural Integrity. The JumpShip takes 15 points of damage to its side armor. Also, the drive's helium tank automatically takes one point of damage.
8	Docking unsuccessful. DropShip takes 20 points of damage to its nose and strikes the JumpShip at a random location. The JumpShip takes 20 points of damage at this location. Both lose two points of Structural Integrity.
9+	Docking unsuccessful. DropShip and JumpShip docking collars are damaged beyond repair. Docking may not be attempted until both devices are replaced. DropShip takes 25 points of damage to its nose. JumpShip takes 25 points to its side armor. Both vessels lose three points of Structural Integrity.

## DOCKING MODIFIERS

DropShip under a movement restriction	+3
Docking conducted under fire	+2
DropShip masses over 20,000 tons	+2
DropShip masses under 5,000 tons	-1
Operation lasts over 30 minutes	-2



## ROUTINE OPERATIONS

Life aboard the JumpShip is a little different than that aboard the DropShip. To begin with, JumpShips spend most of their time keeping at station, which means a lot of time at zero-G. To keep the crew healthy, most JumpShips are equipped with a grav deck, a large, slowly spinning, cylindrical section that provides occupants with artificial gravity. Because these decks are rather small, measuring about 100–200 meters in diameter, the gravitational difference between a person's head and his feet is noticeably different. Therefore, if a person gets too active, he can get motion sickness. This form of nausea is worse than that experienced in jump and does not go away after a few minutes. For these reasons, grav decks tend to be limited to lounges, recreation facilities, sleeping quarters, and other crew facilities.

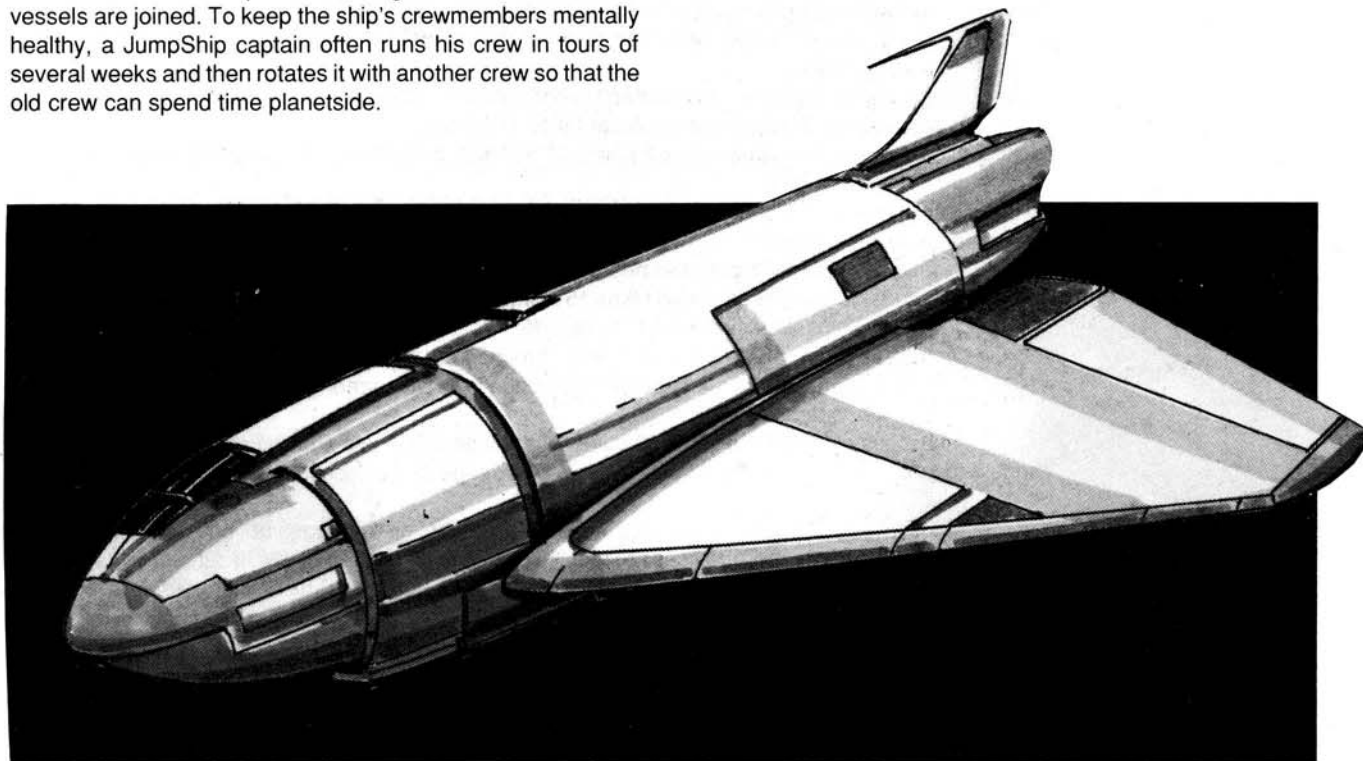
JumpShips are large and roomy and carry a relatively small crew. Because these vessels are generally unarmed and are not used for transporting cargo or passengers, they need only general operation and maintenance personnel. This makes life aboard the JumpShip rather lonely and dull. Most JumpShip crew members are hobbyists, spending their long and quiet hours with personal projects. When DropShips dock, these people are often anxious to meet the crew and to cram in as much conversation as possible during the short time that the vessels are joined. To keep the ship's crewmembers mentally healthy, a JumpShip captain often runs his crew in tours of several weeks and then rotates it with another crew so that the old crew can spend time planetside.

## DECOMPRESSION

Decompression is the loss of air pressure in a compartment aboard a space vehicle or space station. There are two basic forms of decompression: gradual and explosive. Gradual decompression can result from a penetrating hit on the ship's fuselage, a leak in a pressure seal, or deliberate evacuation of a compartment's atmosphere.

After decompression begins, the gamemaster should roll 3D6 to determine the number of minutes until the air becomes too thin to be breathable. After this time, any characters without a separate air supply begin to asphyxiate and must make a BODY Saving Roll every minute to avoid losing consciousness. A total of 2D6 minutes after this, all characters not in space suits, engineering suits, or hostile environment suits take physical damage from the loss of pressure.

For each combat round (10 seconds) after 2D6 minutes, a character in a depressurized compartment takes 2D6 points of damage directly to his HTK. They continue to take damage until either they are dead, the air pressure increases, or they are moved to an area of higher air pressure. The gamemaster should alter these figures at his discretion when pressure loss is very high or low.



# SHIP OPERATIONS

Explosive decompression is extremely dangerous to anyone not wearing some type of pressure suit. Even when the person is so prepared, the force of the air rushing out of a compartment can suck a person into space. Anyone who is strapped in will not be harmed by the blast of rushing air. Anyone who is not strapped in must make a **DEX Saving Roll** with a target modifier of -4. However, any unsecured characters located near the opening must make their rolls with a +1 target modifier instead.

If a character does not get sucked out, he must still survive the sudden loss of air. He has three options: to seal the hole immediately, to get out of the depressurizing compartment, or to don a space suit.

If a character attempts to exit the compartment, his success depends upon how far he is from the exit and how quickly he can reach it. The player should attempt a **DEX Saving Roll**. If he is close to the exit, he has a -2 target modifier; if he is far from it, he has a +2 modifier. The gamemaster may apply other modifiers for special circumstances.

Putting on a space suit is rather difficult when under life or death stress. If a character is far from an exit, however, this may be the best course of action. The space suit is the only type of pressurized suit that can be put on quickly; engineering suits and environmental suits are too complicated and bulky. If a suit is available, the character must make a **DEX Saving Roll** to put it on in time. If wearing any bulky items during the attempt, the character automatically receives a +1 target modifier.

The final option is to block the hull breach completely. This is difficult to do because only a large, solid metal plate will work, and the breached wall may be too badly damaged for this quick solution to work. If the characters attempt to plug the hole with a metal plate, roll 2D6. A result than less than 8 means that the hole has been sealed. On a result of 8+, the attempt is unsuccessful. It may, however, buy the characters some time at the gamemaster's discretion.

## BOARDING AND REPELLING

Boarding attempts are common in space combat involving JumpShips and larger DropShips. The primary reason for making a boarding attack is to capture an enemy ship intact.

Before a boarding attempt can be made, the attacking vessel must match the target vessel's course and speed. It is easier to do this when the target has been disabled, but few people would dare fire on such a JumpShip.

Boarding parties normally wear combat space suits, entering through the docking collar, airlock, or a hole cut into the hull of the ship. Standard armament consists of lasers and blade weapons, as they are the only ones safe enough for shipboard use. Projectile weapons are not used because stray bullets can ricochet off the hard flat surfaces inside the vessel.

Whenever a projectile weapon is fired inside a ship and misses its target, the firing character should roll 2D6. If the roll is greater than or equal to 10, a random character takes the shot. If the room contains a large amount of equipment or furniture, increase the Target Number by 1. If the weapon fired was a shotgun, the ricochet damage is cut in half. If a fragmentation grenade is used, all to-hit Target Numbers are decreased by 2. In addition, anyone that gets hit by the grenade receives an extra 1D6 points of damage.

Projectile weapons that do 3D6 or more points of damage and have a range of over 20 may put a hole through a wall. If one of these weapons is fired inside a ship and misses its target, it may ricochet and hit a random target as described above. If this does not occur, the gamemaster may determine if the wall behind the target was pierced. Roll damage just as if the wall were the target. If the wall is a major bulkhead or the outer hull wall, a 50-point hit will penetrate. If the wall is a standard internal wall, then a 15-point hit will pierce it.

Missed shots can also hit the ship's lines. All lines except for the coolant line burst if they take a 10-point hit. The coolant line is well-insulated, as its contents can reach well over 100° C. This line bursts if it takes a 20-point hit. The coolant is toxic and, if inhaled, does 10 points of damage.

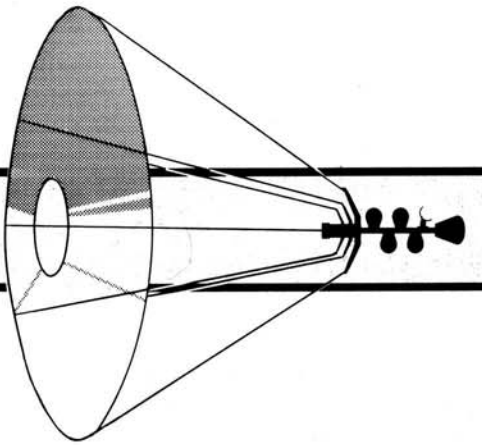
## ABANDONING SHIP

If the ship is so badly damaged that death or destruction is imminent, the crew should abandon ship. This is always the last possible course of action and is only done out of desperation.

When the abandon ship alert is sounded, all personnel report to the nearest lifeboat or escape pod. Every ship carries a number of these, which can accommodate four people comfortably and cram in an extra two people. Escape pods are all launched and controlled individually. After the character presses the eject button, an alarm sounds, warning others that the lifeboat is about to leave, and the pod's computer activates the launch systems, which takes a little over ten seconds (one combat round). Also controlled by the computer is the entry hatch, which is closed just before launch. (This allows any latecomers to board the pod). Once the time has elapsed, the entry hatch automatically closes, and the pod launches itself clear of the vessel.

While lifeboats are designed to drift until picked up by a passing vessel, escape pods are capable of atmospheric entry and landing. Most escape pods were built with an automatic piloting computer, but few of these versions remain. (A particular pod has this feature on a 2D6 roll of 10+.) If the pod is not so equipped, it can still be piloted manually just like an AeroSpace Fighter, requiring some level of *Piloting/AeroSpace* skill.





## PURCHASING THE SPACE VESSEL

The purchase of a Dropship or JumpShip is a major undertaking—a new *Leopard Class DropShip* costs about 60,000,000 C-Bills. Salvaged vehicles can be purchased for less than half the amount of a new one, but even so, few corporations or mercenary units can afford such an expenditure.

The possibility of locating ships for sale depends on the type of world where the buyer is located. Along the Periphery, there are few ships on the market, and most have one foot in the junkyard. These vessels are usually put up for sale by unsuccessful mercenary units looking for fast cash. Among the inner systems, more ships are available, but most are new. The few used vessels available are often in good shape, but demand a higher price than those found along the Periphery. Often the site of numerous raids and assaults, border worlds are likely locations for salvaged vessels. The number of DropShips damaged and captured in battle is often high. Units that happen upon an enemy DropShip or JumpShip often sell the vehicle to the highest bidder. In some cases, the unit has the ship fixed up to at least salvage level, allowing them to demand a much higher price.

Before purchasing a DropShip or JumpShip, the buyer or agent must determine the number of leads available during any one month. These leads may or may not result in the actual finding of a vessel. Instead, they are rumors and second-hand information that may lead to an available vessel.

Once the number of leads available has been determined, the buyer or agent must track down each lead to discover the type and quality of the ship offered (if there is indeed one for sale). If the vessel is available, the next step is to determine the location of the ship. If the ship is off-world, the agent or the buyer will have to travel to the ship's location to inspect the ship and possibly to close the deal.

### DETERMINING LEADS

To determine the number of leads available, roll 2D6 and consult the Available Leads Table below. This roll is modified by the agent's or buyer's *Diplomacy Skill Level*.

Along with the number of available leads on the table is a Ship Availability Modifiers column. This column gives a modifier that should be added to all availability Target Numbers of the Ship Availability Table in the next step of the ship purchasing procedure.

