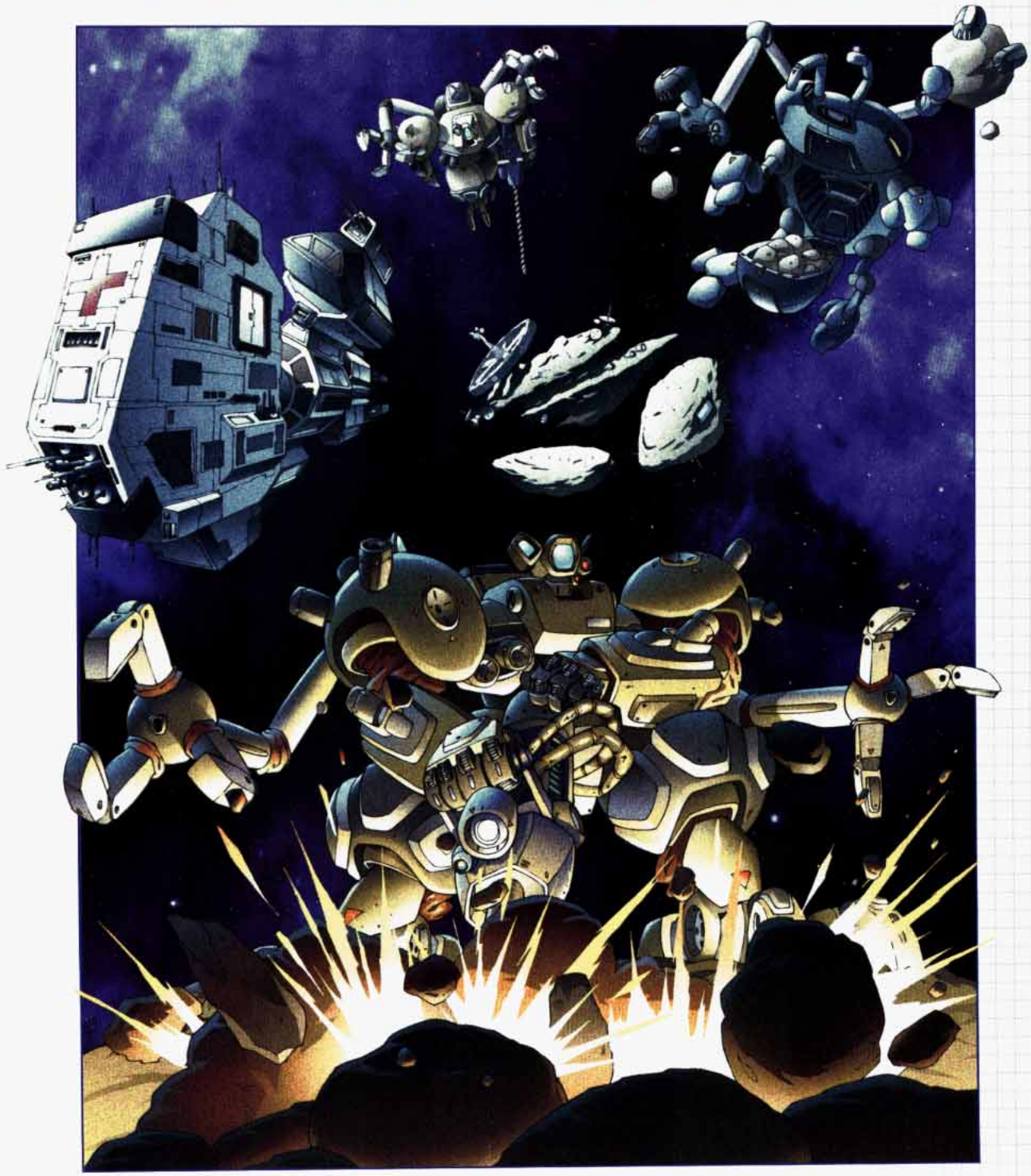
MECHANICAL CATALOG TWO

JOVIAN CHRONICLES

CIVILIAN EQUIPMENT & SPACECRAFT



FROM DREAM POD 9

JOVIAN CHRONICLES

The second volume of the Mechanical Catalog series contains new vehicles for the Jovian Chronicles science-fiction universe, all of them civilian and utilitarian in nature. From the humble local cargo hauler to the great interplanetary transport magnetic sail, they are all covered in depth with background information and detailed schematics.

Within these covers you will find:

- Thirty ready-to-play vehicles, ranging from the lowly mining drone to an interplanetary cargo ship;
- Four large installations, including a research station and a skyhook;
- Complete game statistics for all vehicles and installations;
- Detailed background, schematics and adventure seeds;
- Hints and tips on using the vehicles and information contained in this book in any science fiction campaign.

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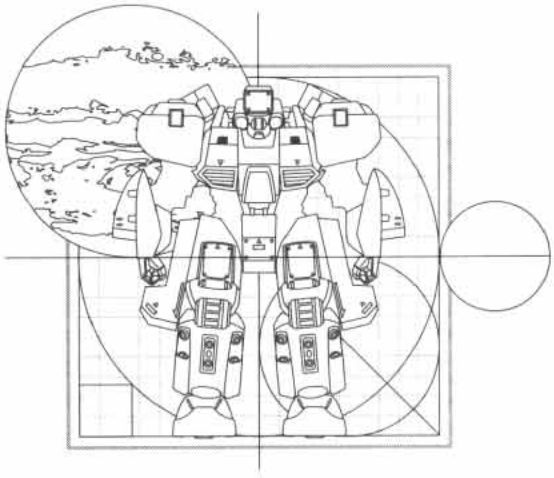
JOVIAN CHRONICLES



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Hope you enjoyed the ride.

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The use of the male gender throughout this manual should not imply exclusion of the female gender. It is meant only in order to avoid pronouns like "him/her/it", making the text lighter and easier to read.

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STATIONS, SHIPS, AND PERSONAL CRAFT

The importance of vehicles in space living cannot be overemphasized. Life support and radiation shielding are necessary just to keep people alive, and powerful engines are required to move from location to location. More than just a place to live or a means of travel, vehicles are an important part of any **Jovian Chronicles** game: what the Players can accomplish, what they will encounter and how they will respond in a situation will all be determined by the kinds of craft available to them.

Vehicles are not just important to the Players, however. The types of ships available to a space society will shape its culture and economy. In the late twentieth century, it was possible to go anywhere that was important within a day or two of travel. In a settled solar system, however, this is no longer true. Journeys that can take half a year or longer have an immeasurable effect on how people will view travel, or even daily life.

Patience and forbearance are once again necessary virtues for the traveler. A person's ability to get along with others is absolutely necessary, whether he is aboard a ship, on a station, in a colony cylinder or planetary urban settlement. Very few people have all the skills necessary to survive on their own in the solar system, so the lone man in the wilderness of space is not a popular cultural image.

▼ USING THIS BOOK

1.1.1

The second **Mechanical Catalog** was planned and written with the civilian gamer in mind. While many of the vehicles found within this book have a potential military application, military gamers are better served by the **Ships of the Fleet** series of books or the first **Mechanical Catalog**. This volume presents a wide variety of civilian vehicles.

The second **Mechanical Catalog** follows roughly the same organization as the first, with several different data formats used to present the various vehicles. One-page information sheets are used for simple vehicles that require little background information due to their simple nature or obvious function. Two or more pages are used where the vehicle requires more history, background and description than one page can allow.

The first chapter deals with craft that are primarily found on colonies (and on Earth, in some cases). These are typically small craft for commercial and recreational purposes, including personal transportation. If need be, they can be adapted to represent utility vehicles virtually anywhere simply by modifying their outer appearance or adding the required Perks, such as a life support system.

The second chapter is dedicated to the commercial ventures to be found in space. Several new makes of cargo hauler are presented, each serving a different useful purpose. The chapter also looks at the mining, search and rescue, and passenger transportation sectors.

The third chapter focuses on the smaller habitats that are found throughout the Solar System. While some of these could not rightly be called vehicles, all are small enough that they can be more meaningfully described as large vehicles rather than gigantic "props" (such as colony cylinders and massive asteroids).

▼ NO PLACE LIKE HOME

1.1.2

One important and often overlooked piece of information is that no two space ships are ever completely alike. Ship construction takes months and they are almost always made to order, customized to the buyer's desires. The **Mechanical Catalog** presents a lot of numbers and figures for both players and gamemasters, but they should never be considered to be set in stone. Most ships should vary slightly from any given write-up if for no other reason than game color. Don't worry about statistics or numbers as long as the changes are small. No one should really care exactly how many bolts are in that space tug with the extra sick bay.

Every ship should have its own distinct personality — from the color of its deck plates to the noise its drives make at full thrust. Gamemasters who keep this in mind will create interesting, vibrant craft for their players. Almost every ship is somebody's home! Of course, the easiest way to make a ship memorable is hull markings. Most space travel is long, boring coasting, so there's a lot of time for anyone with a bit of creativity to turn his ship into a moving canvas. Large militaries or corporations like the Titanian Hydrocarbon Corporation might frown upon such activity, but most independents have no such inhibitions. Interiors often receive similar treatment, with wall murals taking the place of more traditional hanging pictures found in ordinary homes.

WE HAVE THE TECHNOLOGY... ▼

1.1.3

Part of the reason behind any book of vehicle designs is to lighten the Gamemaster's load by providing him with ready-made machines that can easily be dropped into play. Another reason is to expand the setting by filling in perceived 'necessary' roles that have gone undeveloped so far. A third, and equally valid reason, however, is to provide gamers with a benchmark for producing their own, personal designs. **Jovian Chronicles** has a complete and comprehensive vehicle design system, but its inherent versatility and open-ended structure can often be intimidating to both new and experienced gamers. The first **Mechanical Catalogue** illustrated the design parameters of the setting for military craft, and this second volume does the same for their civilian counterparts. What kind of radiation shielding does a craft have? How many escape pods? How much reaction mass? These are the sorts of question this book should help the would-be ship builder to answer.

At the same time, this should not be viewed as a constraint to imagination. The **Jovian Chronicles** setting is one of reasonably hard science fiction, but it shares that ideal with less practical elements like exo-armors. History has proved that people are likely to try anything at least once, and that what seems impractical at first may often prove to be surprisingly effective.

LESSONS LEARNED ▼

1.1.4

As might be expected, the process of designing a large number of vehicles teaches a variety of lessons and brings to light several important finer points about the **Jovian Chronicles** vehicle design system. Here are a few short notes to assist novice designer in making their own, personal creations.

Armor isn't Everything: On large vehicles, there is a strong temptation to choose large Armor values. This is justified by the large mass of the vehicle, and is inexpensive TV-wise thanks to the ship's likely low Maneuver. Not every ship is a military ship, however. Vehicles will be more durable where they need to be, and likely less so everywhere else. Rather than add expensive reinforcement Perks to the design, consider taking the Weak Point Flaw on less robust vehicles. Civilian craft especially tend to have poorly armored weapons or auxiliary systems.

Bigger is Better: This is true as far as drive sections are concerned, anyway. The final acceleration (MP) of a space vehicle will be determined by how much thrust its engines can produce. Engines that have a large Size produce more thrust than smaller engines of a similar acceleration, meaning the ship as a whole will move faster.