**AVAILABLE LEADS TABLE**

Die Roll (2D6)	Available Leads This Month	Ship Availability Modifiers
0	None	N/A
1	None	N/A
2	None	N/A
3	None	N/A
4	1	+2
5	1	+1
6	1	0
7	2	+1
8	2	0
9	2	-1
10	3	+1
11	3	0
12	4	0
13	4	-1
14	5	-1

**AVAILABLE LEADS MODIFIERS**

Buyer/Agent Skill Level	Modifier
Diplomacy Skill Level 1 – 3	0
Diplomacy Skill Level 4 – 5	+1
Diplomacy Skill Level 6 – 8	+2
No Diplomacy Skill	
Average of CHA + LRN 7 – 8	0
Average of CHA + LRN 5 – 6	-1
Average of CHA + LRN 1 – 4	-2

### SHIP AVAILABILITY

After determining the number of leads, the buyer can then select the ships that he will try to locate. Each vessel has a quality level that determines the cost and the availability of the vessel. There are three possible quality levels: new, salvaged, and destroyed.

New vessels are not necessarily vessels that are straight off the assembly line; in fact, very few vessels can be found in mint condition. Instead, a new vessel is one that has been well maintained or refurbished. Vessels in this condition are reliable and have minimal maintenance costs.

A less expensive alternative is a salvaged vessel. The main problem with salvaged vessels is that they have a much greater likelihood of system breakdowns. The poor condition of equipment aboard the ship makes the cost of maintaining the salvaged ship twice that of maintaining a new one.

Destroyed ships are vehicles that no longer function. The reason for purchasing a destroyed vessel is that the ship can be obtained for a greatly reduced price and can be fixed up to salvage or even new quality. As long as the destroyed vessel retains its destroyed status, however, it does not require monthly maintenance. The Ship Availability Table and the Ship Cost Table provide information on each of these three quality levels for the ships listed in the **ComStar Intelligence Summary** book.

# SHIP COSTS AND SERVICING

To determine if a particular vessel is available for purchase, the buyer should consult the Ship Availability chart for the vessel that he is interested in and the ship's quality level. Cross-indexing these two pieces of information reveals the ship's base availability number. Modify this number by the results of the Available Leads roll from the previous step, then roll 2D6.

If the roll is less than the modified availability number, then the lead has resulted in nothing. The failure was due either to false information or the fact that the ship had already been bought. If the buyer has any other possible leads, then he may roll again for each of these. Once the leads have been exhausted, no more rolls can be made until the next month.

If the availability roll is successful, the vessel of the desired class and status has been confirmed as being for sale. The buyer may then purchase the vessel, but is not obligated to do so.

**SHIP AVAILABILITY CHART**

Vessel Class	New	Quality Level Salvaged	Destroyed
<b>DropShips</b>			
Leopard	8+	7+	10+
Union	8+	7+	9+
Overlord	10+	9+	9+
Fury	8+	7+	9+
Gazelle	7+	6+	7+
Seeker	10+	9+	11+
Triumph	9+	10+	10+
Condor	9+	8+	9+
Excalibur	11+	10+	10+
Avenger	8+	7+	10+
Achilles	11+	9+	10+
Intruder	9+	8+	9+
Fortress	12+	11+	12+
CV Leopard	10+	9+	11+
Vengeance	11+	10+	10+
Buccaneer	7+	6+	8+
Mule	7+	6+	7+
Monarch	9+	10+	9+
Mammoth	11+	9+	11+
Behemoth	12+	11+	12+
<b>JumpShips</b>			
Scout	9+	8+	10+
Merchant	9+	8+	10+
Invader	9+	8+	10+
Star Lord	10+	9+	11+
Monolith	11+	10+	12+

The Ship Cost Table gives the costs for each vessel listed in the Ship Availability Table. All costs are in millions of C-Bills. (If using the system from **The Mercenary's Handbook**, multiply the costs below by 100 to determine the cost of the ships in Unit Points.)

**SHIP COST TABLE**

Vessel Class	Cost New	Cost Salvaged	Cost Destroyed
<b>DropShips</b>			
Leopard	60	24	12
Union	160	64	32
Overlord	430	172	86
Fury	30	12	6
Gazelle	40	16	8
Seeker	100	40	20
Triumph	450	180	90
Condor	300	120	60
Excalibur	750	300	150
Avenger	70	28	14
Achilles	350	140	70
Intruder	200	80	40
Fortress	800	320	160
CV Leopard	60	24	12
Vengeance	350	140	70
Buccaneer	100	400	200
Mule	300	120	60
Monarch	200	80	40
Mammoth	1,200	480	240
Behemoth	2,000	800	400
<b>JumpShips</b>			
Scout	300	120	60
Merchant	400	160	80
Invader	500	200	100
Star Lord	750	300	150
Monolith	1,000	400	200

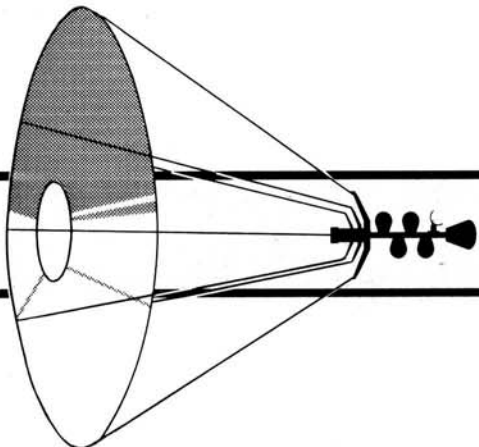
## VESSEL LOCATION

To determine the location of the ship, the buyer should roll 1D6 and consult the Vessel Location Table. If the table indicates that the ship is located at the nearest spaceport, then it is on the same planet as the buyer. A ship in orbit requires the use of a shuttle or some other means for the buyer to reach it. If the ship is elsewhere in the same system, DropShip transportation must be obtained. Finally, if the ship is located in another star system, the buyer will have to pay for JumpShip passage.

**VESSEL LOCATION TABLE**

Die Roll (1D6)	Location
1-2	Nearest spaceport
3-4	In orbit
5	Elsewhere in the same system
6	A neighboring system within one jump

Whether or not a vessel is located and purchased, an agent must be paid. Agents receive 300 C-Bills per month regardless of success. If the agent located the ship that was purchased, the agent receives a commission of 0.1 percent of the purchase price.



## PERSONNEL AND SKILLS

It takes a great deal of manpower to operate a space vehicle at peak efficiency. Each vessel must have personnel to fly the ship, keep the engines operating, perform maintenance, provide security, operate the ship's weaponry, fly the ship's small craft, handle cargo, provide for passengers, provide emergency medical support, and manage the ship's crew and the ship's operation.

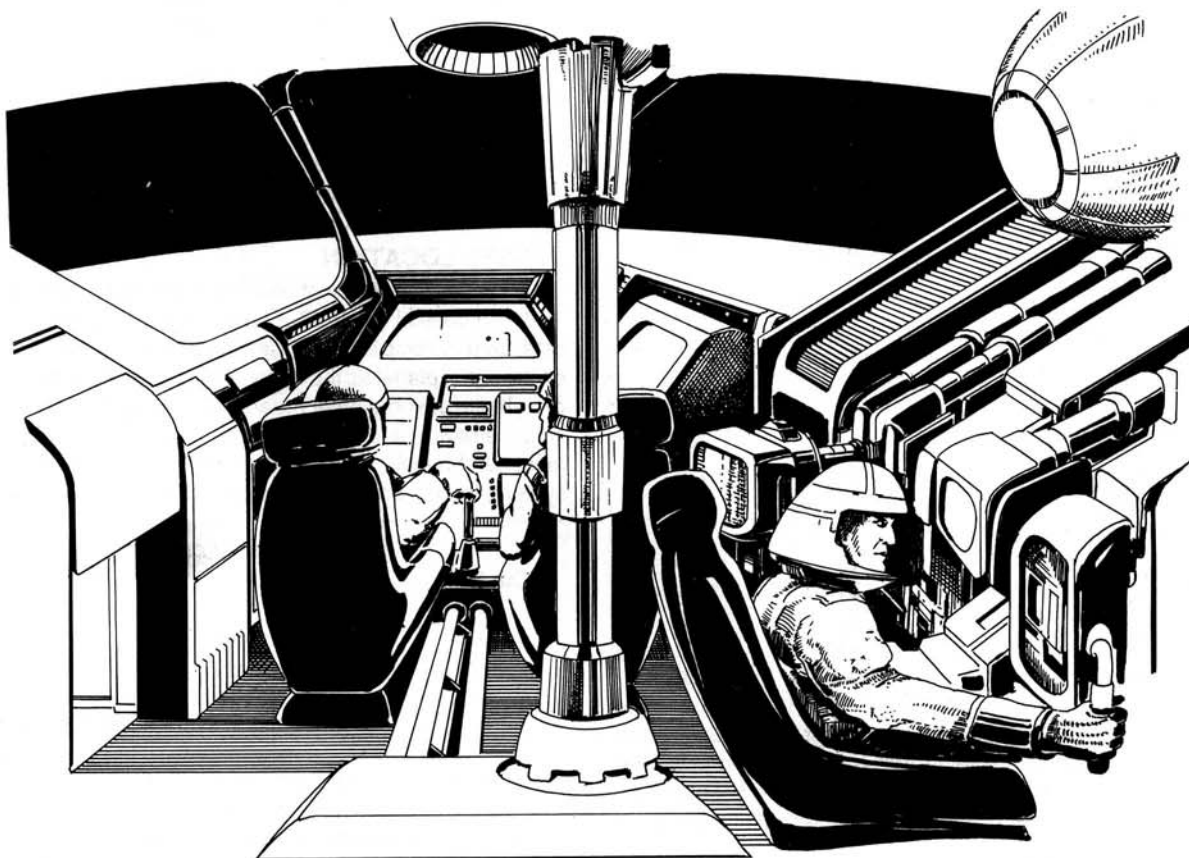
Because ships vary in size and purpose, the number of crew members needed also varies. The Crew Requirements Table contains a list of all vessels found in the **ComStar Intelligence Summary** book along with their normal crew complement and the salary cost for the crew. The two right-hand columns give the minimum number of crew members required per shift. Normally, there are three shifts per day, each lasting approximately eight hours.

The bridge watch is required to monitor communications, radar readings, the ship's internal status, and the ship's course. Although the ship can operate without someone on the bridge, if anything should go wrong, no one will know it until too late. Therefore, at least one person is kept on bridge watch duty at all times. The person does not have to be a qualified pilot, but one is usually on duty just in case of an emergency.

The engineering watch is required to maintain drive and engine systems within safe operating levels and to monitor the ship's primary life support systems. It is imperative that a watch officer keep close tabs on ship engineering systems. Also, the engineering watch must consist of at least one qualified Engineer.

It is possible to cut the number of shifts down to two, increasing the length of each shift to twelve hours instead of eight. This is not recommended due to the amount of stress placed upon the crew.

Engineers are similar to Techs with one difference. Techs work on 'Mechs and vehicles, while Engineers work on Aero-Space Fighters, JumpShips, and DropShips. A Second Engineer is a semi-skilled Engineer.



# SHIP COSTS AND SERVICING

CREW REQUIREMENTS TABLE

Ship Class	Base Crew	Base Monthly Cost in C-Bills	Bridge Watch	Engine Watch
<b>JumpShips</b>				
Scout	6: 1e, 1p, 4se	2,000	1p/se	1e/se
Merchant	8: 2e, 2p, 4se	3,000	1p/se	1e/se
Invader	12: 3e, 2p, 7se	4,150	1p/se	1e/se
Star Lord	10: 2e, 2p, 7se	3,500	1p/se	1e/se
Monolith	16: 4e, 3p, 9se	5,600	1p	1e+1se
<b>DropShips</b>				
Leopard	9: 4e, 2p, 3se	3,350	1p/se	1e
Union	14: 4e, 2p, 8se	4,800	1p/se	1e+1se
Overlord	43: 5e, 3p, 31se	13,150	1p+1se	1e+2se
Fury	8: 4e, 2p, 2se	3,100	1p/se	1e
Gazelle	10: 4e, 2p, 4se	3,600	1p/se	1e
Triumph	15: 4e, 2p, 9se	5,050	1p/se	1e
Condor	24: 4e, 2p, 20se	7,600	1p/se	1e+2e/se
Excalibur	24: 5e, 2p, 15se	7,650	1p/se	1e+2se
Avenger	15: 4e, 2p, 9se	5,050	1p/se	1e
Achilles	30: 5e, 6p, 20se	10,800	2p	1e+4se
Intruder	30: 5e, 3p, 22se	17,300	1p/se	1e+1se
Fortress	42: 5e, 3p, 30se	12,900	1p+1se	1e+2se
CV Leopard	9: 4e, 2p, 3se	3,350	1p/se	1e
Vengeance	34: 6e, 3p, 25se	10,450	1p+1se	1e+1e/se
Buccaneer	12: 4e, 2p, 6se	4,300	1p/se	1e
Mule	20: 4e, 2p, 12se	5,800	1p/se	1e
Monarch	34: 4e, 3p, 27se	10,150	1p+2se	1e+1se
Mammoth	35: 6e, 3p, 26se	10,700	1p+2se	1e+1e/se+2se
Behemoth	50: 8e, 6p, 36se	15,800	2p	2e+2se

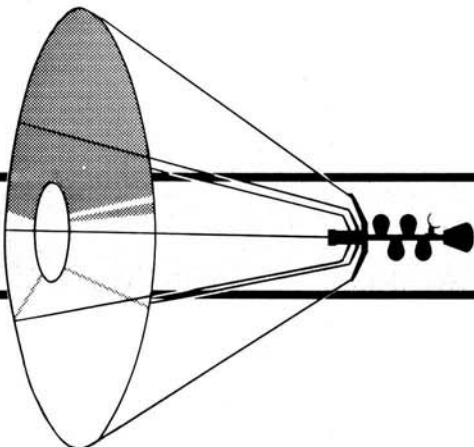
**Key**

e: Engineer

p: Pilot

se: Second Engineer





Following the Weapons Price List and the Weapons Availability Table is a similar set of tables for other shipboard equipment. The procedures for determining the availability and costs for these is as described for weapons.

## REPAIRS

Engineers can repair most components aboard a DropShip or JumpShip using tools and equipment found aboard the ship. The following section details the procedures for performing on-board repairs. Certain repairs that cannot be accomplished aboard the ship require the use of major repair facilities.

Repairs require that certain components be purchased or obtained by some other means, such as from salvaging a damaged vessel. Two cost lists are included below. The Weapons Price List is identical to that for BattleMechs, ground vehicles, and AeroSpace Fighters. Following this list is the Weapons Availability Table, which lists the availability for each weapon in each of the Successor States. Anyone attempting to purchase a weapon must roll 2D6. If the roll is greater than or equal to the Target Number listed on the Weapons Availability Table, then the weapon is available for purchase. If the roll is less than the listed number, the buyer must wait at least one week before attempting the roll again.

The price of the weapon is determined by taking the base price from the Weapons Price List and multiplying it by the cost factor given on the Weapons Availability Table. The resulting number is the cost of the item in C-Bills.

### WEAPONS PRICE LIST

Item	Cost (in C-Bills)
Small Laser	11,250
Medium Laser	40,000
Large Laser	100,000
PPC	200,000
AC/2	75,000
AC/5	125,000
AC/10	200,000
AC/20	300,000
MG	5,000
Flamer	7,500
LRM-5	30,000
LRM-10	100,000
LRM-15	175,000
LRM-20	250,000
SRM-2	10,000
SRM-4	60,000
SRM-6	80,000

### WEAPONS AVAILABILITY TABLE

Weapon	Target Number						Availability Cost Multiplier					
	D	S	K	M	L	P	D	S	K	M	L	P
Small Laser	4+	3+	4+	5+	5+	7+	1.0	.8	1.0	1.1	1.1	1.1
Medium Laser	5+	4+	5+	6+	6+	8+	1.0	.9	1.0	1.1	1.1	1.3
Large Laser	6+	5+	6+	7+	7+	10+	1.0	.9	1.0	1.3	1.3	1.75
PPC	7+	6+	7+	9+	9+	10+	1.1	1.0	1.1	2.0	2.0	1.75
AC/2	7+	4+	5+	6+	6+	9+	1.3	.9	1.0	1.1	1.1	1.5
AC/5	4+	4+	4+	5+	5+	7+	.7	.7	.7	.9	.9	1.1
AC/10	6+	5+	6+	8+	8+	8+	1.0	.9	1.0	1.3	1.3	1.3
AC/20	8+	7+	8+	10+	10+	10+	1.3	1.1	1.3	1.75	1.75	1.75
MG	3+	3+	3+	3+	3+	6+	.7	.7	.7	.7	.7	1.0
Flamer	3+	3+	3+	3+	3+	6+	.8	.8	.8	.9	.9	1.0
LRM-5	6+	5+	6+	7+	6+	7+	1.0	.9	1.0	1.1	1.0	1.1
LRM-10	5+	5+	7+	6+	6+	7+	.9	.9	1.1	1.0	1.0	1.1
LRM-15	8+	6+	7+	8+	6+	9+	1.3	1.0	1.1	1.3	1.0	1.5
LRM-20	5+	8+	7+	9+	6+	11+	.9	1.3	1.1	1.5	1.0	2.0
SRM-2	6+	6+	5+	3+	5+	7+	1.0	1.0	.9	.7	.9	1.1
SRM-4	7+	6+	5+	6+	6+	8+	1.1	1.0	.9	.9	1.0	1.3
SRM-6	7+	6+	6+	7+	6+	10+	1.1	1.0	1.0	1.0	1.0	1.75

#### Table Keys:

D: Davion  
S: Steiner  
K: Kurita  
M: Marik  
L: Liao  
P: Periphery

# SHIP COSTS AND SERVICING

## REPLACEMENT PARTS PRICE LIST

Part	Cost (in C-Bills)
Bridge Equipment	200,000 + (10 x tonnage)
Engine	1,000 per ton
Engine Shielding	1,000
Drive	500 x thrust x (tonnage/100)
Attitude Thruster	25,000
Computer	200,000
Fire Control	100,000
Gunnery circuitry	10,000 per armed arc
Radar	80,000
Life Support	50,000 x (personnel/10)
Landing Gear	10 x Tonnage
Door	1,000 each
Cocoon	10,000 each
Heat Sink	2,000 each
Armor	1,000 per ton
Docking Collar	10,000
Internal Structure	100,000 per point
Tankage Repair Parts	500 per point
JumpSail	50,000 per ton
Charging System	500,000 + (200,000 x capacity)
Field Initiator	25,000,000 + (5,000,000 x capacity)
Drive Coil	60,000,000 + (75,000,000 x capacity)
Drive Controller	50,000,000

## REPLACEMENT PARTS AVAILABILITY AND COST TABLE

### Availability Cost Modifier

Part	D	S	K	M	L	P	D	S	K	M	L	P
Bridge Equipment	7+	8+	7+	8+	8+	9+	1.0	1.1	1.0	1.3	1.3	1.75
Engine	6+	7+	8+	9+	9+	10+	.9	1.1	1.2	1.3	1.3	2.0
Engine Shielding	4+	5+	6+	7+	7+	7+	.7	.8	1.0	1.1	1.1	1.5
Drive	6+	7+	6+	8+	8+	9+	1.0	1.2	1.0	1.3	1.3	2.5
Attitude Thruster	6+	7+	6+	8+	8+	8+	1.0	1.2	1.0	1.3	1.3	2.0
Computer	7+	8+	7+	9+	9+	9+	1.0	1.1	1.1	1.4	1.4	2.0
Fire Control	6+	7+	6+	8+	8+	8+	1.0	1.2	1.0	1.3	1.3	2.0
Gunnery Circuitry	6+	7+	7+	8+	8+	9+	1.0	1.1	1.0	1.3	1.3	2.0
Radar	6+	7+	6+	8+	8+	9+	1.0	1.1	1.1	1.3	1.3	2.0
Life Support	7+	7+	6+	8+	8+	9+	1.1	1.1	1.0	1.3	1.3	1.75
Landing Gear	6+	6+	6+	7+	7+	7+	1.0	0.9	1.0	1.1	1.1	1.5
Door	4+	5+	4+	6+	6+	7+	1.0	1.0	1.0	1.0	1.0	1.2
Cocoon	7+	8+	7+	9+	9+	10+	1.0	1.2	1.0	1.3	1.3	2.0
Heat Sink	3+	3+	3+	4+	4+	4+	0.7	0.7	0.8	0.9	0.9	1.0
Armor	2+	2+	2+	2+	2+	4+	1.0	0.9	1.0	1.0	1.0	1.1
Docking Collar	7+	8+	7+	9+	9+	10+	1.0	1.1	1.0	1.2	1.2	2.0
Internal Structure	6+	7+	6+	8+	8+	9+	0.9	1.0	0.9	1.2	1.2	1.75
Tankage Parts	2+	2+	2+	2+	2+	4+	1.0	1.0	1.0	1.0	1.0	1.1
JumpSail	7+	7+	6+	8+	8+	10+	1.1	1.1	1.0	1.2	1.2	2.5
Charging System	8+	8+	8+	9+	9+	11+	1.0	1.0	0.9	1.1	1.1	1.75
Field Initiator	9+	9+	8+	9+	9+	11+	1.1	1.1	1.0	1.2	1.2	2.0
Drive Coil	9+	9+	9+	10+	10+	12+	1.0	1.1	1.0	1.3	1.3	3.0
Drive Controller	8+	9+	8+	10+	10+	12+	1.0	1.1	1.0	1.2	1.2	2.5

### Table Key:

D: Davion

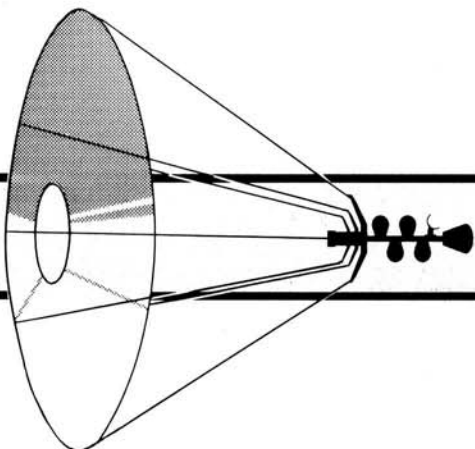
S: Steiner

K: Kurita

M: Marik

L: Liao

P: Periphery



To determine the proper tools for the operation, consult the Repair Equipment Table. If a particular kit or piece of equipment is necessary to make a repair, then a "Y" is indicated in the row for that operation. Notice that most repairs require the use of three, four, or even five different sets of tools and repair equipment. If the indicated tools and equipment are not available, then it must be obtained before any repairs of that nature can begin. Refer to **MechWarrior** for the price and description of repair tools and equipment. New items are described in the **Game Additions** chapter.

Most repairs can be handled with either *Engineering* or *Technician* skill. Repairs that specifically require *Engineering* skill are so indicated on the Repair Equipment Table.

## CONDUCTING REPAIRS

To attempt a repair, find the required success Target Number in the Completely Repaired column of the Ship Repair Difficulty Table. After modifying this number according to the modifiers to success chance, roll 2D6. If the roll is greater than or equal to the modified target number, then the repair is successful. If the repair attempt fails, then the damaged equipment retains its damaged state, and the required amount of time passes. The repair may be attempted again after this time.

In some cases, a Partially Repaired result is rolled. Apply the Effect of Partial Repair listed in the column. No further repairs may be attempted on that damaged section until it becomes further damaged.

REPAIR EQUIPMENT TABLE

Repair Operation	TK	CK	JK	EK	CR	FK	NP	MF	ES
Computer	N	N	N	Y	Y	N	N	N	Y
Armor Replacement	Y	Y	Y	N	N	N	N	N	N
Heat Sinks	Y	Y	Y	Y	N	N	N	N	N
Door	Y	Y	Y	N	N	N	N	N	N
Control Surface	Y	Y	Y	N	N	N	N	N	Y
Thruster	Y	N	Y	N	N	N	N	N	Y
Landing Gear	Y	Y	Y	N	N	N	Y	N	Y
Bridge	Y	N	N	Y	Y	N	N	N	Y
Weapon replacement	Y	Y	Y	Y	N	N	Y	N	N
Fire Control	Y	N	N	Y	N	N	N	N	Y
Radar	Y	N	N	Y	N	N	N	N	Y
Drive	Y	N	Y	N	N	Y	Y	Y	Y
Engine	Y	N	Y	Y	N	Y	Y	Y	Y
Structural	Y	N	N	Y	N	N	N	Y	Y

### Table Key:

TK: Tool Kit  
 CK: Cutting Kit  
 JK: Joining Kit  
 EK: Elec Kit  
 CR: Computer Repair Kit  
 FK: Fusion Kit  
 NP: Null-G Pack  
 MF: Major repair facility  
 ES: *Engineering* skill

# SHIP COSTS AND SERVICING

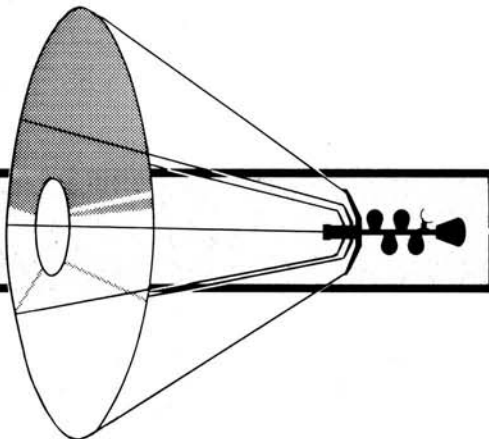
SHIP REPAIR DIFFICULTY TABLE

Damage	Completely Repaired	Partially Repaired	Effect of Partial Repair	Time Required (minutes)
Bridge Destroyed	9+	7-8	Must be replaced	480
Bridge Power Out	3+			60
Computer Out	7+	5-6	Must be replaced	360
Computer Damaged	6+			180
Armor Damaged	6+	3-5	1 D6 armor permanently lost	30
Heat Sink	7+	4-6	1/2 Effect	120
Door Damaged	7+	4-6	Door shut/open	60
Cocoon Damaged	7+	4-6	Must be replaced	60
Damaged Weapon	6+	3-5	Must be replaced	150
Control Surface	5+			60
Control Surface Out	7+	4-6	Must be replaced	60
Thruster Damaged	6+	4-5	Must be replaced	60
Landing Gear	6+	4-5	Gear up/down	120
Landing Gear Destroyed	Must be replaced			
Life Support Damaged	7+			120
Life Support Out	8+	6-7	Must be replaced	120
Fire Control Damaged	6+			90
Fire Control Out	7+	5-6	Must be replaced	120
Radar Damaged	6+			90
Radar Out	6+	4-5	Must be replaced	120
Drive Damaged	7+	4-6	Must be replaced	300
Engine Shielding Damaged	5+			300
Tankage Repair	3+			30
Docking Collar				
Damaged	6+	4-5	Must be replaced	120
Structure Damaged	8+	5-7	Lose 1 pt permanently	300
JumpSail Repair	8+	3-7	Lose 1 pt permanently	90
Charging System	8+	6-7	Must be replaced	120
Field Initiator	Must be replaced			
Drive Coil	Must be replaced			
Drive Controller	10+	8-9	Must be replaced	300

MODIFIERS TO SUCCESS CHANCE

Skill Level	Modifier
Engineering Skill Level 4-5	-1
Engineering Skill Level 6-7	-2
Engineering Skill Level 8	-3
No Engineering Skill:	
LRN 8-9	+1
LRN 6-7	+2
LRN 4-5	+3
LRN 2-3	+6





## TIME FACTOR

Each repair operation has a base time required to complete as listed in the Ship Repair Difficulty Table. Modify this length of time according to the Modifiers to Base Time to Repair Table. Remember that whether a repair attempt succeeds or fails, the same amount of time is required.