The Importance of Fuel: While a ship's movement statistics will show how fast it accelerates in combat, it is ultimately the reaction mass that determines how fast it can make a long journey. Large amounts of fuel are necessary for any long trip.

Equivalent Burn Points: Most ships list their total reaction mass along side the overall acceleration of the vessel. The primary problem with this is that there usually isn't a direct relation between the two of them. Any ship with more than one section is spending more than 1 Burn Point (BP) for 1 Movement Point (MP). An easy way around the headaches this can produce is to calculate Equivalent Burn Points. Simply use the following formula:

Equivalent Burn Points = Total Burn Points of Ship x (Ship's Top Speed/Sum of Drive Section Top Speeds)

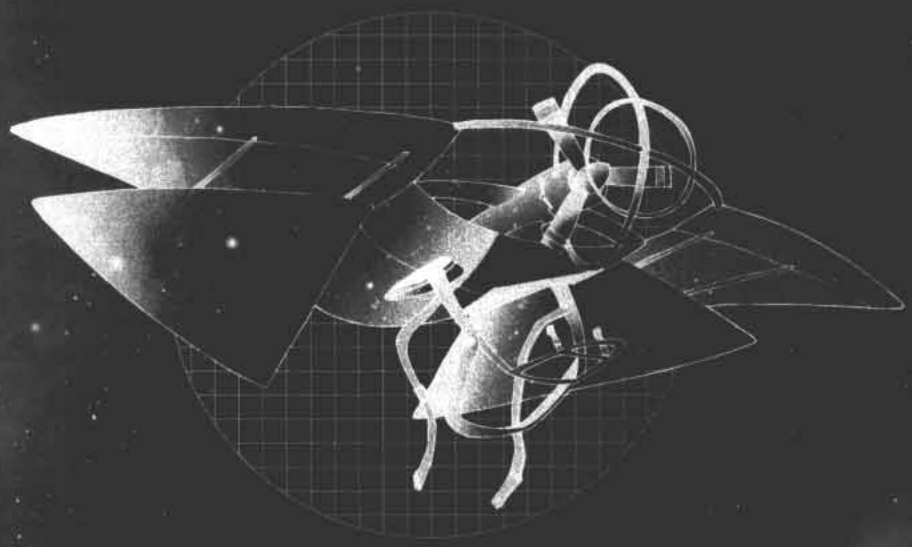
The value produced can then be used directly with the ship's overall movement statistics; one Movement Point using one Equivalent Burn Point. This is also useful in the Coasting formula found in the **Jovian Chronicles Companion**, p. 86. Equivalent Burn Points can be substituted for Burn Points and the Efficiency of the engines can be ignored (i.e. Efficiency = 1.00).

For example, the Valiant has four drives that each produce 28 MP. The overall ship, however, moves at 8 MP and has a total of 70,000 BP. Its Equivalent Burn Points = 70,000 x (8/112) = 5000. By comparison, a Bricriu has one drive with 14 MP and 15,000 BP but only moves 5 MP overall. Its Equivalent Burn Points = 15,000 x (5/14) = 5357. Despite having fewer Burn Points than the Valiant, the Bricriu has more Equivalent Burn Points — meaning it can accelerate for longer and travel long distances faster.

Note that in this book, equivalent burn points are listed in the movement data overview for multi-section ships. Equivalent burn points are also listed in the movement data overviews for such vehicles in the reprinted **Mechanical Catalog**.

Deployment Range: The costs of Deployment Range are astronomical for vehicles meant to travel very long distances. Space probes, satellites and the like become far more expensive than their complexity justifies. To balance this, the following clarification on Deployment Ranges must be made: If a vessel has no crew and is not moving (i.e. using a movement system) or using Actions, then it is not using up its Deployment Range. If it is using Actions only to operate sensors or communications systems (with the exception of ECM and ECCM), multiply its effective Deployment Range by 10 if in land, air and water environments, or by 100 if in space.

Life Support and Ejection Systems: The number of crew listed with these Perks should represent the actual capacity of the systems, not just the actual crew complement. Many ships have more escape pods than crew to insure access to a pod and most ships have life support systems that can support numbers far in excess of their actual crew. Overworked life support systems have a tendency to fail, though Gamemasters should exercise discretion as to when this happens.



CHAPTER TWO:
COLONY LIVING

LIFE IN SPACE ◄

2.1

Not every vehicle found in space is a commercial space ship or vessel of war. Every colony and settlement has its share of common, practical vehicles used for everyday life. Thanks to advanced technologies, these vehicles are safer, cleaner and more efficient than ever before — space is dangerous enough already and pollution and waste cannot be afforded.

When people think of space colonies, it's likely that images of O'Neill or Vivarium cylinders come to mind. Despite the near-Terran conditions found on such colonies, there are many engineering concerns that must be specifically addressed when it comes to internal vehicle. Urban planning takes place at the time of the cylinder's construction, allowing for efficient mass public transport, reducing the need for personal transport. The average colony cylinder has a far lower number of personal vehicles than any planetary settlement would. Additionally, the distance a specific vehicle will need to travel is far lower — a few dozen kilometers of travel would take one from one side of a colony and back, sometimes more than once. Speeds are consequently lower and fuel tanks smaller, which is suited to the more compact nature of these machines.

Vehicles used in colony cylinders or space stations are almost without exception either electric or hydrogen powered. Though petroleum and alcohol powered engine technology has advanced to the point of being nearly as clean as a hydrogen engine, they require a resource base that most cylinders either lack or cannot afford. Vehicle enthusiasts typically complain that a ride in a colony-designed vehicle is safe, quiet, smooth, and dreadfully dull.

PLANETARY COLONIES ▼

2.1.1

Natural gravity and an atmosphere does not make for a friendly environment. Mars and Venus aside, even Earth has its share of hostile environments, from blazing deserts and frigid arctic conditions to the oceanic depths. Vehicles designed to operate on planets are therefore products of their own, special environments. Both players and gamemasters will be familiar with the conditions to be found on Earth, but the scorching inferno of the Venusian surface or the frigid deserts of the Martian landscape offer their own unique challenges to vehicle design.

Venusians don't like to travel on their surface, and with good reason. Even their surface colonies are built atop long heat-dissipating towers and are heavily insulated. Any vehicle designed to operate on the surface must incorporate such features. Interestingly, walkers are favored by the Venusians for surface operations, thanks to their low surface contact area, all terrain capability and readily available space for heat dissipation equipment.

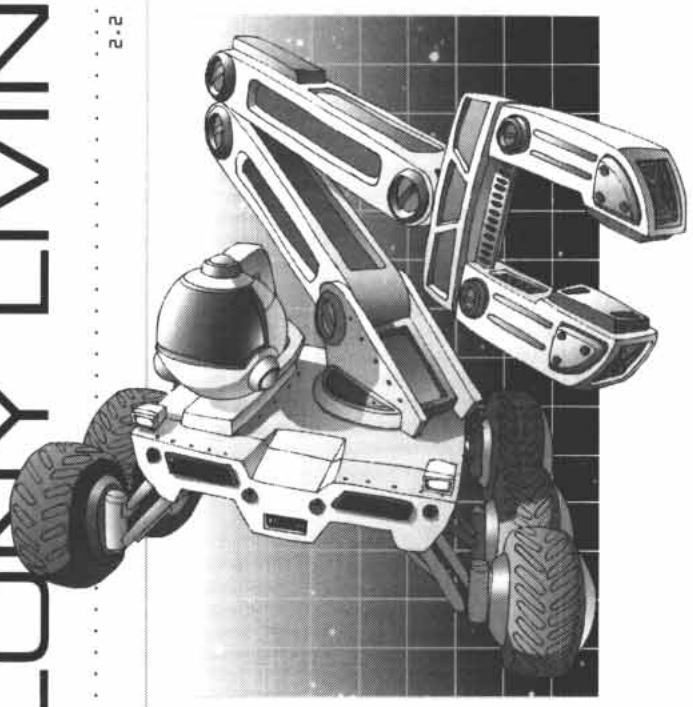
Martians, on the other hand, travel a great deal on their planet's surface. Low atmospheric density would make hover- and aircraft problematic, but the lower Martian gravity makes them still practical. The most common choice, however, is the rugged simplicity of a large-wheeled all terrain vehicle. Martian vehicles must be able to operate off road in both cold and desert conditions, with typically long deployment ranges due to the scattered nature of settlement.

LUNAR COLONIES ▼

2.1.2

Low gravity and a near-total lack of atmosphere typifies the conditions a lunar vehicle must face. Consequently, radiation shielding and life support systems are essential for any surface operations. On the other hand, factors such as vehicle weight are of little concern, save where expense is involved. Rugged, simple and independent are hallmarks of lunar engineering, as machines must face the same hostile conditions as a spaceship without the dedicated maintenance a spacegoing vessel would recieve.

▶ PHI SERIES 3 CARGO LOADER



Cargo handling facilities are an important part of any colony cylinder. Tugs and OTVs usually transfer cargo between cylinder and freighter in the large, standardized containers in which it is shipped. Station side, workers handle the cargo in these containers in the microgravity cargo docks located at the cylinder's end caps and along the factory spine. A network of transport rails interweaves these facilities; cargo loaders ride the rails and can access every corner of a dock with relative ease. The rail system provides manageable, predictable traffic patterns for the big loaders, which is highly desirable in the busy docks. In addition, the rails provide stability for lifting and moving large masses.

Cargo loaders also operate in the warehouses located on and beneath the cylinder's floor. In this environment, the simulated gravity provides stability, so surface loaders use wheels to move around. A multi-environment loader uses both wheels and rails, and can operate just as easily in one environment as the other. If equipped for rail travel, a loader can even travel between the two environments on the cylinder's spoke rails and along the central shaft rails. For safety reasons, loaders never carry cargo on the spokes or the shaft. The potential damage resulting from a poorly maintained cargo claw inadvertently releasing ten tons of cargo while riding the spoke is too great to risk.

The Pogatchnik Heavy Industries Series 3 loader is a multi-environment loader equipped with a single large cargo arm. Combined with a high torque drive train, the Series 3 loader can easily manage loads of about 10 tons. A three-axis gimbal allows the operator to adjust his cab to any desired orientation, which is quite useful in the microgravity loading docks.