Time modifiers assume that one Engineer is handling the repairs with the aid of five laborers. Also, the team is considered to be working in zero-G with space environment suits, and they are using one or more Null-G packs. Operating under acceleration or gravity adds 1.0 to the time multiplier. Absence of an individual laborer adds 0.2. Operating in zero-G without a Null-G pack adds 1.0. Note that a Null-G pack has no effect while working under acceleration or gravity.

### MODIFIERS TO BASE TIME TO REPAIR

Engineering Skill Level	Multiplier
None or 1	2.0
2	1.0
3	0.75
4	0.5
5	0.4
6	0.33
7+	0.25

## COMPONENT REPLACEMENT

If a component needs to be completely replaced, obtain the replacement component using the procedures outlined at the beginning of this chapter and consult the Component Replacement Difficulty Table below. The first part of the table lists tasks that can be accomplished on the ship. The second part covers tasks that can be accomplished only with the aid of a major repair facility. The Component Replacement Difficulty Table works exactly like the ship Repair Difficulty table except that it has no Partial Repair column. Note that the Time column in the table is given in hours instead of minutes.

### COMPONENT REPLACEMENT DIFFICULTY TABLE

Component	Difficulty	Time (hours)
<b>On-Board</b>		
Bridge	7+	80
Computer	6+	60
Weapon	6+	25
Ammo Reload	3+	2.5
Door	5+	20
JumpSail	5+	15
Armor	6+	5
Heat Sink	7+	20
Life Support	7+	60
Radar	8+	60
Attitude Thruster	7+	50
<b>Major Facility</b>		
Engine	7+	360
Drive	7+	180
Landing Gear	6+	90
Docking Collar	7+	90
Charging System	8+	120
Field Initiator	9+	240
Drive Coil	9+	360
Drive Controller	8+	120

### MODIFIERS TO SUCCESS CHANCE

<b>Modifier</b>	
<b>On-Board Repair Performed at Major Facility</b>	-1
<i>Engineering Skill Level 4-5</i>	-1
<i>Engineering Skill Level 6-7</i>	-2
<i>Engineering Skill Level 8</i>	-3
<b>No Engineering Skill:</b>	
LRN 8-9	+1
LRN 6-7	+2
LRN 4-5	+3
LRN 2-3	+6

# SHIP COSTS AND SERVICING

## SHIP MAINTENANCE

JumpShips and DropShips require much time, money, and effort to maintain. Teams of Engineers and Second Engineers work in 'round-the-clock shifts replacing lights, repairing door mechanisms and faulty wiring, and checking life support systems, intercom panels, and escape pod berths. Instead of using the maintenance system presented in **The Mercenary's Handbook**, players may use the following detailed system.

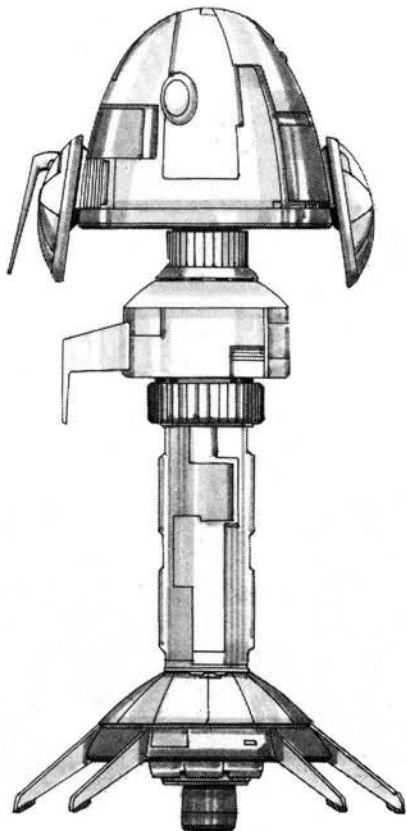
Support points for maintaining the vessel are generated by the crew and by cash expenditures. The Support Point Generation Table shows how many support points are generated per month.

**SUPPORT POINT GENERATION TABLE**

**Engineering skill level**

1	5 Support Points
2-3	10 Support Points
4-5	20 Support Points
6+	30 Support Points
Every 5 crew members	1 Support Point
Every 5,000 C-Bill expenditure	1 Support Point

The Maintenance Cost Table below provides the basic support point cost for each DropShip and JumpShip in the ComStar Intelligence Summary.

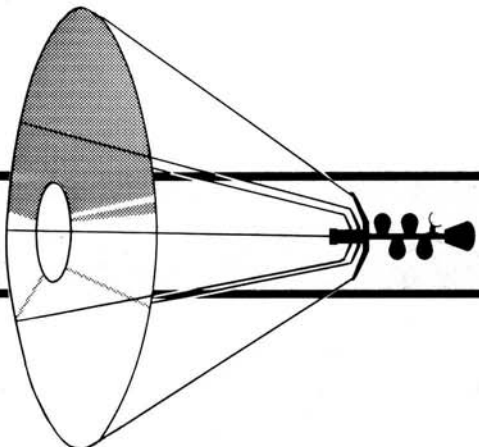


**MAINTENANCE COST TABLE**

Vessel	Cost to Maintain/Month (in support points)	
	New	Salvaged
<b>JumpShips</b>		
Scout	75	150
Merchant	80	160
Invader	85	170
Star Lord	90	180
Monolith	100	200
<b>DropShips</b>		
Leopard	60	120
Union	70	140
Overlord	80	160
Fury	40	80
Gazelle	50	100
Seeker	65	130
Triumph	80	160
Condor	75	150
Excalibur	100	200
Avenger	65	130
Achilles	80	160
Intruder	75	150
Fortress	110	220
CV Leopard	65	130
Vengeance	75	150
Buccaneer	50	100
Mule	75	150
Monarch	75	150
Mammoth	150	300
Behemoth	250	500

Calculate the maintenance cost of the vessel monthly. First, determine the current maintenance level of the ship. There are six maintenance levels numbered from 0 to 5, with 0 as the highest state of maintenance. New vessels have a level 0, salvaged have a level 2, and destroyed have a level 5.

The Ship Maintenance Chart gives the cost to maintain the ship as a percentage of either the ship's new quality maintenance cost or its salvage quality maintenance cost (see the Maintenance Cost Table above). The result is the number of support points that must be spent to keep the ship's current maintenance level. If any portion of the ship's maintenance cost cannot be met, then the ship automatically drops one level (the maintenance level number increases by one). This takes effect starting with the next month's maintenance determination process. If extra manpower is available, they may attempt to decrease the maintenance level of the ship by spending the number of support points listed in the Cost to Lower Level column of the Ship Maintenance Chart. This new level will take effect at the next month's maintenance determination process.



A few ways to reduce a month's maintenance cost are listed in the Maintenance Cost Modifiers Table. A vessel that is mothballed is completely unoccupied, shut down, and sealed up in order to prevent any wear on the ship. This process takes about a week, as the crew must seal up all drive openings and thruster openings and remove any material that might put wear on the ship. Mothballing is not used much, as it is considered a waste of a valuable resource. However, if a unit is having troubles maintaining a ship, mothballing is preferable to losing the ship to poor maintenance. Mothballing costs twice the monthly maintenance cost (this includes the current month's maintenance), and so is not very effective for temporarily reducing cost.

Another method for reducing maintenance costs is to shut down the ship's engines (which makes the ship uninhabitable). Other methods to reduce breakdowns and maintenance costs are listed in Maintenance Cost Modifiers.

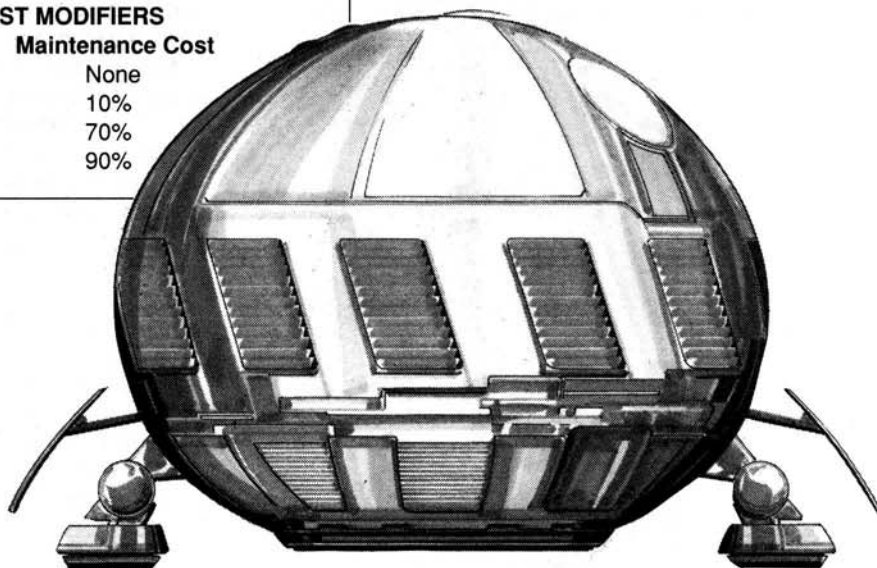
Whether or not the ship's maintenance costs are met, there is a possibility that the ship will suffer system breakdown. The chance for this increases as the ship's maintenance quality decreases. Determine the ship's Breakdown Number from its maintenance level and the Breakdown Table below. Modify the number according to the Modifiers to Breakdown Number and then roll 2D6. If the result is less than the Breakdown Number, then there is no breakdown. If the result is greater than or equal to the Number however, then the ship may have a breakdown. To determine the type of breakdown, roll 2D6 add the ship's maintenance level number, then consult the Breakdown Results Table. Any damage takes effect sometime during the month at the gamemaster's discretion.

#### SHIP MAINTENANCE CHART

Maintenance Level	Maintenance Quality	Percent Cost to Maintain	Cost to Lower Level
0	New	100% of New	N/A
1	Salvage-A	80% of New	2 x Salvage
2	Salvage-B	100% of Salvage	1 x Salvage
3	Salvage-C	60% of Salvage	1 x Salvage
4	Destroyed-A	10% of Salvage	1 x Salvage
5	Destroyed-B	0	3 x Salvage

#### MAINTENANCE COST MODIFIERS

Situation	Maintenance Cost
Vessel is mothballed	None
Vessel is completely shut down	10%
Vessel performs no movement	70%
DropShip spends no time planetside	90%



# SHIP COSTS AND SERVICING

**BREAKDOWN TABLE**

Maintenance Level	Breakdown Number
0	12+
1	11+
2	10+
3	8+
4	5+
5	N/A

**MODIFIERS TO BREAKDOWN NUMBER**

Situation	Breakdown Modifier
Vessel is mothballed	+6
Vessel is completely shut down	+4
Vessel performs no movement	+2
DropShip spends no time planetside	+1

**BREAKDOWN RESULTS TABLE**

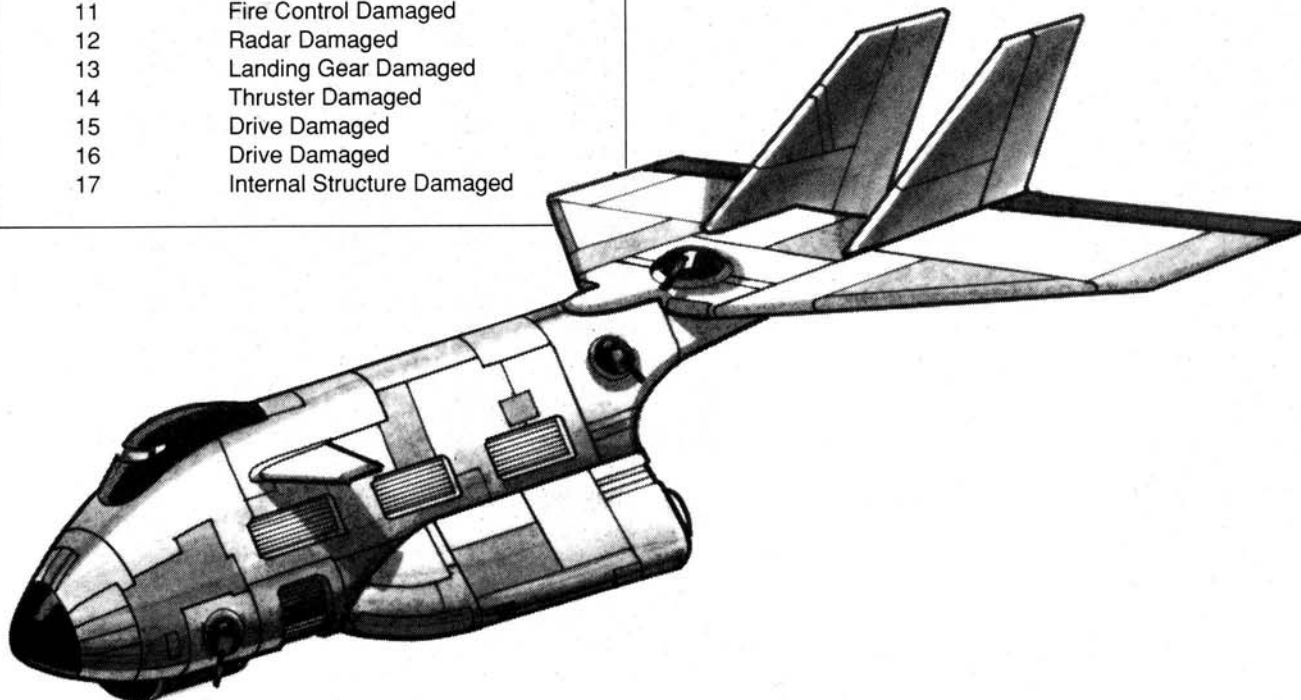
Die Roll	System Affected
2	None
3	None
4	None
5	None
6	None
7	None
8	Door Damaged
9	Computer Damaged
10	Life Support Damaged
11	Fire Control Damaged
12	Radar Damaged
13	Landing Gear Damaged
14	Thruster Damaged
15	Drive Damaged
16	Drive Damaged
17	Internal Structure Damaged

## OTHER COSTS

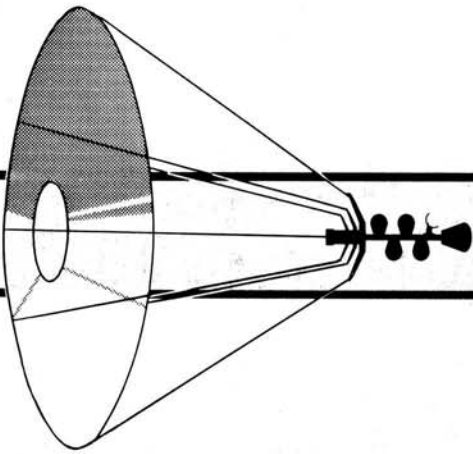
To provide power and propulsion, all DropShips and most JumpShips are equipped with fusion engine cores that operate on standard diatomic hydrogen. The fuel is available at any space port, most space stations, and from tankers parked at the primary jump points of many major star systems.