◫ VEHICLE DATA

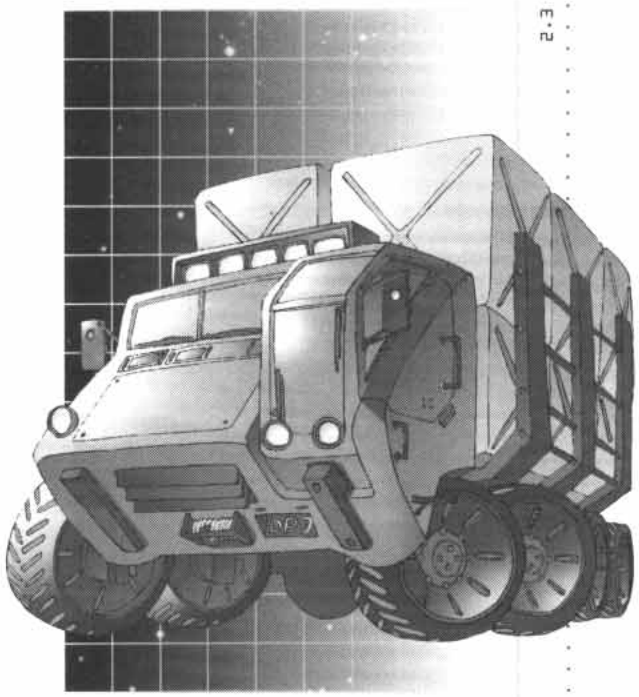
Threat Value:							130 (65,000 credits)
Crew:							1 (2 Actions)
Size:							5 (4 tons)
Armor:							5/10/15
▼ MOVEMENT DATA							
Movement Mode		Combat Speed	Top Speed				Maneuver
Ground		4 (20 kph)	7 (40 kph)				-2
Rail		3 (15 kph)	5 (30 kph)				-4
Deployment Rage:							150 hrs
Reaction Mass:							-
▼ ELECTRONICS DATA							
Sensors:							N/A
Communications:							-2/5 km
Fire Control:							-5
▼ PERKS & FLAWS DATA							
Name		Rating					Game Effect
Fuel Efficient		-					Double Deployment Range at Combat Speed or less
High Towing Capacity		-					Triple towing
Tool Arm		8					Cargo claw, cannot punch
Decreased Maneuverability		2					Rail
No Sensors		-					Cannot perform active sensor scans
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty	Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
None								

COLONIAL TRANSPORT TRUCK ◄

A sturdy workhorse, the colonial transport truck (CTT) serves the many municipalities, commercial industries and governments throughout the Solar System. Much like its original ancestors of the 20th century, the colonial truck is an extremely rugged and versatile vehicle. Various models are manufactured for virtually every colonized environment in the Solar System by a multitude of manufacturers. Mercury, Venus, Mars, Titan, the Moon and every colony cylinder utilize this adaptable design for a throng of industries and occupations. Used for everything from mining to trash collecting, CTTs are a staple machine for the economic survival of industrialized society.

A notable example, the Oan truck has served the Martian Federation for decades as the primary government-contracted CTT. A sturdy six-wheel design, the truck is easily fitted with everything from cargo bins to ore buckets, allowing the transport to perform multiple hauling tasks. Drivers enjoy the tight turning radius for such a large vehicle due to the flexible axle construction built into the control systems. At the same time, six powerful electric engines drive the wheels, adjusting torque to prevent loss of traction in off-road conditions. Aside from these systems, the design is otherwise very simple, utilizing a flat cargo bed with a frontal cabin for driver and passengers. This modular and adaptable design has remained almost unchanged for over a century.

On other worlds, local manufacturers do the same, utilizing unique environmental features while retaining the flexible function of the Martian CTTs. From the large aerogel tires used on certain Venusian mining CTTs to the specialized magnetic traction wheel hubs used on colony cylinder CTTs, these vehicles can be easily tooled for almost any colonial environment.

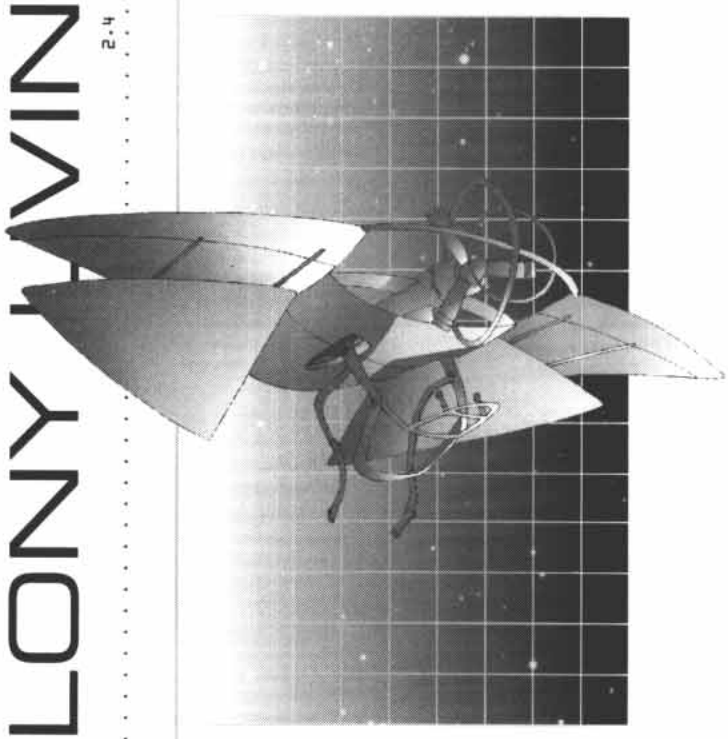


VEHICLE DATA

Threat Value:							160 (50,000 credits)
Crew:							1 (2 Actions)
Size:							8 (15 tons)
Armor:							8/16/24
● MOVEMENT DATA							
Movement Mode		Combat Speed	Top Speed				Maneuver
Ground		8 (49 kph)	16 (96 kph)				-3
Deployment Range:							150 km
► ELECTRONICS DATA							
Sensors:							-5/0.5 km
Communications:							-2/5 km
Fire Control:							-5
► PERKS & FLAWS DATA							
Name			Rating				Game Effect
Cargo Bay*			-				16 m², open cargo bed
Easy to Modify: All			-				+2 to repair and modify
High Towing Capacity			-				Double towing
HEP: Desert			-				Filters
Life Support			-				Limited, three people
Passenger Seating			-				Two passengers
Searchlight			1				Forward, 50 meters
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty	Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
None								

*Accommodates standardized 2 m x 4 m x 2 m cargo modules or secured open cargo.

▶ DRAKE ULTRALIGHT FLIER



The Drake ultralight is a common sight in the Orbitals, where their colorful forms can be spotted flitting about in the colony cylinders' open cores. Usually sold to enthusiasts in kit form, the Drake is popular for its low cost and safety features. The battery and motor pack assembly is renowned for its reliability, and a dedicated microprocessor constantly adjusts the shape of the wings in flight for maximum stability and lift. The same system allows the wings to fold up while on the ground to allow for easier maneuvering. The Drake has no undercarriage; the pilot must run along the ground or launch from a height to achieve takeoff speed. The ultralight also has no radio, and instrumentation is limited to an airspeed and battery charge indicator built into the frame. While this is generally not a drawback within the confines of a colony cylinder, Earth-based pilots often use a helmet mounted radio and heads up display system that provides the user with compass heading, altimeter and GPS tracking.

Ultralights are popular in colony cylinders because they allow people to escape the crowded conditions below. This very popularity, however, means there can be a waiting list for flying, as colony authorities only allow a certain number of aircraft in their limited airspace at once. While flight inside a colony cylinder generally has fewer hazards than Earth-based flight, it does have its own difficulties. The cluttered groundscape offers fewer places to land safely and maneuvering becomes more difficult in the lower gravity towards the center of the cylinder.

A variety of similar aircraft are in use on Earth, the Orbitals and the Jovian Confederation, ranging from pure gliders to solar- and pedal-powered craft and even ornithopters in lower gravity cylinders. Pilots often travel from colony to colony to participate in aerobatic displays and compete in races.

▯ VEHICLE DATA

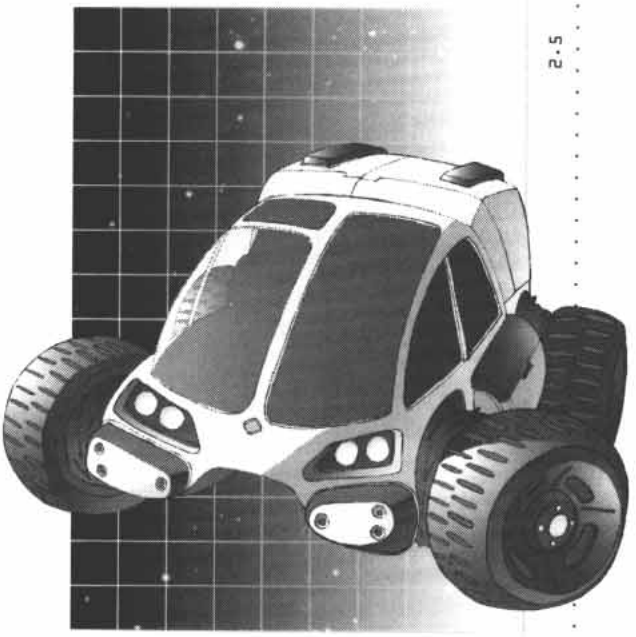
Threat Value:							1 (500 credits)
Crew:							1 (2 Actions)
Size:							1 (30 kg)
Armor:							1/2/3
▼ MOVEMENT DATA							
Movement Mode		Combat Speed		Top Speed			Maneuver
Flight		1 (30 kph)		2 (60 kph)			0 (Stall 1, 15 kph)
Deployment Range:							200 km
▼ ELECTRONICS DATA							
Sensors:							N/A
Communications:							N/A
Fire Control:							-5
▼ PERKS & FLAWS DATA							
Name				Rating			Game Effect
Diving Wings				-			+1 to Skill rolls on diving maneuvers
Glider				-			Can glide
Rugged Movement System				-			Absorbs first "Movement" hit
Exposed Crew Compartment				-			"Crew" hits are one step higher
No Communications				-			No Communication systems
No Sensors				-			No Sensor systems
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty	Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
None								

TOMIKA COLONIAL ◄

Typical of the average colonial utility automobile, the Tomika Colonial has a thirty-year history of getting people where they want to go. Designed with the small family in mind, the Colonial seats four in reasonable comfort and is compact enough to be stored in the smallest of garages.

Standard features include onboard autopilot, high efficiency electric engine (fuel cell or battery power) and magnetic rail transport capability for low gravity colony environments. Civilian grade electronics assist the driver and a superior crash protection system engages in the event of an accident. Optional features include transport grid power connection, onboard navigational computer, off-road suspension and handicapped access.

Interior design and decoration is left entirely in the hands of the consumer. Thanks to computer modelling and small automated manufacturing facilities, most small vehicles can be fabricated and assembled locally in a matter of hours. Indeed, most auto 'manufacturers' are not actually involved in manufacturing anymore, instead being hybrid engineering and sales firms that rent autofac facilities as required. A customer need only visit a dealership, select the options available (with the help of expert computer systems and a salesman), pay the required fees, and pick up the vehicle — probably the next day. Indeed, it is possible for a consumer to have a completely custom vehicle designed and manufactured to their own specifications, though at a much greater expenditure of time and money. Most people still prefer to buy a reliable, name-brand vehicle.

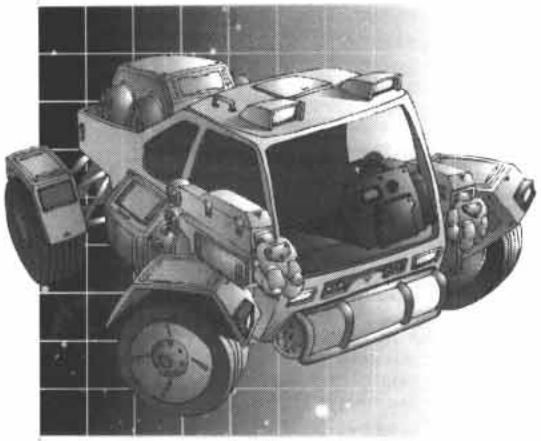


2.5

VEHICLE DATA

Threat Value			60 (30,000 credits)
Crew:			1 (2 Actions)
Size:			4 (1.3 tons)
Armor:			4/8/12
▼ MOVEMENT DATA			
Movement Mode:	**Combat Speed**	**Top Speed**	**Maneuver**
Ground	8 (50 kph)	16 (95 kph)	-1
Rail	4 (25 kph)	8 (50 kph)	-3
Deployment Range:			300 km
Reaction Mass:			N/A
▼ ELECTRONICS DATA			
Sensors:			-3/2 km
Communications:			-2/10 km
Fire Control:			-5
▼ PERKS AND FLAWS DATA			
Name		**Rating**	**Game Effect**
Autopilot		-	Acts as Level 1 pilot
Cargo Bay		-	1 m³
Passenger Seating		-	Three passengers
Reinforced Crew Compartment		-	Absorbs first "Crew" hit
Decreased Maneuver		2	Rail
Exposed Movement Systems		-	"Movement" hits are one step higher
Poor Off-road Ability		-	MP costs increased by 1 in hexes with MP cost of 2+
► SIMILAR VEHICLES			
Make these changes to represent the following vehicles:			
Full Sized Family Car:	Ground Speed to 15 MP, add 3 passenger seats, increase base Armor to 5; TV: 68 (34,000 Credits).		
Sports Car:	Ground Speed up to 20 MP, Maneuver to +0, remove two passenger seats; TV: 83 (83,000 Credits).		
Jeep:	Increase Cargo Bay to 2 m³, remove Poor Off-road Ability; TV: 69 (34,000 Credits).		
Van:	Ground Speed to 14 MP, increase Cargo Bay to 12 m³, increase Size to 5, decrease Maneuver to -2, increase Armor to 5; TV: 63 (63000 Credits).		
Truck:	Ground Speed 15 MP, decrease Maneuver to -2, increase Armor to 5, replace Cargo Bay with 6 m² surface (open topped), remove two passenger seats; TV: 40 (40,000 Credits)		
Police Cruiser:	Ground Speed increase to 20 MP, base Armor to 6, Maneuver to +0. Add Computer PP1 KNO+0 CRE+0, increase Sensors and Communications to -1; TV: 116 (145,000 Credits)		

▶ LOAT ROVER



Name:	Low Atmosphere (LOAT) Rover
Origin:	Earth
Manufacturer:	Various
Type:	All Terrain Utility Vehicle
Control System:	Cockpit
Length:	10 m
Width:	2.25 m
Empty Weight:	9 tons
Loaded Weight:	14 tons
Main Powerplant:	650 hp total
Secondary Powerplant:	Fuel cells
Onboard Sensors:	Infrared/Ultraviolet, Radcounter, Telescope
Fixed Armament:	None
Defensive Systems:	Rad Screen
Equipment:	Searchlight, Manipulator Arms (2)

◇ OVERVIEW

The LOAT, or LOw ATmosphere rover, is an all-terrain vehicle designed for use in hostile environments. The vehicle was first used in early colonization efforts as a short-range personnel transport and was capable of only limited cross-country travel. As colonists ventured into more rugged environments, they adapted their versatile rovers to the new challenges. Colony construction costs were carefully, even stringently, controlled and each expense was scrutinized, and funds for equipment purchases were sparse. The evolving LOAT proved to be an ideal multi-role platform, and the vehicle was put into use in many different roles, often exceeding the basic design's capabilities. Vehicle components became standardized and cheaply available. Inspired tinkerers added to the LOAT and often the modifications became part of the overall design.

Four wheels, each with its own independent suspension, combined with high ground clearance give the LOAT the ability to traverse almost any type of terrain; some versions have up to eight wheels. The high clearance does make the vehicle a little difficult to handle at high speeds. Front and rear steering allow the vehicle to turn in restricted areas while skid plates mounted on the bottom protect the vehicle's underbelly. The large balloon-like tires, made out of a flexible carbon FiberWire™ mesh, are computer-controlled, adjusting size and consistency to maintain maximum traction.

The normal crew complement is four but additional passengers can be added at a loss of comfort. The cockpit seats a driver and a navigator with two mission specialist workstations behind them. Flip-down seating is provided for any additional crew. An airlock is located at the rear of the vehicle with egress points at the rear and top. Pressure suits are stored in lockers at the rear. For extended missions, the back of the cab can serve as a sleeping area with either hammocks or vertical restraints used, depending on the local gravity. Lockers are located in the floor, sides and roof of the vehicle. A small food preparation area is installed for lengthy missions. An enclosed, non-pressurized cargo bay comprises the rear of the vehicle. Additional cargo is often strapped to the outside, on the roof. While the rover has a number of headlights mounted on the front it also includes a remote spotlight in one of the roof mounts. The LOAT is equipped with two manipulator arms, used to assist in work. Attachments, such as digging blades or winches, can be attached to the arms.

LOAT rovers have served in almost every environment into which the human race has dared to venture. They are now found on almost every planet, moon and large asteroid. Originally a Terran design, many vehicle manufacturers now offer competing versions and variants across the Solar System. The LOAT rovers ruggedness and all terrain capabilities have been the subject of several trideo programs.

◇ CREW COMMENTS

"Sure, a LOAT can climb like a crazed monkey with something to prove and that's what gets newbies into trouble. There's a lot of power in those tires but she can tip real easy if you're not careful. Last week Junior here went full throttle up a 50-degree slope at a completely wrong angle of attack while yelling, 'I'm King of the Moon!' Luckily he managed to steady himself with the manipulator arms or he would've rolled the rover. Dumb kid..."

— Gunther Bairos, Surveyor, Deep Rock Minerals

"The ground was broken and rough but the LOAT navigated it easily. We were the first ones to the disaster scene. Our field paramedic and I debarked to treat the wounded that were partially buried by debris while our co-pilot assisted us with the rover's spotlight and robot arms. One by one we pulled the victims out and brought them into the safety of the LOAT. We did what we could for the victims until the aircraft was able to airlift our rover to the nearest hospital. The miners were really lucky we got there when we did."

— Helena D'Aragon, Search and Rescue Technician, Martian Free Republic

VARIATIONS ◇

Construction/Maintenance: Maintenance personnel use the vehicle to transport shift crews and act as a shelter and power source once they arrive at the work site. Exterior sockets can be used to provide power to sensory, construction/maintenance equipment or additional lights.

Mining: Miners and surveyors, whose jobs involve getting into difficult to access areas, often attach sensors to the manipulator arms of their rovers to map out mineral deposits. Core samples and drilling equipment can be stored in the cargo bay along with additional fuel. A satellite uplink is often installed to allow for long range communications.

Search and Rescue: LOAT rovers can be used as rescue vehicles. They can be airlifted to the scene of an emergency where they can use their manipulator arms to clear away debris and obstacles trapping the vehicle or victims. The cargo bay is pressurized and used to treat the injured.

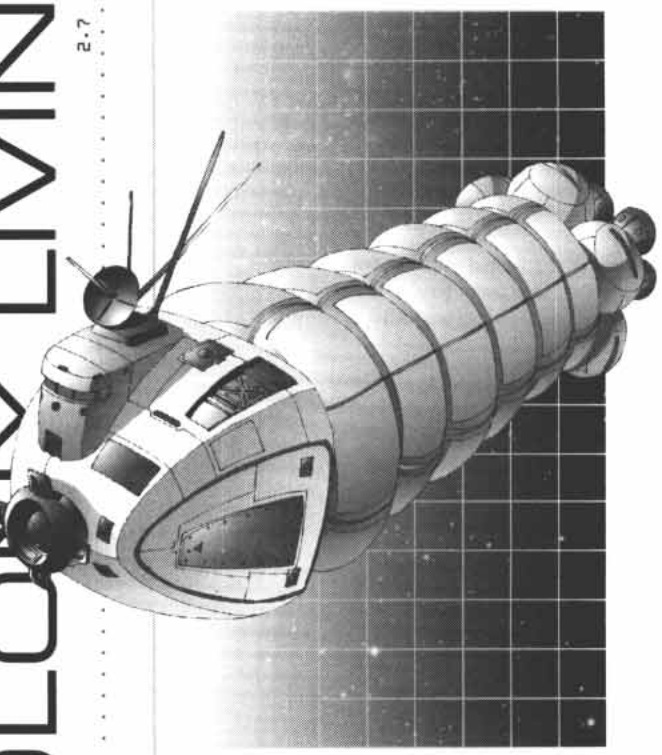
Enforcement: For military and police functions, LOAT rovers can be armed and armored to a limited extent but performance degrades noticeably. A light laser is the preferred weapon as there are minimal exposed parts. Some units have experimented with converting the cargo space to house a small missile bay. Police units have additional passenger space with restraints to handle prisoners.

Sport: There is a mystique associated with the LOAT thanks to a series of very successful marketing campaigns. There are LOAT rallies where teams try to get the best time racing over various types of terrain. The vehicles are stripped of as much weight as possible in an attempt to overcome the rover's inherent top-heaviness. A LOAT Wrestling League tours the inner planets, in stadiums with manmade obstacles and uneven ground. The rovers engage in demolition-style matches where the vehicles ram and punch each other, trying to knock the other vehicle over or render it immobile.

VEHICLE DATA ◻

Threat Value:							535 (268,000 credits)
Crew:							2 (3 Actions)
Size:							8 (9 tons)
Armor:							10/20/30
▼ MOVEMENT DATA							
Movement Mode		Combat Speed		Top Speed			Maneuver
Ground		9 (54 kph)		18 (108 kph)			-3
Deployment Range:							550 km
▼ ELECTRONIC DATA							
Sensors:							-2/4 km
Communications:							-2/10 km
Fire Control:							-2
▼ PERKS & FLAWS DATA							
Name		Rating					Game Effect
Airlift Ready		-					Easy to airlift
Backup Life Support		-					Life support not affected by "Auxiliary" hits
Cargo Bay		-					4 m³, enclosed
Cargo Bay		-					6 m³, open
Easy to Modify: Movement		-					+2 to repair and modify
High Towing Capacity		-					Double towing
Hostile Environment Protection		-					Desert, Extreme Cold, Extreme Heat, Radiation (Rating 1), Vacuum
Improved Off-Road Ability		-					MP costs decreased by 1 in hexes with MP cost of 2+
Life Support		-					Limited, six people
Passenger Seating		-					Four passengers
Searchlight		2					Swivel, 100 meters
2 x Manipulator Arm		4					Can punch
Unstable		-					-1 to Maneuver at Top Speed or in hexes with MP cost of 2+
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty	Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
None								

▶ INTERCOLONIAL SHUTTLE



Intercolonial shuttles are the cheapest means of travelling between the colony stations of the various Solar nations. Used to move tourists, commuters and work crews, the increasingly reliable designs that have evolved over the decades look very similar, no matter the manufacturer or Solar nation. Only minor practical or aesthetic quirks distinguish the various makes and models; for instance, Jovian shuttles have stronger screens, while shuttles of Venusian manufacture are adorned with ornamental flourishes and flashing advertising screens.