Fuel is referred to in terms of burn-days. One burn-day is the amount of fuel that a specific ship consumes in one day when accelerating at a constant rate of one G. The actual tonnage of a burn-day of fuel varies from ship to ship, and is given in the ships' statistics in the **ComStar Intelligence Summary**.

The cost for one ton of hydrogen fuel is 750 C-Bills on worlds near borders or near the Periphery. On inner system worlds, fuel costs 500 C-Bills per ton. In the Periphery itself, fuel costs vary greatly, ranging anywhere from 750 to 3,000 C-Bills per ton, depending on availability.







Players may use this chapter for ideas to build up a little revenue, and gamemasters may use it to develop ideas for scenarios and campaigns. The following sections give revenue generating systems for DropShips and JumpShips.

## DROPSHIP REVENUES

To keep a DropShip properly maintained and to make a profit besides, the captain needs to build revenue. There are two systems for handling revenues. The first method is a simple income generator that can be used quickly and easily for non-military missions. It cannot be used for military ships because this system does not consider possible damage to the ship. To handle such vessels, use the second method.

Using the first method, the players roll 2D6 and multiply the result by ten to determine the amount of income received as a percentage of the standard fees charged for the ship. To determine what these fees are, see the Transportation Rates Table below.

**TRANSPORTATION RATES TABLE**

Vessel	Standard Rates
Leopard	60,000
Union	150,000
Overlord	400,000
Fury	30,000
Gazelle	40,000
Seeker	105,000
Triumph	430,000
Condor	300,000
Excalibur	700,000
CV Leopard	60,000
Vengeance	?????
Avenger	500,000
Achilles	750,000
Intruder	1,000,000
Fortress	4,000,000
Buccaneer	256,000
Mule	854,000
Monarch	228,000
Mammoth	4,011,000
Behemoth	8,400,000

The second method is a more detailed system for determining the specifics of a mission. Both civilian and military ships may use this system. The players roll 2D6 and add the appropriate modifiers from the Mission Roll Modifiers. Note that the players may choose whether or not to apply optional modifiers before they make their roll.

Next, apply the result to the DropShip Mission Table. This table gives the mission type and information regarding the length of the mission, whether a combat landing is required, whether a round-trip journey is required, whether combat damage may result, and the capacity of the ship used during the mission.

To determine the duration of the mission, the players roll 2D6. If the roll exceeds the Target Number listed under the Duration column, then the mission will last for 2D6 - 1 weeks; otherwise, it will last for 1D6 weeks. The duration of the mission does not affect the amount of payment received.

A combat landing is required if the players roll 2D6 greater than or equal to the Target Number listed on the Combat Landing column. Payment for a vessel making a combat landing is ten times the normal fee.

The next step is to determine whether or not the employer requires a round-trip journey. Roll 2D6. If the result is greater than or equal to the Target Number in the Round Trip column, then a round trip is required. Payment for a round trip is double the standard fee.

**DROPSHIP MISSION TABLE**

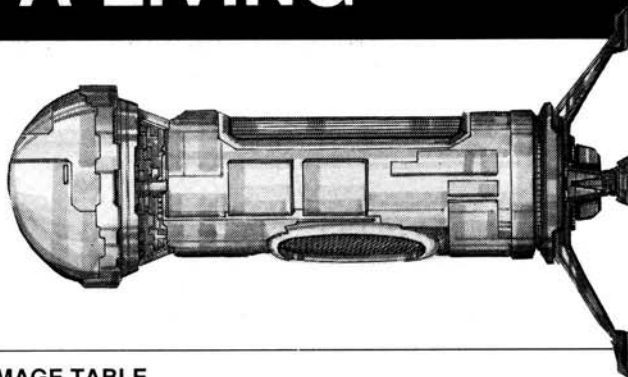
Modified Roll	Mission	Duration	Combat Landing	Round Trip	Danger	Capacity
0	Civilian	12+	N/A	8+	11+	50%
1	Civilian	11+	N/A	9+	11+	60%
2	Civilian	11+	N/A	10+	12+	70%
3	Civilian	10+	N/A	11+	12+	80%
4	Civilian	10+	N/A	11+	12+	90%
5	Civilian	9+	N/A	12+	12+	full
6	Military	11+	12+	6+	11+	full
7	Military	10+	11+	7+	10+	full
8	Military	10+	10+	7+	9+	full
9	Military	10+	7+	9+	8+	full
10	Military	8+	9+	9+	9+	full
11	Military	6+	10+	10+	10+	full
12	Military	6+	9+	8+	9+	full
13	ComStar	6+	12+	7+	10+	full
14	House	8+	11+	6+	9+	full

### MISSION ROLL MODIFIERS

Vessel is a civilian vessel	-2 (optional)
Vessel weighs 50,000 tons or greater	-2
Vessel is a military vessel	+2 (optional)
Vessel is a combat DropShip	+4

# MAKING A LIVING

At this point, the players must decide whether or not to accept the mission. If they choose not to, they must wait one week before rolling for a new assignment. If they accept the assignment, they then must make a danger roll. If they roll 2D6 greater than or equal to the Target Number in the Danger column, then something has happened during the mission to cause damage to the ship and/or the crew. To determine the extent of the damage, the players should roll 2D6 and consult the Danger Damage Table below.



**DANGER DAMAGE TABLE**

Die Roll (2D6)	Damage
2	Ship takes 8D6 points of damage in 10-point increments to random hit location. The vessel also loses 2 points of Structural Integrity, and 1D6 characters take 2D6 points of damage.
3	Ship takes 6D6 points of damage in 10-point increments to random hit locations. The vessel also loses 1 point of Structural Integrity.
4	Ship takes 4D6 points of damage in 5-point increments to random hit locations.
5	Ship takes 2D6 points of damage to random hit location.
6	Major shake-up causes 1D6 characters to take 1D6 points of damage each to random hit locations.
7	Minor shake-up. Minor damage was caused, but was easily repaired.
8	Major shake-up causes 1D6 characters to take 1D6 points of damage each to random hit locations.
9	Possible system breakdown. Consult the Breakdown Table on page 49 and roll 2D6 + 4 to determine the result.
10	Ship takes 4D6 points of damage in 5-point increments to random hit locations.
11	Ship takes 6D6 points of damage in 10-point increments to random hit locations. The vessel also loses 1 point of Structural Integrity.
12	Ship takes 8D6 points of damage in 10-point increments to random hit locations. The vessel also loses 2 points of Structural Integrity, and 1D6 characters take 2D6 points of damage.

## JUMPSHIP REVENUES

In great demand throughout the Inner Sphere, JumpShips can be divided into two categories: ships that generate revenues on their own, and ships that support revenue-building DropShips.

JumpShips that generate revenues are independently operated and do not have their own DropShips to carry from system to system. Instead, they simply transport independent DropShips that need to get from one system to another. These JumpShips generate the most revenue, because they do not have to waste any time waiting for DropShips to return. Waiting for a DropShip to return can take four weeks; a JumpShip takes only one week to recharge, and during the other three weeks, the ship can carry more DropShips to other systems. The one drawback of the independent JumpShip is that they tend to have more difficulty getting supplied and maintained. In addition, sometimes a JumpShip crew has to hire a DropShip for interplanetary transportation missions.

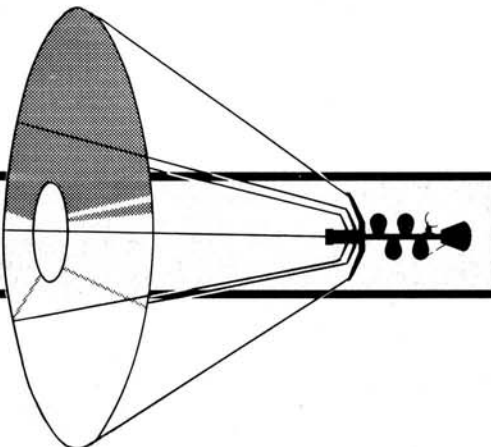
JumpShips that operate with a group of DropShips are less profitable unless one examines the profits earned by the DropShips carried. These DropShips can spend all their energy trading without being concerned with finding a way out of the system. If they get into trouble, the DropShips can leave the system as soon as they get to their JumpShip. Military units and larger merchant corporations usually operate JumpShips in this manner. When making hyperspace jumps, these vessels often earn extra income by taking along DropShips willing to pay for transportation to another system.

The game system for determining JumpShip revenues is quite simple. If a JumpShip has room to transport more DropShips, the players roll 2D6 - 1 to determine the number of DropShips desiring transport to the JumpShip's destination. Modify this result according to the modifiers listed in the JumpShip Passage Modifiers Table below.

JumpShips are paid a set fee of 50,000 C-Bills per DropShip per jump.

**JUMPSHIP PASSAGE MODIFIERS TABLE**

JumpShip is leaving one Successor State and entering another	-5
JumpShip is travelling to a world in the Periphery	-3
JumpShip is travelling to or from a district capital	+4
JumpShip is travelling to or from a world with a population of at least 1,000,000,000	+2



## AEROTECH ADDITIONS

The following sections list supplemental rules for use when playing **AeroTech**.

## DROPSHIP COMBAT

Resolve DropShip space combat according to the rules in **AeroTech**. The exceptions to this are the Hit Location Table, the Bridge Critical Hit Table, and the Engine Critical Hit Table. There is a Hit Location Table for both aerodyne and spheroid DropShips. The reason for using different tables is because the two types of vessels have significantly different designs.

When using the Aerodyne Hit Location Table, do *not* ignore Control results. Apply these results just as if the ship were an AeroSpace Fighter. Also, resolve certain results in the same way as that listed for the Spheroid Hit Location Table.

### AERODYNE HIT LOCATIONS TABLE

Die Roll (2D6)	Front	Aft	Left/Right Side
2	Cockpit/Bridge	Engine/Control	Cockpit/Critical
3	Nose/Weapon Out	Fuselage/Control	Wing/Weapon Out
4	Fuselage	Fuselage/Heat Sink	Engine/Heat Sink
5	Right Wing	Right Wing	Fuselage/Bomb
6	Nose	Engine	Wing
7	Nose	Fuselage/Heat Sink	Fuselage/Door
8	Nose	Engine	Wing
9	Left Wing	Left Wing	Nose
10	Fuselage/Bomb	Fuselage/Heat Sink	Engine/Heat Sink
11	Nose/Weapon	Fuselage/Control	Wing/Weapon Out
12	Cockpit/Bridge	Engine/Critical	Engine/Critical

### SPHEROID HIT LOCATION TABLE

Die Roll (2D6)	Front	Aft	Left/Right Side
2	Bridge	Engine/Critical	Bridge
3	Nose/Weapon	Fuselage	F-Side/Weapon
4	Fuselage	Fuselage/Heat Sink	Engine/Heat Sink
5	F-Right	A-Right	Fuselage
6	Nose	Engine	F-Side
7	Nose	Fuselage/Heat Sink	Fuselage/Door
8	Nose	Engine	A-Side
9	F-Left	A-Left	Nose
10	Fuselage	Fuselage/Heat Sink	Engine/Heat Sink
11	Nose/Weapon	Fuselage/Gear	A-Side/Weapon
12	Bridge	Engine/Critical	Engine/Critical

#### Table Explanations

Mark Damage off the designed location. Extra effects are noted below.

/Bomb: The heaviest bomb carried by the Fighter is destroyed. The movement penalty is still in effect. If no bombs are carried, then there is no effect.

/Bridge: Roll on the Bridge Hit Table. Mark damage for DropShips against the nose.

/Critical: Roll on the Engine Critical Hit Table.

/Control: Roll on the Control Surface Hit Table and take the resulting movement restriction.

/Weapon Out: The craft loses 1 weapon from the damage location. If no weapon remains, then there is no effect. The defending player chooses the weapon to be destroyed.

/Heat Sink: The craft loses 1 heat sink.

/Door: Roll 1D6; on a result of 1 or 2, a door has been damaged, and no 'Mech may leave by that door until groundside repairs are completed. This damage subtracts one from the number of 'Mechs that may be dropped in one turn.

/Fuselage: if the ship's fuselage takes 10 or more points of damage from a single hit, a compartment of the ship has been holed. If the ship is travelling in a vacuum, then explosive decompression results. To determine if any personnel were caught in the compartment, roll 2D6. If the result is 7+, then no persons were caught. If the result is less than 7, roll 1D6/2 (round up) to determine the number of personnel involved. See the **Ship Operations** chapter for the effects of decompression.