Most intercolonial shuttles are about 75 meters long, massing between 150 and 200 tons. A spherical hull at the front of the shuttle houses the main airlock, life support systems and bridge. Twelve modular toroid units (commonly called "doughnuts") are mounted around the main spar, which connects them to the bridge and engines both structurally and via access tubes. Most shuttles carry six passenger doughnuts, each of which has standing space for about sixty passengers (more luxurious models provide seating and support about fifty passengers per doughnut). The four remaining doughnuts are usually cargo racks or reaction mass tanks. The cargo racks often incorporate M-Pod docking ports and have pressurized access tubes leading to the hatch of each pod.

To help generate additional revenue, almost all shuttles sell food and beverages. The VenusBank-owned D. D. Eateries company is the Solar System's largest provider of such in-transit dining services. This company, in addition to supplying meals for passengers and shuttle crews, also operates spacegoing restaurants; two or more doughnuts are replaced with customized "diner" modules, complete with kitchens and lounges. These converted intercolonial shuttles maneuver to construction or work sites, bringing freshly prepared food to workers.

◻ VEHICLE DATA

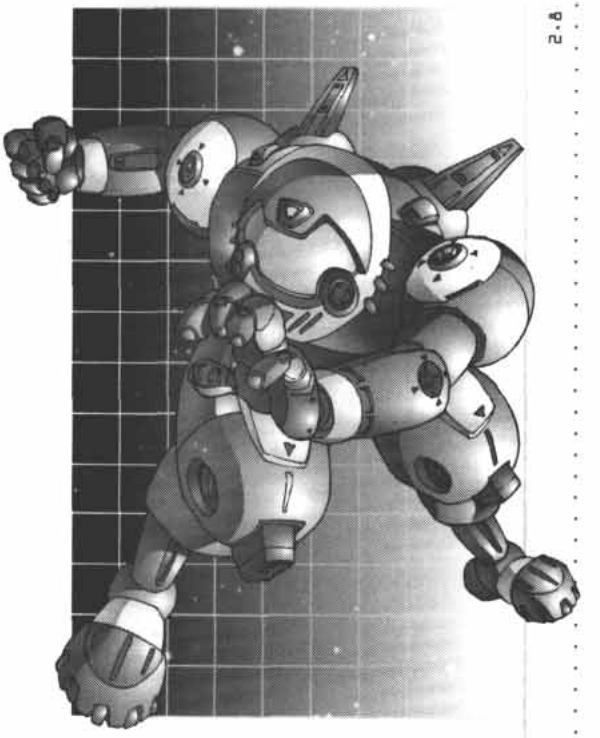
Threat Value:							1400 (700,000 credits)
Crew:							4 (4 Actions)
Size:							19 (180 tons)
Armor:							10/20/40
▼ MOVEMENT DATA							
Movement Mode	Combat Speed	Top Speed					Maneuver
Space	3 (0.3 g)	5 (0.5 g)					-2
Deployment Range:							100 hrs
Reaction Mass:							1000 BP
▼ ELECTRONIC DATA							
Sensors:							-1/2 km
Communications:							-1/10 km
Fire Control:							-3
▼ PERKS & FLAWS DATA							
Name			Rating				Game Effect
Autopilot			-				Acts as Level 1 pilot
Backup Systems			-				Comm, FireCon, Life Support, Sensors
Cargo Bay			-				384 m³ (up to 24 standard M-Pods)
Hostile Environment Protection			-				Radiation (R3, R5 for Jovian models), Vacuum
Large Doors			-				Doubled entry/exit rate
Life Support			-				Limited, 350 people
Passenger Seating			-				324 standing passengers (or 204 sitting)
Brittle Armor			-				Lose twice as many Armor points per hit
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
None							

OM-11X BULLDOG ◄

Manufactured by Orbital Mechanics, Inc., the Bulldog exo-suit is designed for the civilian police and security markets. Capable of operations both within and outside colony cylinders, the Bulldog is used for a variety of patrol, guard, crowd control and SWAT duties. It is much more heavily armored than most civilian exo-suits and its size is suitably imposing while still being small enough to be practical for use within urban areas. The operator's arms and head are fully contained within the main compartment, allowing the operator to eat, drink and scratch while the exo-suit is sealed, greatly increasing comfort during long patrols. The exo-suit's computer system can keep track of patrol routes, record arrest details, connect to police databases to access criminal records and vehicle license details and can even scan crowds for people matching suspect descriptions.

Orbital Mechanics does not supply the Bulldog with any weaponry, although it is equipped to accept standard fire control modules. This keeps the cost down while allowing purchasers to arm the exo-suit to their own requirements. Police Bulldogs are often left unarmed on routine patrols and equipped with weapons ranging from non-lethal riot guns to submachineguns for more dangerous duties. Security troops are sometimes equipped with heavier weapons, such as the standard AC4 rifle normally found on Minotaur exo-suits.

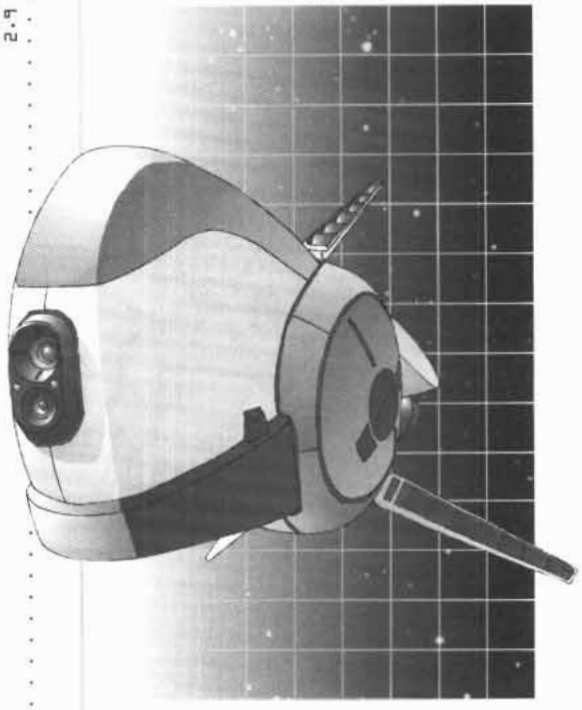
Although designed for security and patrol duties, the Bulldog has also seen use as a frontline combat unit by mercenaries and pirates, who favor it for its toughness and low cost. It is typically used for spaceship boarding actions or to provide squad and platoon level fire support for ground troops. Orbital Mechanics advertises itself as promoting the peaceful exploration and exploitation of space and tries to downplay this use of its product.



VEHICLE DATA

Threat Value:							180 (180,000 credits)
Crew:							1 (2 Actions)
Size:							3 (950 kg)
Armor:							8/16/24
▼ MOVEMENT DATA							
Movement Mode	**Combat Speed**	**Top Speed**	**Maneuver**				
Walker	2 (12 kph)	4 (24 kph)	0				
Space	6 (0.6 g)	11 (1.1 g)	0				
Deployment Range:							100 km
Reaction Mass:							200 RP
▼ ELECTRONICS DATA							
Sensors:							-1/2 km
Communications:							-1/10 km
Fire Control:							0
▼ PERKS & FLAWS DATA							
Name			**Rating**				**Game Effect**
Backup Life Support			-				Absorbs first Life Support hit
Computer			2				CRE -2, KNO 0, PP 2
HEP: Radiation			3				Rad Screen
HEP: Vacuum			-				Space protection
Life Support			-				Limited, one person
2 x Manipulator Arm			3				Hands, can punch
Reinforced Crew Compartment			-				Absorbs first Crew hit
Searchlight			-				Fixed Forward, 50 meters
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty **Name**	**Fire Arc**	**DM**	**BR**	**Acc**	**ROF**	**Ammo**	**Special**
None							

▶ION BIKE



Perhaps one of the most unusual vehicles in the Solar System of the 23rd century is the ion bike. Consisting of little more than a simple enclosed cockpit/life support bubble and an ion drive, the ion bike is used by a wide variety of people to travel relatively short distances through space while getting an excellent cardiovascular workout. Ion bikes range from simple, homemade affairs thrown together from spare parts found in salvage yards all the way up to expensive, corporate sponsored, top of the line models. All share one basic feature: they use one form or another of the Sheffield Bio-Kinetic Ion Drive.

The Sheffield Drive utilizes a pair of large, rotating glass disks. While spinning rapidly, an electric potential of several million volts builds up between them. This voltage drives ionized reaction mass (cesium, often) out through the exhaust, propelling the bike forward. The faster the disks spin, the higher the voltage between them and the faster the reaction mass' exit velocity. The driver's pedaling spins the disks. A good athlete can achieve bursts of 0.04 g to 0.08 g of acceleration with this system and a bike of about 500-kg mass (including the driver). Most ion bikes have enclosed cockpits; while substituting a spacesuit for the cockpit might lower the bike's mass, it makes it much more difficult to pump the pedals. The large, spinning disks carry a lot of angular momentum, making it difficult to reorient the bike while the wheels are spinning. Many bikes mount an extra ion exhaust on the front to brake. Ion bikes are generally designed so that plates of radiation shielding can be added or removed at a moment's notice. If the solar wind activity is high, up to 200 kg of shielding can be added, resulting in a slower bike with Radiation Protection (4). If it is low, shielding can be removed, and the bike can accelerate faster.

◫ VEHICLE DATA

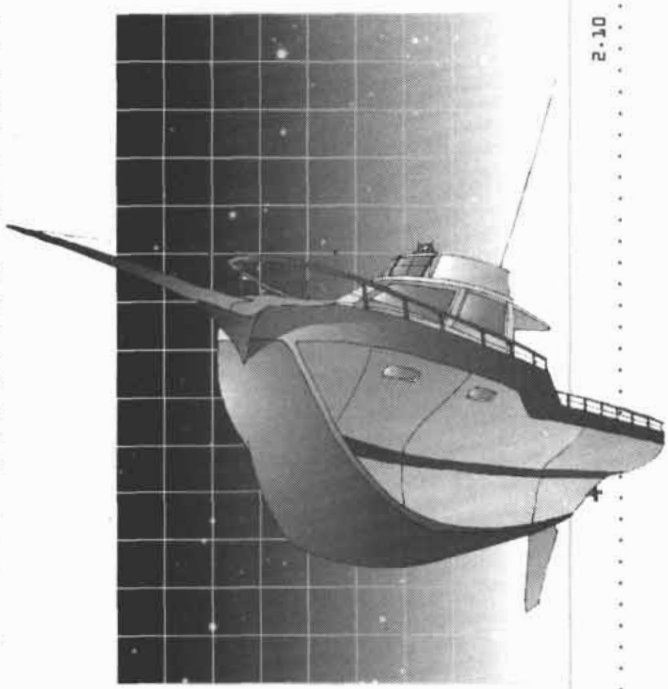
Threat Value:							27 (5400 to 135,000 credits)
Crew:							1 (2 Actions)
Size:							3 (500 kg)
Armor:							3/6/9
▼ MOVEMENT DATA							
Movement Mode	Combat Speed	Top Speed	Maneuver				
Muscle Powered	Special*	Special*	-4				
Deployment Rage:							Special*
Reaction Mass:							10 BP
▼ ELECTRONIC DATA							
Sensors:							N/A
Communications:							-2/10 km
Fire Control:							-5
▼ PERKS & FLAWS DATA							
Name			Rating				Game Effect
Easy to Modify: Movement Systems			-				+2 to repair and modify
Easy to Modify: Structure			-				+2 to repair and modify
HEP: Radiation			2				Shielding
HEP: Vacuum			-				Space protection
Life Support			-				Limited, one person
Low Profile			-				Easy to hide and conceal
Reinforced Crew Compartment			-				Absorbs first Crew hit
Muscle Powered			-				Sheffield Bio-Kinetic Ion Drive
No Sensors			-				Cannot perform active sensor scans
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
None							

*Top Speed is equal to (STR+3) x 80, divided by 500, in Space MPs (500 being the mass of the bike). Deployment Range is equal to the athlete's Stamina x 2, in minutes; this assumes constant Combat Speed is used. Top Speed is very tiring, counting as four times that.

ADELAIDE MOTORBOAT ◄

The Adelaide is a typical medium-sized motorboat. Its draft of 0.9 meters allows it to operate in shallow waters but means it can run into trouble on the open sea, usually restricting it to coastal waters. Its twin propellers are powered by a bank of batteries located under the open rear deck, forward of which is located the small cabin and bridge. The cabin contains two cramped double bunks, a table, a head and a small kitchenette consisting of a refrigerator, sink, stovetop and microwave. There is also a small cargo locker, although additional cargo is often carried on the rear deck.

The Adelaide is designed as a simple watercraft to which a variety of options can be easily added. Common additions include more luxurious accommodations, solar cells for extended range, global positioning systems, satellite uplinks and sonar and radar systems. This ease of modification contributes greatly to the Adelaide's popularity. While usually thought of as Earth-bound vehicles, motorboats can be found in colony cylinders that have large freestanding bodies of water. These are usually Earth designs made under license since non-Terrans have little experience in boat building; thus the Adelaide has spread throughout the Solar System. In colony cylinders devoted to aquaculture they serve as utility vehicles, ferrying workers and equipment around and with their passenger accommodations replaced with tool bays. In cylinders designed as tourist attractions and for recreation they fill a more typical role as pleasure craft, acting as a mobile home base for fishing, swimming and diving. Hiring such a boat is an exotic holiday for cylinder dwellers, whose exposure to water is usually restricted to showers and swimming pools.



2.10

VEHICLE DATA

Threat Value:							60 (30,000 credits)
Crew:							1 (2 Actions)
Size:							6 (6400 kg)
Armor:							6/12/18
▼ MOVEMENT DATA							
Movement Mode	**Combat Speed**	**Top Speed**					**Maneuver**
Naval	2 (12 kph)	4 (24 kph)					-1
Deployment Range:							600 km
▼ ELECTRONICS DATA							
Sensors:							N/A
Communications:							-2/10 km
Fire Control:							-5
▼ PERKS & FLAWS DATA							
Name			**Rating**				**Game Effect**
Cargo Bay			-				1 m³
Easy to Modify: Auxiliary Systems			-				+2 to repair and modify
Passenger Accommodations			-				10 m³
Passenger Seating			-				Six passengers
Searchlight			-				Swivel, 50 meters
Exposed Crew Compartment			-				"Crew" hits are one step worse
No Sensors			-				Cannot perform active sensor scans
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty **Name**	**Fire Arc**	**DM**	**BR**	**Acc**	**ROF**	**Ammo**	**Special**
None							

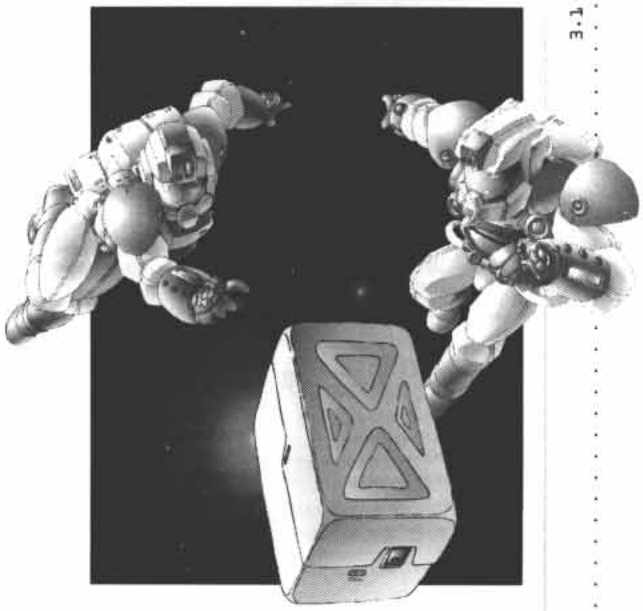
CHAPTER THREE:
COMMERCIAL INTERESTS

ECONOMICS IN SPACE ◄

Life in space is only possible through the use of high technology, which in turn requires massive industry. Though the major solar nations boast impressive fleets of military vessels, they are but a tiny fraction of all the space ships in the solar system. The vast majority belong to large corporations and small independents, who make a handsome living keeping industry working.

The most obvious (and important) aspect of space industry is cargo transport. Very few colonies can claim resource autonomy, though some space nations might. Cargo transport accounts for the single largest number of space ships in the solar system. The raw materials industry, however, runs a close second. As new colonies spring up constantly, mankind's hunger for building materials is nearly as large as the available supply. While small independents can keep the smaller outposts going, dedicated mining fleets work to process the huge asteroids that supply the raw materials necessary for humanity's expansion.

After finished products and raw materials, the third most important aspect of space industry is personnel transport. Though the long distances prohibit a highly mobile lifestyle for all but a few, people still need to move about the solar system to keep commerce operating. Every advance in technology creates a need for new specialists, so skilled employees are in high demand across the solar system.



3.1

ON THE ROAD AGAIN . . . ▼

People who work in the space transport industry, by the very nature of their work, live a very mobile existence. This is both an opportunity and a problem for Players and Gamemasters. So-called 'Space Truckers' have the opportunity to visit every locale in the Solar System, an opportunity that even military characters lack — and without the highly dangerous combat situations the military or police are likely to face. At the same time, they suffer the same problems as the military — long periods of boring travel. Some Players are likely to be disappointed when their Gamemaster points out that three long months of travel have passed by without any character activity. Care should be taken when building a campaign around the commercial side of life.

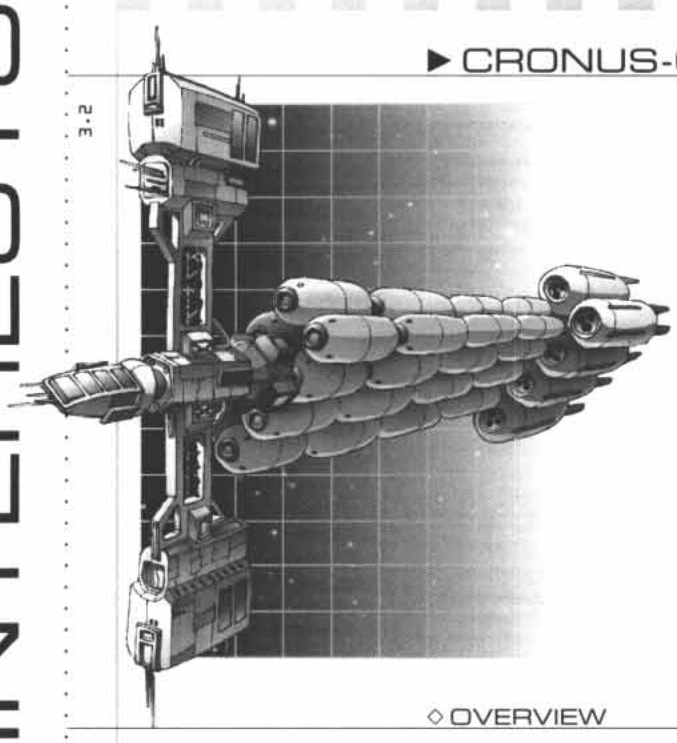
For example, not all transport in space is going to be long distance. All of the Jovian states and Earth orbit are comprised of literally hundreds of individual space colonies, many less than a day away from one another. As each colony cylinder is a world unto itself, the Player Characters will be able to visit a variety of locales with a minimum of lost time. On the other end of the spectrum, large ships like a liner, hospital ship, or bulk cargo carrier will have the onboard diversity required to make even a six-month trip interesting. When a ship is a small town, there's no telling what might happen.

GREED ▼

Of course, not all commercial traffic is legitimate. From illicit drugs to military arms, if there is a buyer, there is a seller, and both of them need a smuggler to act as a go-between. Even many legitimate cargo carriers will have a few less than noble souls aboard willing to violate a law or two to make a quick buck. Player Character smugglers should come as no surprise — either as individuals or an entire ship's crew. Though outgunned and outmanned at every turn (by local militaries as well as SolaPol), vanishing into the cracks of large industrial transport isn't too difficult for the enterprising soul.

Players may even wish to take the notion of illicit profit even farther, resorting to nothing less than space piracy. While difficult and dangerous to capture, a ship alone is worth many millions of credits, regardless of what it is carrying. Pirates will of course run into difficulties with the various navies in the Solar System, so they'll need a fast ship with enough firepower to get away — or perhaps even win. Though not very gritty, the 'space pirate' is almost a staple of science fiction anime and should be familiar to most gamers.

▶ CRONUS-CLASS CARGO HAULER



Name:	Cronus
Origin:	Jovian Confederation
Manufacturer:	Olympus Shipyards
Type:	Long Range Cargo Ship
Control System:	Bridge
Height:	624 m
Width:	150 m
Empty Weight:	170,750 tons
Loaded Weight:	1,220,000 tons
Powerplant:	8 x 0.2 GW
Secondary Powerplant:	2 x 10 MW
Main Thrusters:	8 x 76,250,000 kg
Apogee Motors:	32
Acceleration:	3.3 g/0.5 g (unloaded/loaded)
Onboard Sensors:	Fire Control Radar, Infrared/Ultraviolet, Lidar Magnetometer, Radar, Radcounter, Telescope
Fixed Armament:	N/A
Additional Armament:	N/A
Defensive Systems:	Mag Screen, Point Defense System
Equipment:	Escape Pods, Lifeboats, M-Pod Bay, Satellite Uplink

◇ OVERVIEW

The Titanian Hydrocarbon Corporation is the Solar System's foremost manufacturer of advanced hydrocarbon products but it has a major problem to overcome in getting those products to their markets: the sheer distance that separates THC from its customers. Twice as far from the inner planets as Jupiter, Saturn is a rare port of call for merchant ships; most do not have the range or desire to travel that far. To deliver its products to market in an efficient and timely manner THC must therefore rely on its own fleet of cargo ships, the space going descendants of the oil supertankers that once sailed the oceans of Earth.

◇ CAPABILITIES

The Cronus can cover the Saturn-Earth route with a full load of a million tons of cargo in an average of eight months, with similar travel times to the other inner planets. Unloaded, the Cronus can make the return journey in about a month and a half, although at least some cargo bound for Saturn is usually carried on the return leg. Travel times to Jupiter vary greatly depending on its orbital position, and deliveries are only possible when Saturn and Jupiter are in relatively close alignment. At other times deliveries are made to whichever of the two Trojan States is closest.