/Gear: Part of the ship's landing gear was destroyed. This will affect all landings and lift-offs.

A: This can refer to Aft-Right or Aft-Left, depending on which side is hit.

F: Front-Right or Front-Left side.

# GAME ADDITIONS

**BRIDGE CRITICAL HIT TABLE**

Die Roll (2D6)	Effect
2	Bridge Destroyed. Automatic decompression if the vessel is operating in a vacuum. Each occupant receives 4D6 – 4 points of damage. Ship continues moving straight at current velocity.
3	Thruster Out. Roll on Control Surface Hit Table. The result is permanent.
4	Computer Damaged. +1 To-Hit Modifier until fixed.
5	Thruster Controls Damaged. Roll on the Control Surface Hit Table. The result applies until the damage is fixed.*
6	Fire Control Damaged. +2 To-Hit Modifier until fixed.*
7	Gunnery Circuitry Damaged. +1 To-Hit Modifier until damage is fixed.
8	Radar System Damaged. +2 To-Hit Modifier until fixed.*
9	Fire Control Damaged. +1 To-Hit Modifier until fixed. Also, roll on Control Surface Hit Table. Damage applies until fixed.*
10	Thruster Damaged. +1 To-Hit Modifier until fixed. Also, roll on Control Surface Hit Table. Damage applies until fixed.
11	Computer Out. Roll on the Control Surface Hit Table. All damage is permanent.
12	Bridge Power System Out. Ship continues travelling straight at current velocity.

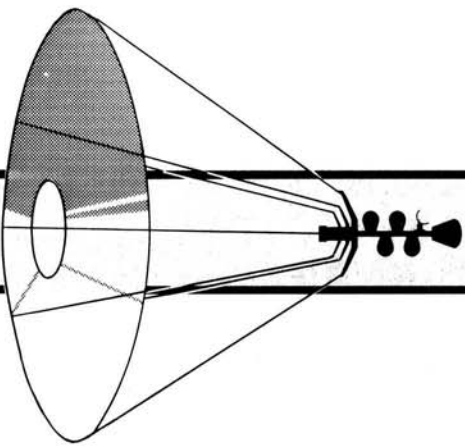
\*These results last until a successful *Piloting/Aerospace* Skill Roll is made.

Systems listed as damaged will remain damaged until repaired by a damage repair team. For details, see the **Repairs** section in the **Ship Costs and Servicing** chapter. If a system is "Out," then it requires repair at a major facility.

**ENGINE CRITICAL HIT TABLE**

Die Roll (2D6)	Effect
2	Engine Explodes. Ship takes 1D6 + 1 points of Structural Integrity damage and 8D6 points of damage to the fuselage armor. No maneuvering allowed. Ship continues travelling straight at current velocity.
3	Drive Hit. Ship loses one-half of current thrust permanently.
4	Drive Hit. Ship loses one-third of current thrust permanently.
5	Drive Hit. Ship loses one-quarter of current thrust permanently.
6	Fuel Hit. Ship loses 15 fuel points.
7	Fuel Hit. Ship loses 10 fuel points.
8	Fuel Hit. Ship loses 15 fuel points.
9	Engine Shielding Hit. +5 heat points per turn.
10	Engine Shielding Hit. +5 heat points per turn. Roll on Control Surface Hit Table.
11	Engine Shielding Hit. +10 heat points per turn. Roll on Control Surface Hit Table.
12	Engine Explodes. Ship destroyed.





### CONTROL SURFACE HIT TABLE

Die Roll (2D6)	Effect
2	Random movement. Velocity increases by current thrust rating.
3	Random movement. Velocity increases by thrust spent in current turn.
4	No left turns.
5	Random movement. Velocity increases by thrust spent in current turn.
6	No left turns.
7	Controls lock. Straight movement only.
8	No right turns.
9	Random movement. Velocity increases by thrust spent in current turn.
10	No right turns.
11	Random movement. Velocity increased by thrust spent in current turn.
12	Random movement. Velocity increased by current thrust rating.

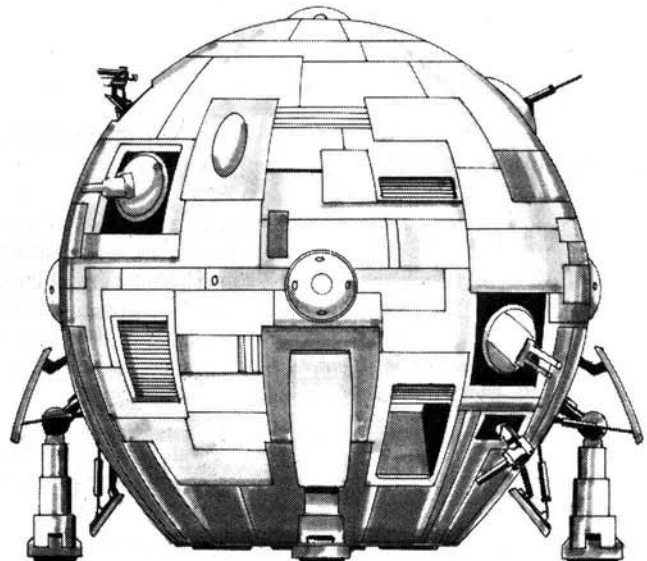
Control surface hits occur at the beginning of the next turn and last until cancelled by a successful *Piloting Skill* Roll made during the End Phase.

If a Random Movement result is rolled for a craft at low altitude, the craft automatically crashes and is destroyed.

### RANDOM MOVEMENT TABLE

Die Roll (2D6)	Effect
2	Hard left
3	Soft left
4	Hard left
5	Soft left
6	Straight
7	Straight
8	Straight
9	Soft right
10	Hard right
11	Soft right
12	Hard right

Hard: forward one hex, 120° or 2-hexside turn  
Soft: forward one hex, 60° or 1-hexside turn



Structural Integrity rolls must be made for random movement if the maneuver or combination of the maneuver and thrust exceed the SI of the craft. Even though the pilot applied no thrust for the random turn, use the maneuver's thrust rating at the current velocity when making the SI roll.

# GAME ADDITIONS

## JUMPSHIP COMBAT

There are often times when the presence of a JumpShip in combat is simply unavoidable. While anyone involved in an attack on a JumpShip should be aware of the serious consequences (such as demotion or refusal of passage aboard any JumpShip or DropShip), there are times when the need to attack outweighs any other negative considerations. If this is the case, use the following JumpShip Hit Location Table.

Die Roll (2D6)	JUMPSHIP HIT LOCATION TABLE		
	Front	Aft	Left/Right Side
2	Bridge	Engine/Critical	Bridge
3	Nose	JumpSail	F-Side
4	Fuselage	DropShip>K-F drive	Nose
5	F-Right	A-Right	K-F drive
6	Nose	Engine	F-Side
7	Nose	JumpSail/Engine	DropShip>K-F drive
8	Nose	Engine	A-Side/Heat Sink
9	F-Left	A-Left	K-F drive
10	DropShip>K-F drive	DropShip>K-F drive	JumpSail
11	Nose	JumpSail	A-Side/Heat Sink
12	Bridge	Engine/Critical	Engine/Critical

### Table Explanations

>: A result with this symbol means that the shot struck the object indicated on the left of the symbol. If that object is not present or if the gamemaster deems that it cannot be hit, then the object to the right of the symbol is hit instead.

JumpSail: Each time the sail takes a hit, it takes a single point of damage, regardless of how much damage the weapon hit could inflict. If the sail is furled, then re-roll.

DropShip: If any DropShips are carried, then the weapons fire hits one of them. If more than one is present, the gamemaster must choose the affected ship at random. If no DropShips are present, the weapon fire affects the system to the right of the > symbol.

K-F drive: The armored casing of the Kearny-Fuchida drive is hit. If any damage penetrates, then the hit inflicts a single point of damage to the drive itself, regardless of the hit's potential. The hit affects the drive's liquid helium tankage. For more information, see the **JumpShip Operations** section of **Ship Operations**.

Fuselage: If the ship's fuselage takes more than 5 points of damage from any single hit, a compartment of the ship has been holed. If the ship is travelling in a vacuum, then explosive decompression results. To determine if any personnel were caught in the compartment, roll 2D6. If the result is 7+, then no persons were caught. If the result is less than 7, roll 1D6/2 (round up) to determine the number of personnel involved. See the **Decompression** section of **Ship Operations**.

A: This can refer to Aft-Right or Aft-Left, depending on which side is hit.

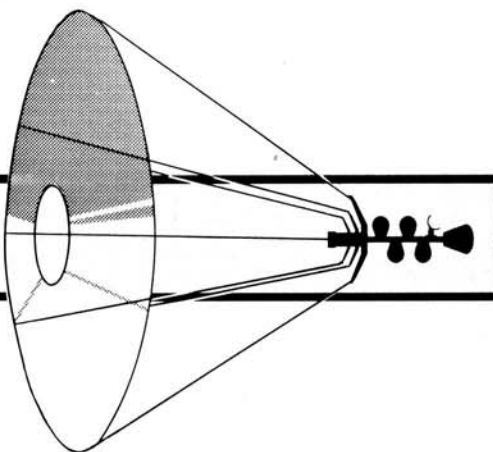
F: Front-Right or Front-Left side.

## SHIPBOARD GUNNERS

AeroTech assumes that DropShips always have an adequate number of gunners aboard to handle all available weaponry. This is seldom true. DropShips require a separate gunner for each operating weapon arc. (A DropShip pilot can always handle the forward firing arc.) This means that a *Union* or *Overlord* Class DropShip needs five gunners plus the pilot to fire all its weapons, while a *Leopard* needs only three gunners plus the pilot.

## ABANDON SHIP

DropShips and JumpShips in serious trouble may be abandoned at the captain's discretion. Escape pods begin the **AeroTech** turn in the same hex as the DropShip and possess the same velocity and heading as the DropShip. Once launched, the pods maneuver and take damage as any other aerospace craft. For more information on escape pods, see the **Small Craft** section of the **ComStar Intelligence Summary**.



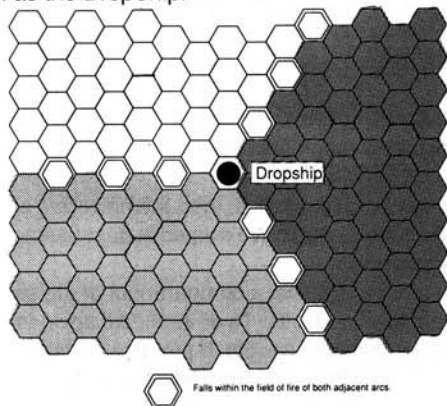
## BATTLETECH ADDITIONS

The following sections list supplemental rules for use when playing **BattleTech**.

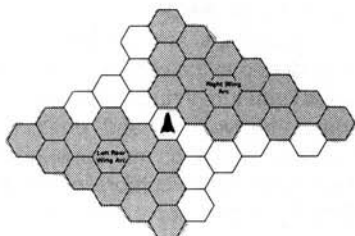
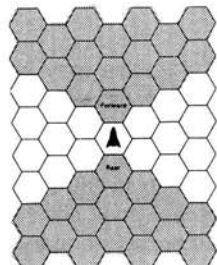
### FIRING ARCS

On the ground, most DropShips have different firing arcs than when they are in space. The exception to this is the aerodyne DropShip, whose firing arcs and damage arcs are identical whether on the ground or in space. The aerodyne's only problem is that it cannot fire at any targets located within the hex that it occupies.

Spheroid vessels sit upright with their front arcs facing up into the sky and their rear arcs facing down into the ground. The only weapons that can fire at ground targets are weapons mounted on the front-sides and the rear-sides. Nose-mounted weapons can be fired while the vessel is on the ground, but can fire only at airborne targets. Aft-mounted weapons can fire at ground targets, but only if the targets are located within the same hex as the DropShip.



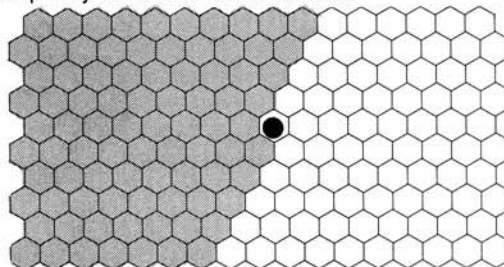
All side-firing weapons should be divided up as equally as possible into three groups. Each group occupies one of three firing arcs of the spheroid DropShip. The above diagram illustrates the placement of these arcs.



### DROPSHIP DAMAGE

DropShips on the ground take damage in the same manner as ships in space. The main difference is that they do not have to be concerned with velocities, maintaining flight, or explosive decompression. Each spheroid DropShip has two damage arcs, illustrated in the diagram below. The gamemaster must determine the orientation of these arcs before the start of combat. Both arcs are considered side arcs, and so any hit on a spheroid DropShip is rolled on the Hit Location Table under the Left/Right Side column.

In addition, a player with a unit in the same hex as the DropShip may fire at the aft arc instead.



### SHIP SIZES

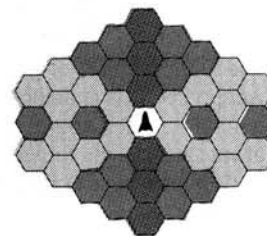
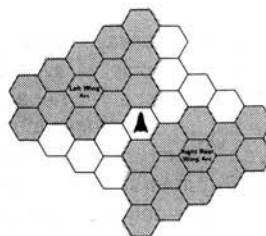
DropShips are extremely large vehicles. On the BattleTech Mapboard, which consists of 30-meter hexes, a DropShip can take up many hexes in various patterns. These hex patterns are illustrated below for each vessel described in the **ComStar Intelligence Summary**.

### DRIVE EXHAUST BLAST

DropShip drives spew out a tremendous amount of super-hot plasma, which inflicts a tremendous amount of damage to anything close to it.

For spheroid vessels, any object within three hexes of the landing or launching DropShip's hex pattern (see **Ship Sizes** above) is completely destroyed. All equipment destroyed by the blast is unsalvageable. Within six hexes of the DropShip, objects take 10 heat points, and any unprotected personnel are killed.

For aerodyne vessels, any object in the launching vessel's aft arc and within two hexes of the ship is destroyed. Any objects within five hexes and inside the ship's aft arc take 10 heat points, and unprotected personnel are killed.



# GAME ADDITIONS

## MECHWARRIOR ADDITIONS

The following sections list new equipment and skills for use when playing **MechWarrior**.

### NEW EQUIPMENT

#### Space Suit

Weighing twelve kilograms, the standard space suit is a flexible full-body suit that protects the wearer from vacuum. The suit is equipped with a small thruster pack, which allows the wearer to maneuver in zero-G. It also has a 48-hour life support capability, a built-in helmet communicator, and a flip-down sun visor. All space suits are self-sealing, protecting the wearer from accidental suit punctures.

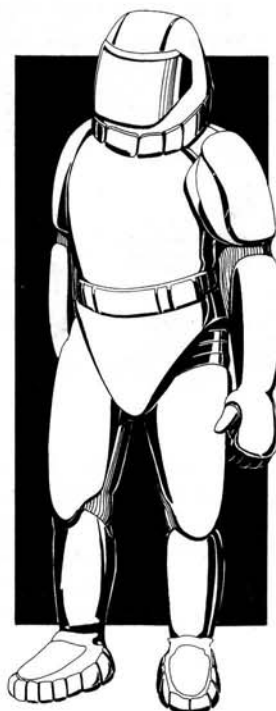
In combat, the suit provides little protection. The helmet provides 5 points of protection for the head, while the suit itself absorbs one-quarter of the damage from projectile and slug-throwing weapons and bows and up to 2 points per attack from laser weapons. However, the suit can absorb only 15 points of damage; if the suit takes more than 10 points of damage, it loses its life support capacity. Characters wearing a space suit have their movement point allowances cut in half.

There is also a combat version of the space suit, which provides more protection than the standard space suit. The combat space suit's helmet provides 10 points of protection, and the suit itself is covered with a ballistic cloth capable of stopping one-half of all damage from projectile and slug-throwing weapons and bows. The suit can also stop up to 4 points of laser weapon damage per attack. The suit can absorb only 40 points of damage and loses its life-support capability after absorbing 20 points of damage. It weighs 14 kilograms.

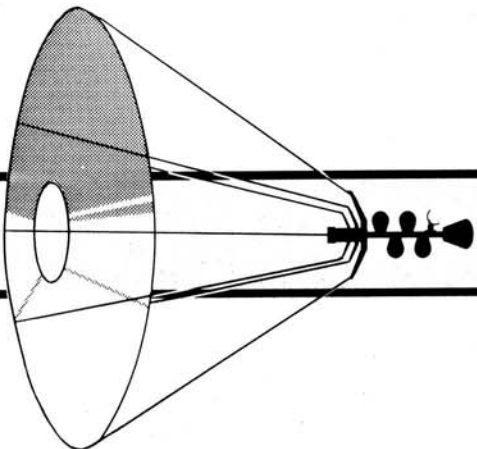
#### Engineering Suit

The engineering suit is a 14-kilogram space suit designed for protecting Engineers from the hazards of their duties. This full-body, flexible suit has a built-in life support system that sustains the wearer for up to 36 hours. Like the standard space suit, the suit is equipped with a thruster pack that allows the wearer to maneuver easily while in zero-G. The suit's helmet sports an intercom-link, a short range communicator, and a flip-down visor to protect the wearer from the blinding light of arc welders. Some models also have a built-in viewer for seeing in infrared and ultraviolet light. The most notable feature of the engineering suit is the hard shell that protects the torso, arms, and legs from suit punctures and shields the wearer in radiation hazard areas.

In combat, the helmet provides 10 points of protection from all attacks, while the rest of the suit stops one-half of all damage taken from projectile weapons and bows, and up to 4 hits per attack from energy weapons. The suit can absorb a total of 35 points of damage, after which it is useless. Though the suit is self-sealing, if it takes more than 10 points of damage, it ceases to protect the wearer from hostile environments. The engineering suit also protects the wearer from tranq guns and stunner weapons, giving a -4 to all Saving Roll targets against these attacks. Characters wearing engineering suits have their movement points allowances halved.

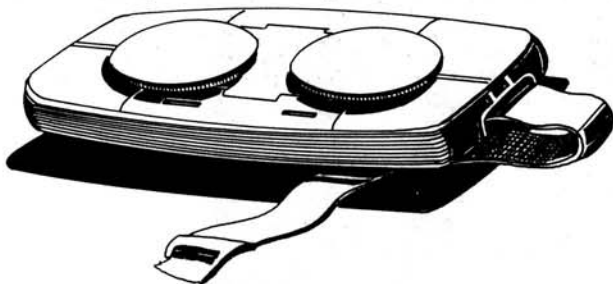






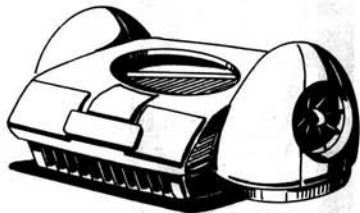
### Null-G Pack

A 20-kilogram suitcase-sized device, the null-G pack is designed to move cargo easily in zero-G. These devices strap onto an object in pairs and are controlled by a two-kilogram, hand-held device. The packs and the controller are tuned to a specific frequency, and it is unlikely that two different units can get their signals crossed (except by deliberate changing of frequencies). Null-G packs contain about one ton-hour of maneuvering fuel, or enough fuel to maneuver one ton of cargo for a full hour, or 60 tons of cargo for one minute.



### Portable Power Unit

This device is a small, high-powered battery pack that can be used as an external power source for many devices. The most common use for it is as an extended laser weapon power pack and as an external power supply for the engineer's portable console. As a weapon's power pack, the unit can provide up to 80 energy charges, giving a standard laser rifle 40 shots. These two-kilogram packs can be clipped to a belt or attached to a special shoulder strap.



### Portable Life Support Unit

This ten-kilogram, suitcase-sized device is designed to provide air and heat to keep one person alive for up to 96 hours. The system has a built-in air supply, air filtration and recycling system, and power unit. A crewmember can hook up the device to any environmental suit or attach it to a life support outlet to keep a room habitable. If needed, the unit will support six people for up to 16 hours.

### Engineer's Portable Console

Engineers use this four kilogram, book-sized programmable computer terminal to tie into various systems aboard the ship. The console uses a pre-programmed cartridge that can emulate just about any control panel located on the ship. There are many different emulation cartridges available, covering just about every ship in the Inner Sphere. The console also has built-in programming, allowing it to act like a generic control panel if no cartridges are available. Whenever the console is being used in such a mode, any rolls made receive a +1 target modifier. Using a tie-in connector built into every control panel aboard a space vehicle, the console can override panels that have been damaged, have lost power, or been overridden from another location. With this device, the engineer can have total control over any local shipboard system.

In certain cases, the panel may require a standard military back-pack or portable power unit to activate powered devices such as locks and doors. Each use of the power pack uses up two charges. The console itself has a standard power pack that uses one charge per hour of use.

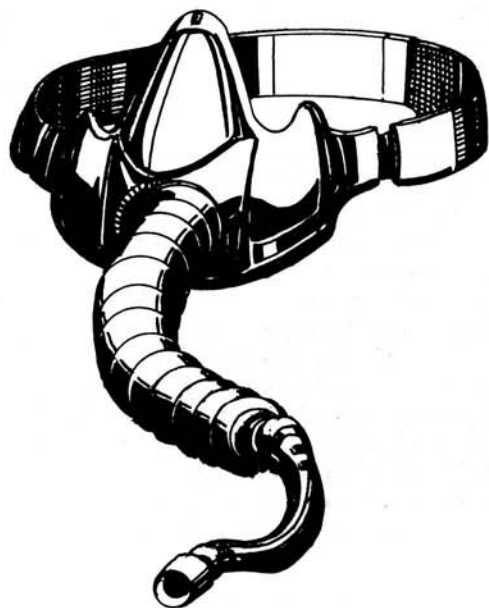


### Communications Headset

This device is a microphone/earphone combination that fits over the user's head, with the mike extending next to the user's mouth. At the back of the neck is the main communicator itself. With a range of about 100 meters (just powerful enough for shipboard use), the device operates off a small battery that can power the device for one month of use. In addition, it can hook up to a standard power pack, using energy at the rate of one charge per week.



# GAME ADDITIONS



## Oxygen Mask

This device is a plastic breathing mask that fits over the user's nose and mouth. At the bottom of the mask is an air line that can plug directly into either a breathing tank or the ship's air hook-up system. Using the ship's air hook-up system, the mask can provide an almost unlimited supply of breathable air. A special valve located at the end of the air line regulates the flow of air into the mask. The mask's primary use is to protect the wearer in poisonous atmospheres. On board the space vessel, it is useful in compartments with coolant leaks or compartments that have been gassed.

## Thruster

Before 'Mech drop, these large armored boxes are bolted onto the back of BattleMechs that have no jump jets. Inside the pack's protective housing are thrusters and large parachutes that allow the 'Mech to land safely on the ground. Controls within the 'Mech's cockpit detonate the attaching bolts immediately after landing, thus jettisoning the pack. Support units recover the packs for reuse at a later time. The packs weigh three tons when charged, and two tons when empty.

## Reentry Kit

The one-ton reentry kit is designed to be used by BattleMechs that are dropped from orbit. These kits consist of a ceramic and metal capsule (the DropPod) and a spun foam and ceramic structure (the cocoon). As the 'Mech hits the atmosphere, the DropPod absorbs the great amount of friction generated. After a time, timed explosions break the DropPod into five sections (which will confuse ground-based observers). Then, the cocoon absorbs the friction, shredding away in the process and adding to the radar-reflective debris surrounding the 'Mech.

## Ultrasonic Detector

Weighing three kilograms, the ultrasonic detector is a rare device designed to pick up vibrations transmitted through walls. This portable unit operates by sending out a high frequency pulse that bounces off walls, detecting vibrations caused by sound waves and movement. The device can be adjusted to screen out background vibrations. The detector uses the collected data to give the approximate location of nearby persons or objects, even through walls.

The ultrasonic detector is battery-powered and uses up six charges per hour of use; it can also accept a standard battery pack. Because these devices can no longer be produced or repaired, many units are unreliable, and most occasionally give false readings.

## Gas Grenade

Because this small hand-held device is an extremely safe means of subduing people without damaging the ship or personnel, it is often used in shipboard security. The gas grenade is a long, thin, cylindrical device, easily distinguishable from explosive grenades. It operates by pushing in the cap of the cylinder and turning. Then, after a five-second delay, it releases a tranquilizing gas that expands at a rate of three meters per combat round, up to 15 meters in diameter. The effect of the gas is the same as if the person were hit by a tranquilizer gun. The gas dissipates after 10 minutes.

Gas rounds that detonate on impact are available for gyrojet rifles and shotguns. These rounds have half the range of standard rounds, but have the same effect as a standard gas grenade. The maximum effective expansion of the gas is only nine meters for shotgun rounds.

## Infrared Goggles

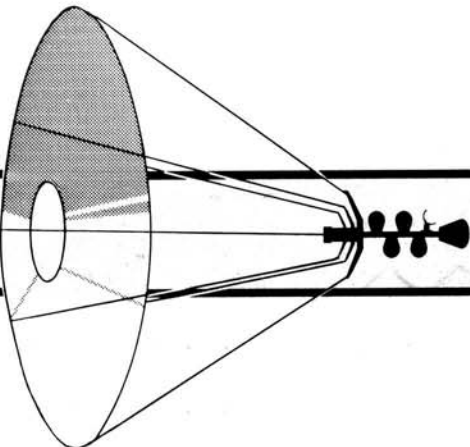
Infrared goggles are thick flat lenses that fit over the eyes and allow the wearer to see in infrared light. These units operate passively, requiring no infrared light source with which to see; they pick up images through their heat emissions. The goggles are powered by a power pack, located at the back of the head, and utilize energy at the rate of one charge per hour of operation.

## Engineer's Helmet

The engineer's helmet is a lightweight helmet designed to protect the engineer's head while he is working in the tight quarters of a space vessel. Made of a high strength plastic, the helmet provides the wearer's head with 5 points of protection from any type of projectile or impact weapon, but has no effect on laser weapons. The helmet is equipped with a visor (which protects the wearer's eyes from the brightness of arc welders) a built-in set of infrared goggles, and a built-in intercom-link.

## Intercom-Link

Though normally hand-held, this communications device is also built into other items, such as the engineer's helmet. The intercom-link serves as a portable tie-in to the ship's comm system. Controls on this device are exactly the same as those on a standard comm panel. The device is powered by a single power pack and uses one charge per six hours of use.



## COST LIST

Item	Cost (in C-Bills)
Space Suit	5,000
Patch	10/each
Combat Space Suit	7,000
Patch	15/each
Engineering Suit	7,500
Patch	10/each
Null-G Pack	1,000
Refueling	10
Controller	250
Portable Life Support Unit	5,000
Recharge	100
Portable Power Unit	10
Engineer's Portable Console	5,000
Cartridges	250/each
Communications Headset	50
Battery	5/each
Oxygen Mask	2
Thruster Pack	20,000
Recharge	1,000
Reentry Kit	30,000
Refurbishing	5,000
Ultrasonic Detector	2,500
Gas Grenade	100
Infrared Goggles	1,000
Engineer's Helmet	2,000
Intercom-Link	500

## NEW SKILLS

## Zero-G

When operating in a zero-G environment, all DEX-based skills are performed with a modified Skill Roll target equal to either the attempted DEX-based Skill Roll target or the character's *Zero-G* skill roll target, whichever is greater (i.e., whichever is worse).