The Cronus' eight huge drive sections are largely automated. Each has its own dedicated computer control and monitoring system and several maintenance drones, greatly reducing the number of human crewmembers required to operate them. After each engine burn the engineering crew checks each drive from top to bottom to ensure they are ready for the next vector change. Should any drive develop a major fault it can be taken off-line and its reaction mass transferred to the other modules.

◇ SERVICE RECORD

The first Cronus was built in 2187 after ongoing tension between THC and the Mercurian Merchant Guild over shipping rates. Describing the Guild's prices and shipping times as 'extortion,' THC CEO Bernardo Chandrasekhar decided to break the Guild's quasi-monopoly with the construction of THC's own fleet. Today THC's ships continue to be one of the only significant merchant fleets outside of the Guild's control and are a source of continuing animosity between the two organizations.

Cronuses are built at Olympus Shipyards and they must return there regularly for overhauls. THC is currently constructing its own maintenance yard in orbit around Saturn, however, so it can reduce its dependency on the Jovian shipyards. This will allow all maintenance work except for major refits to be done at the ships' home port.

Pirate activity against the THC fleet has been on the rise recently and is a source of great concern to the company. Since the loss of an entire Cronus in the Asteroid Belt, THC has become increasingly frustrated by the lack of support and protection being offered by the Jovian government. In response, THC is considering purchasing Venusian Oni-class exo-armors as a security force for its ships and is working on improving its trade ties with CEGA. As a temporary solution, it has begun hiring mercenaries to protect the ships as they travel through the Belt.

CREW COMMENTS ◇

"I've heard that the Jovian navy likes to brag it has the biggest ships in the Solar System. Well, they must get pretty annoyed when there's a Cronus in port. Ton for ton, Cronuses are the biggest ships around. I'm talking real ships here, mind you, not just a couple of thrusters strapped to an asteroid or anything like that. Anyway, moving all that mass around at a decent speed requires some decent engines. The ones we use were originally designed for use as heavy duty tugs, but it still takes eight of them to get us moving.

"As you can imagine most of the crew are involved in just keeping these beasts in working order, but the drives are actually highly automated. Each has its own dedicated computer monitoring it, along with a horde of maintenance drones. This keeps the amount of work the engineers have to do to a manageable level. Most of the drive block is completely inhospitable to humans when a burn is being conducted anyway — the amount of heat those things generate is just amazing. The engineers generally ignore any minor problems the drones can't fix and give the drives a major overhaul after every burn. It's not like we're short on time.

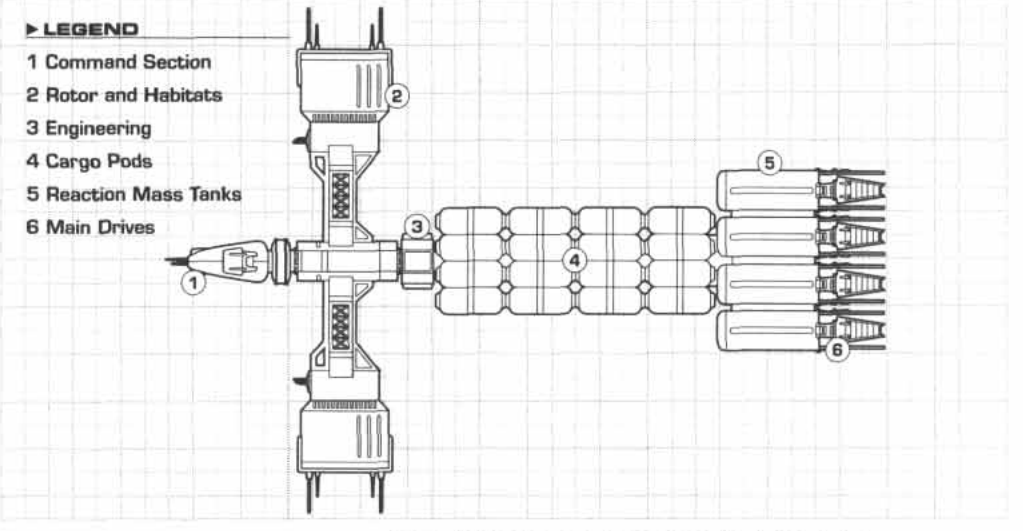
"Besides the drives, the other center of activity on a Cronus is the crew common room. Generally everyone spends at least some of their off duty time here every day. We have everything from art shows to sporting competitions here — I don't like to brag, but my team tops the ship's handball league. I think the most fun I've ever had there, however, was the time we built a wave tank, cranked up the ambient temperature and had a beach party.

"Besides looking good in a bikini, my job on board ship is to look after all the odds and ends that keep the ship running smoothly. Me and the other stewards play nurse in the sick bay, peel potatoes in the galley, wash the captain's laundry, keep track of our supplies, help the techs with repairs and perform a hundred other tasks that keep the crew comfortable while we're stuck out in the middle of nowhere.

"Speaking of which, after being trapped inside a tin can for however many months, a lot of ship crews go a little wild when they hit port. Well, Cronus crews like to do things a little differently. Generally we hire out a performance hall and show off to the public what we've been up to all that time we've been in space. We put on a variety of plays, concerts, poetry readings and other acts the crew has been patiently rehearsing for months. Other ship crews tend to think this is a little crazy in and of itself, but just having an audience besides ourselves means a lot to us. The only time we really ever get out of hand is when there's more than one Cronus in port at the same time. Due to the vagaries of cargo schedules this doesn't happen very often so we put a lot of effort into partying, reminiscing and catching up with old friends and competing to see how can put on the best performance. In fact I'd better go, I'm due on stage in five."

— Chief Steward Natalia Kazantsev, TSS Cronus-15

SHIP SCHEMATICS ◫



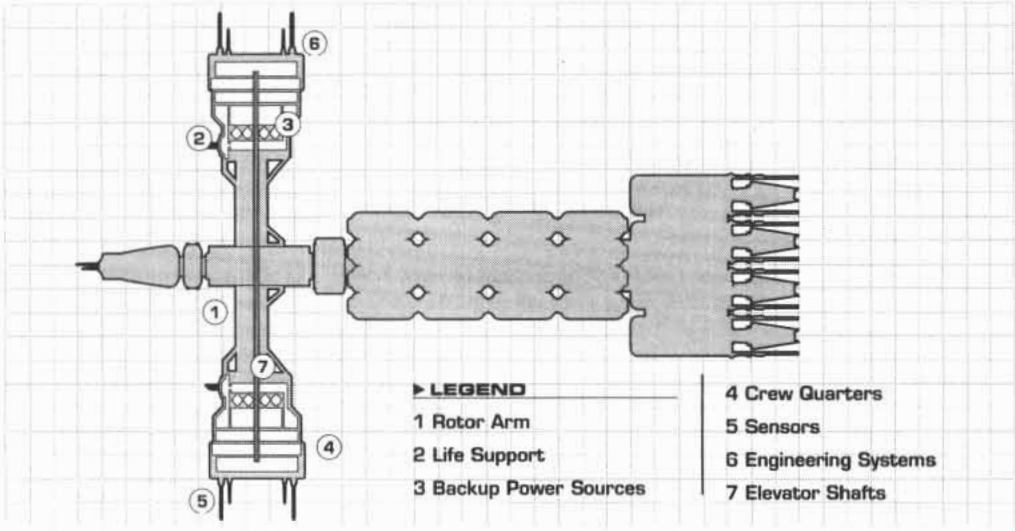
CREW ORGANIZATION CHART ◫

Captain	1		
Bridge Crew	8	Cargo Specialist	5
Chief Engineer	1	Doctor	1
Engineer	32	Cook	1
Technician	5	Steward	4

◇ SHIP INTERNAL VIEW

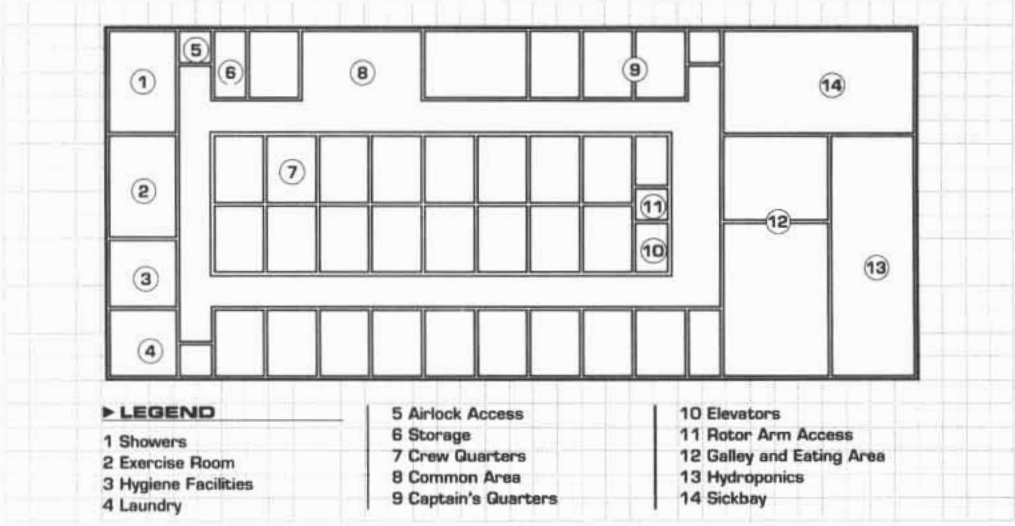
The Cronus is built around a central spine that runs the length of the ship from the bridge to the drive modules. As well as providing structural support the spine contains various power, life support and data conduits, a pair of elevator shafts and an access corridor.

The small module at the front of ship contains the bridge as well as a PDS emitter system and a sensor array. Behind this are the rotor arms of the two habitat modules. These produce a standard one-g environment that is necessary for the long-term health of the crew, although they do lock in place while the ship is under acceleration or docked. Next in line is the work bay, which contains space for three M-Pods and repair and maintenance bays as well as general supply storage. Taking up most of the length of the ship are the cargo cylinders, arranged in a four by two by five formation. Finally, the eight drive blocks cap the design, although little of them is accessible by the crew as they consist mainly of fuel tanks and the plasma combustion chambers.



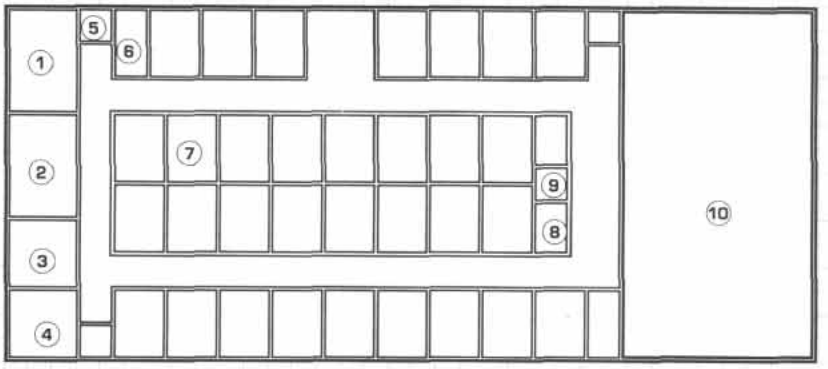
◇ CREW QUARTERS

As befits a long haul ship, the Cronus' crew quarters are considerably more spacious than the typically cramped conditions aboard cargo vessels. In addition to a variety of common areas, including the galley, showers, exercise room and laundry facilities, each crew member has their own three- by four-metre cabin. This allows the crew a great deal of opportunity for personalization, with addition of extra furniture, plants, electronic gear and hobby equipment. This goes a long way towards maintaining the popularity of working aboard a Cronus despite their long travel times. Indeed, many former Cronus crewmembers find it difficult serving on other ships due to their cramped quarters.