When operating in a low-G environment, the Skill Roll target is equal to the average of the attempted skill's Target Number and the *Zero-G* skill's Target Number. Low-G is defined as being between 0.1 and 0.5 Gs, inclusive.

## Aerospace Tactics

This skill is the space-based equivalent of the *Tactics* skill described in **MechWarrior**. The skill may be used during any encounter in the atmosphere or in space (nor on any planetary surface). Every level of this skill increases the initiative roll for the user's side by one. Use of this skill requires the person to have either visual or radar contact with at least half of the vessels on both sides and communications (directly or indirectly) with at least half of the friendly vessels. Only one person on each side may use this skill at any time.

FURY  
CONDOR  
GAZELLE

TRIUMPH  
BUCCANEER

AVENGER

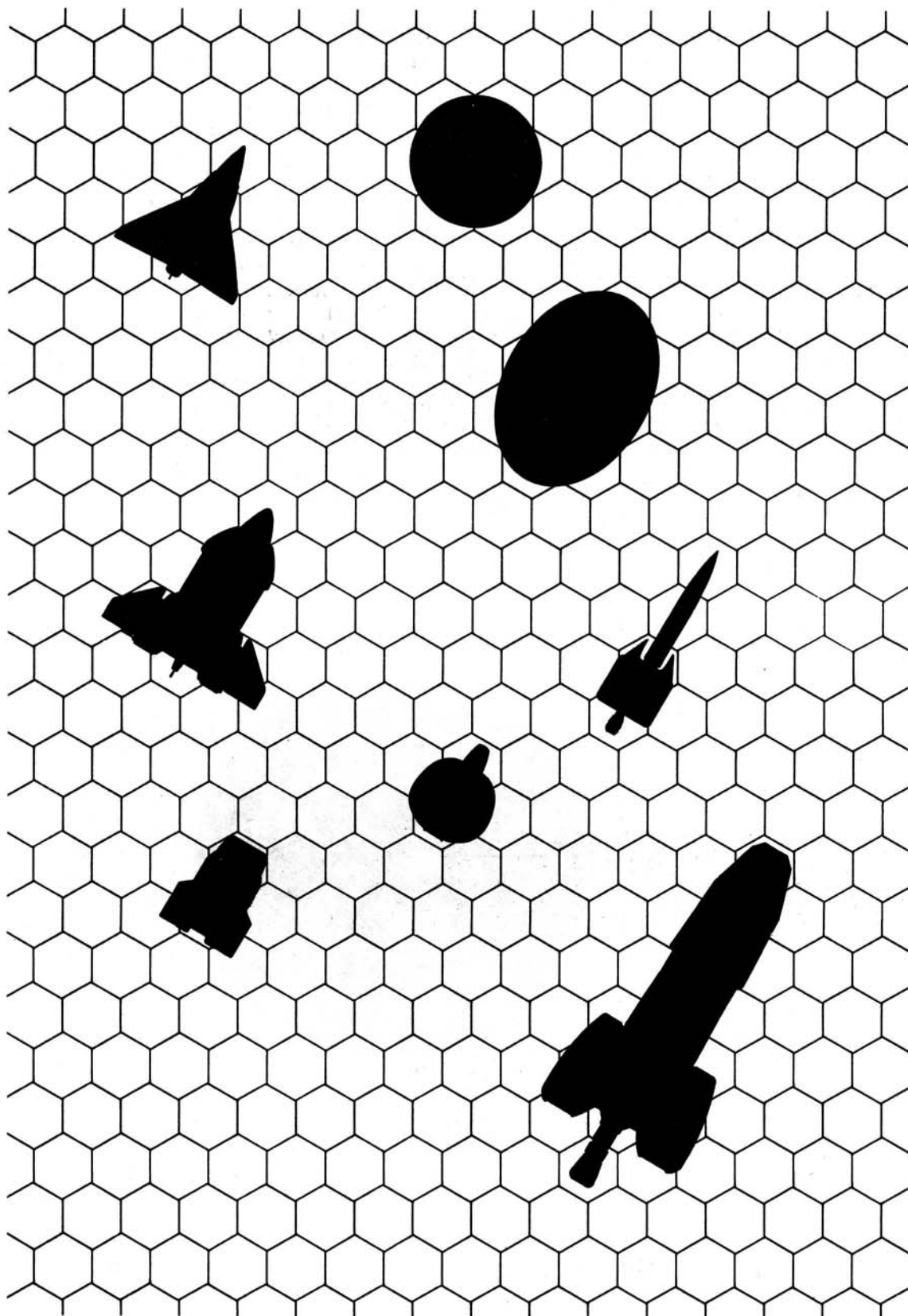
LEOPARD  
LEOPARD CV

SEEKER  
INTRUDER  
UNION

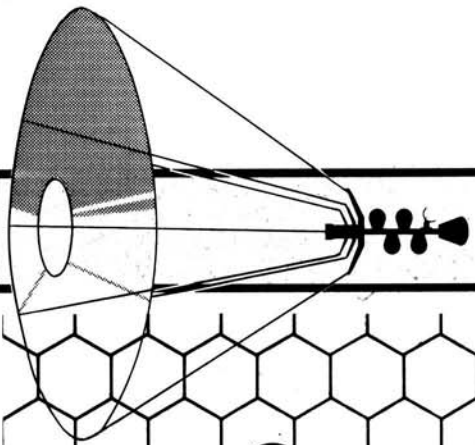
EXCALIBUR  
FORTRESS  
OVERLORD

ACHILLES

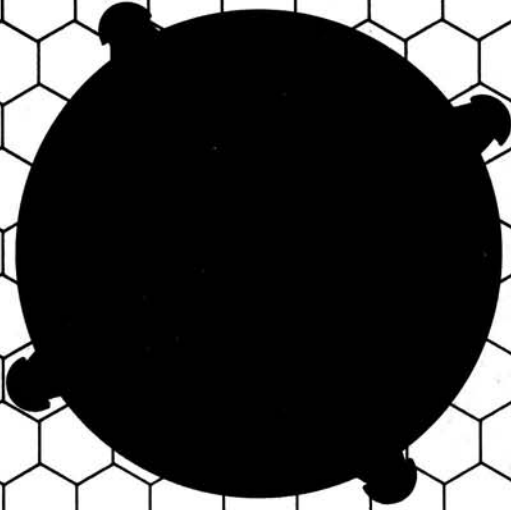
VENGEANCE



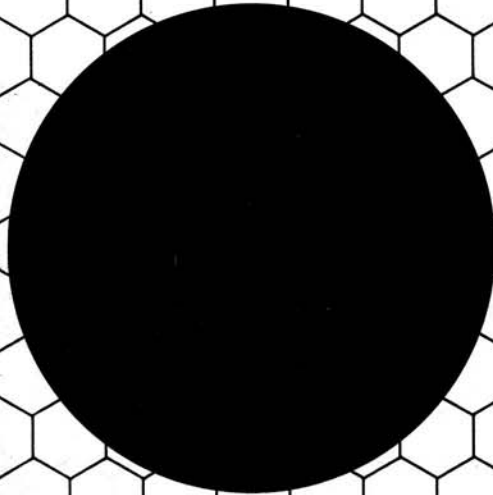




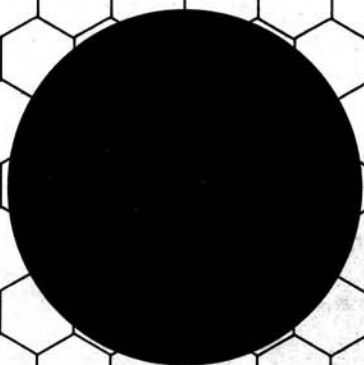
MAMMOTH



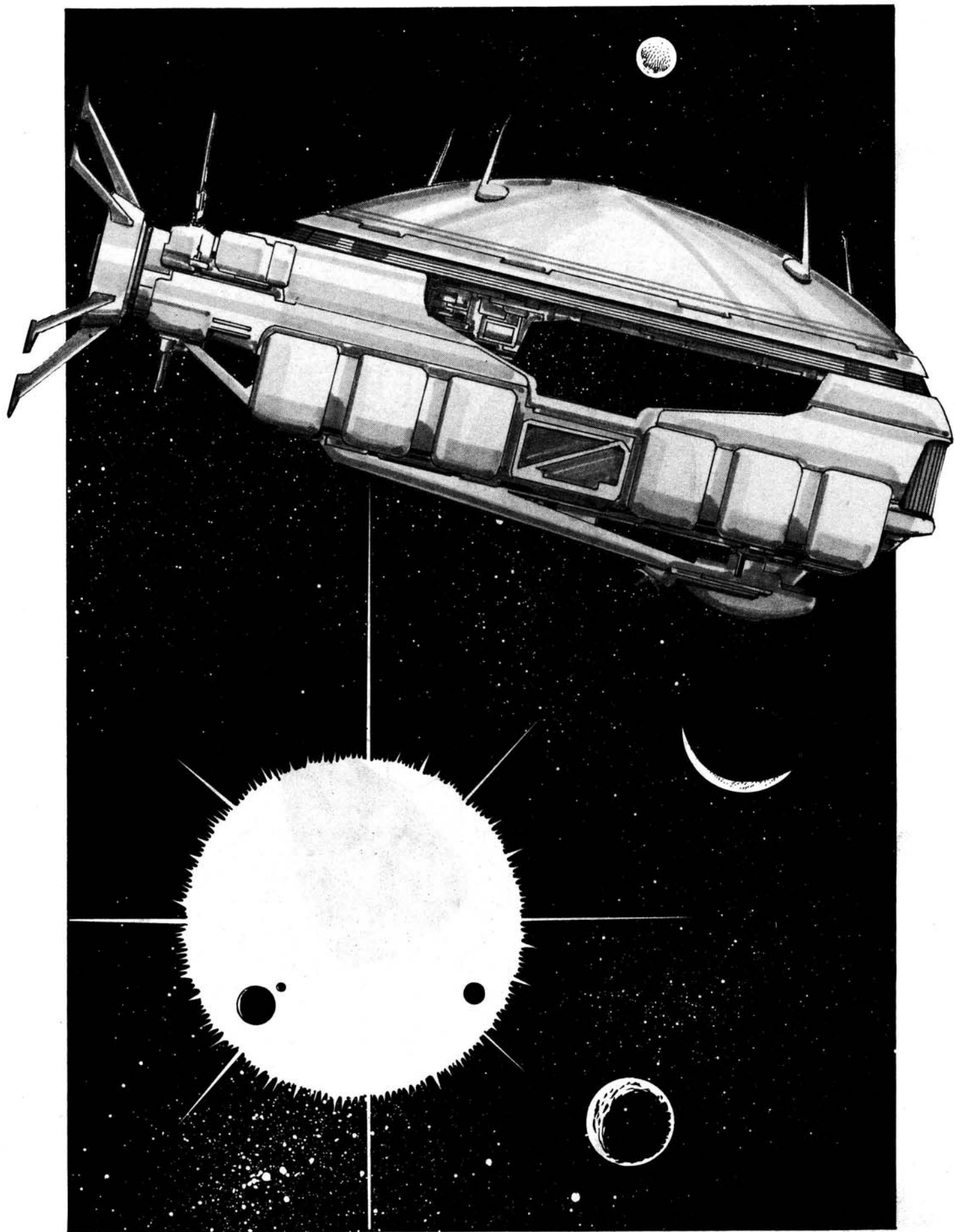
BEHEMOTH



MULE



MONARCH

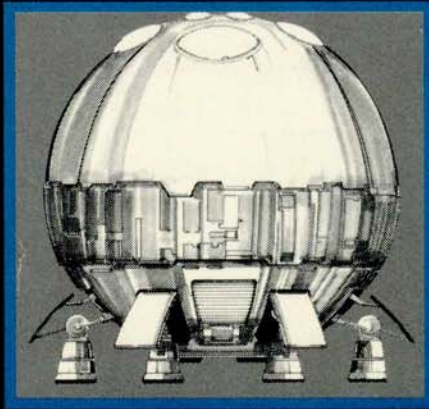




# DROPSHIPS A N D JUMPSHIPS

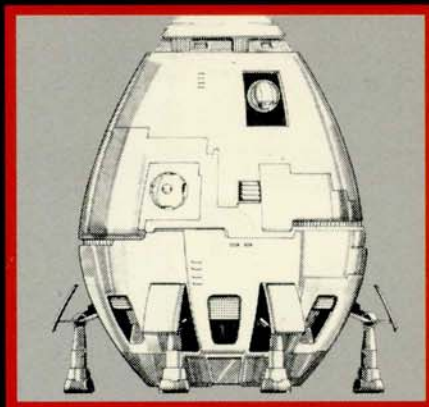
Here is the definitive work describing mankind's method of transportation between the stars. Bound into this single volume are ComStar Intelligence Summary FB-60 and excerpts from the standard DropShips and JumpShips Operations Manual.

## COMSTAR INTELLIGENCE SUMMARY



ComStar Intelligence Summary FB-60 discusses the five major types of JumpShips and 20 major types of DropShips as well as examples of small craft and even space stations. Each entry includes an illustration of the ship as well as detailed descriptions and statistics. Also included is a short history of humanity in space, from the construction of Crippen station, through the work of Kearny and Fuchida and mankind's exodus from Terra, to the modern Succession War era.

## OPERATIONS MANUAL



The Operations Manual includes essays on the designs of DropShips and JumpShips, descriptions of the general components of each type of vessel, and extensive game rules covering all aspects of their operation and maintenance.



**DropShips and JumpShips —**  
**you can't leave home without 'em!**