MAIN COMMON ROOM ◇

Often nicknamed the 'town hall,' the main crew common room is considered the hub of activity on board ship, a role usually taken by the bridge on other ships. Everything from crew meetings to formal dances to sporting events takes place here, with the crew voting on a regular schedule of events. The room measures 15 by 20 meters with a ceiling a full meter higher than elsewhere in the habitat modules, creating a welcome sense of space that can be further increased by holographic projections on the walls and ceiling. The room is designed to be reconfigured for a variety of activities, and can also be broken down into smaller compartments using portable partitions.

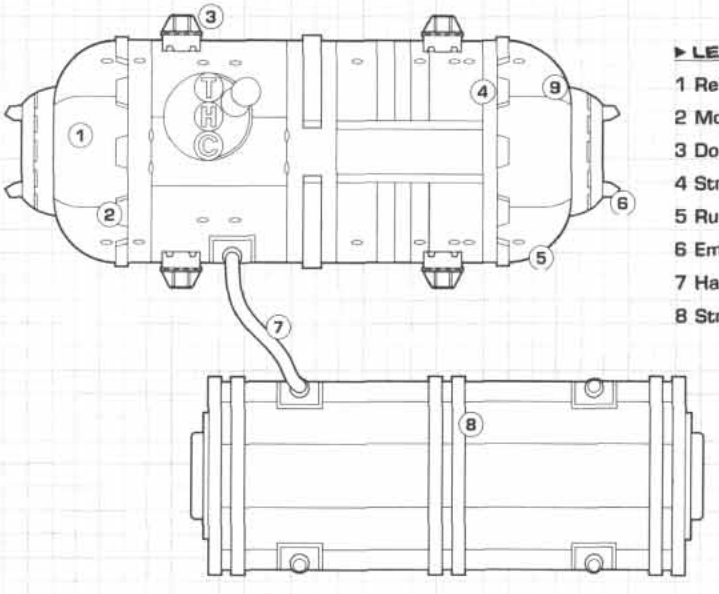


▸ LEGEND

1 Showers
2 Exercise Room
3 Hygiene Facilities
4 Laundry
5 Airlock Access
6 Storage
7 Crew Quarters
8 Elevators
9 Rotor Arm Access
10 Main Common Room

CARGO CYLINDERS ◇

The most recognizable 'product' of the THC, these massive cylinders, 70 meters long and 21.3 in diameter, are shipped throughout the Solar System. They carry the bounty of Titan's chemical wealth and THC's advanced industrial processes: plastics, fuels, pharmaceuticals, lubricants and other complex hydrocarbon compounds. Each cylinder is individually temperature and pressure controlled according to its payload and they are regularly monitored by the Cronus' cargo specialists to protect against pinhole leaks, corrosion damage, load shifting and other problems. At the cargo's destination, the cylinders can be unloaded or detached from the ship and replaced with an empty one as necessary. In addition the cylinders can be replaced with a framework carrying 12 standard 20 x 10 x 10 cargo containers, often used when carrying supplies on the return journey to Saturn.



▸ LEGEND

1 Reinforced Pressure Hull
2 Monitoring Electronics
3 Docking Clamps
4 Structural Reinforcements
5 Running Lights
6 Emergency Vents
7 Hardware Umbilical
8 Structural Framework

▼ CRONUS-CLASS CARGO HAULER

▼ OVERALL PRODUCTION DATA

THREAT VALUE:	630,000
OFFENSIVE:	4000
DEFENSIVE:	9000
MISCELLANEOUS:	1,900,000
COST:	310,000,000 credits
PRODUCTION TYPE:	Mass Production
INDV. LEMON DICE:	3

▼ SECTIONS

1 x Main Hull
40 x Cargo Module
8 x Drive Section
2 x Lifeboat

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
SPACE:	3 (0.3 g)	5 (0.5 g)	-9
DEPLOYMENT RANGE:	8000 hrs		Fusion/electric
REACTION MASS	6000 BP (equivalent)		Hydrogen

▼ OFF. & DEF. SYSTEMS

1 x Point Defense System (main hull)

▶ MAIN HULL

COST:	9,500,000 credits
CREW:	4
ACTIONS:	4
HULL SIZE:	30
DEFAULT SIZE:	27
STACKING SIZE:	30
INDV. LEMON DICE:	3

ARMOR	
LIGHT/HEAVY/OVERKILL:	50/100/150
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	8000 hrs
SENSORS:	-1/10 km
COMMUNICATIONS:	-1/50 km
FIRE CONTROL:	-1

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	Large Sensor Profile	3	Easier to spot
Backup Systems	-	Comm, FireCon, Life Supp., Sens.	Life Support	-	Full, 62 people
Cargo Bay	-	345 m³, 3 x M-Pod	Passenger Accommodations	-	3,600 m³
Cargo Bay	-	1000 m³	Reinforced Crew Compartment	-	Absorbs first "Crew" hit
Computer	4	CRE -2, KNO 0, PP4	Satellite Uplink	-	1000 x Comm range
Ejection System	-	Escape Pods, 62 places	Sick Bay	4	Four surgical theaters
HEP: Radiation	4	Screen			
HEP: Vacuum	-	Space protection			
Laboratory: Cooking	0	Galley			

▼ WEAPONS

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS (ranged)	T	x8	1	+1	6	Inf.	AM, HEAT	10	4300	N/A
	PDS (shield)	FF	x20	M	+1	4	Inf.	Def, E-Shield, HEAT	5	270	N/A

▶ 40 X CARGO MODULE

COST:	650,000 credits
CREW:	0
ACTIONS:	0
HULL SIZE:	21
DEFAULT SIZE:	11
STACKING SIZE:	21
INDV. LEMON DICE:	3

ARMOR	
LIGHT/HEAVY/OVERKILL:	20/40/60
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	2700 hrs
SENSORS:	N/A
COMMUNICATIONS:	N/A
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Cargo Bay	-	25,000 m^3	No Communications	-	Can't communicate
HEP: Radiation	4	Screen	No Sensors	-	Can't perform active scans
HEP: Vacuum		Space protection			
Large Sensor Profile	3	Easier to spot			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ 8 X DRIVE SECTION

COST:	34,500,000 credits
CREW:	2
ACTIONS:	3
HULL SIZE:	82
DEFAULT SIZE:	41
STACKING SIZE:	82
INDV. LEMON DICE:	3

ARMOR			
LIGHT/HEAVY/OVERKILL:			50/100/150
MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	18 (1.8 g)	35 (3.5 g)	-9
DEPLOYMENT RANGE:			8000 hrs/42,000 BPs
SENSORS:			-2/2 km
COMMUNICATIONS:			-2/10 km
FIRE CONTROL:			-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Cargo Bay	-	150 m³; maintenance drone bay	Laboratory: Mechanical	0	Mechanical shop
Computer	3	CRE -2, KNO 0, PP3	Large Sensor Profile	5	Easier to spot
Ejection System	-	Escape pods, four places	Life Support	-	Full, four people
HEP: Radiation	4	Screen	Passenger Accomodations	-	9 m³
HEP: Vacuum	-	Space protection	Reinforced Crew Compartment	-	Absorbs first "Crew" hit
Laboratory: Electronics	0	Electronics shop	Rugged Movement Systems	2	Absorbs two "Movement" hit

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ 2 X LIFEBOAT

COST:	715,000 credits
CREW:	1
ACTIONS:	2
HULL SIZE:	10
DEFAULT SIZE:	11
STACKING SIZE:	10
INDV. LEMON DICE:	3

ARMOR			
LIGHT/HEAVY/OVERKILL:			15/30/45
MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	2 (0.2 g)	4 (0.4 g)	-5
DEPLOYMENT RANGE:			1500 hrs/200 BPs
SENSORS:			0/2 km
COMMUNICATIONS:			+1/20 km
FIRE CONTROL:			-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	Large Sensor Profile	2	Easier to spot
Backup Life Support	-	Life Supp. unaffected by "Aux" hits	Life Support	-	Full, 40 people
Cargo Bay	-	8 m³	Passenger Accommodations	-	9 m³
Computer	2	CRE -2, KNO 0, PP2	Passenger Seating	-	40 seats
HEP: Radiation (4), Vacuum		Screen/Space protection	Reinforced Crew Compartment	-	Absorbs first "Crew" hit

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▶ EMPTY

COST:	-
CREW:	-
ACTIONS:	-
HULL SIZE:	-
DEFAULT SIZE:	-
STACKING SIZE:	-
INDV. LEMON DICE:	-

ARMOR:	-
LIGHT/HEAVY/OVERKILL:	-
MOVEMENT DATA:	-
DEPLOYMENT RANGE:	-
SENSORS:	-
COMMUNICATIONS:	-
FIRE CONTROL:	-

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT

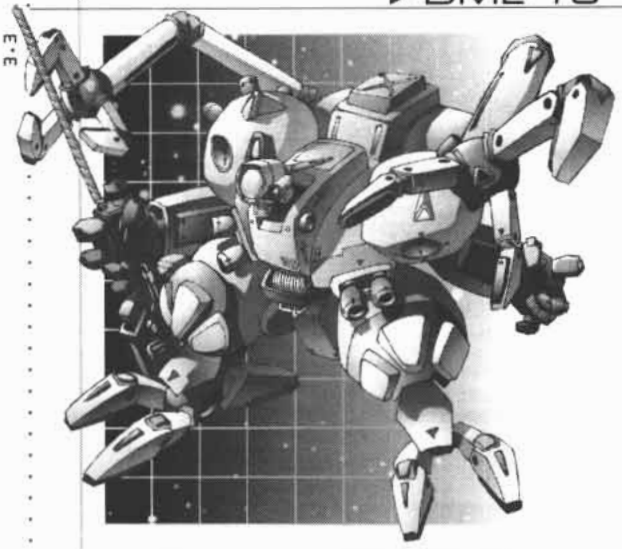
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▼ NOTES

JOVIAN CHRONICLES

▶DML-15 VULCAN



The Vulcan is a common exo-suit designed for the space mining industry. Purpose-built for operating in zero gravity and vacuum conditions, it boasts an impressive safety record when compared to other, similar models. The Vulcan's primary job is to select, drill and place blasting charges, as well as to manipulate other mining equipment and move stubborn rubble.

The operator enters the suit from the upper rear of the torso, sliding down into the fully enclosed cockpit. Only the user's legs extend beyond the Vulcan's torso, into the bulky upper legs. The pilot operates the machine using a wrap-around video screen and waldos rather than external slave arms. The four arms and double jointed limbs take a good deal of getting used to, but they allow the Vulcan to traverse enclosed terrain with unrivalled agility while saving on reaction mass. The suit features multiple equipment attachment points as well as an armored compartment for storing the explosives necessary for blasting sections of asteroids apart.

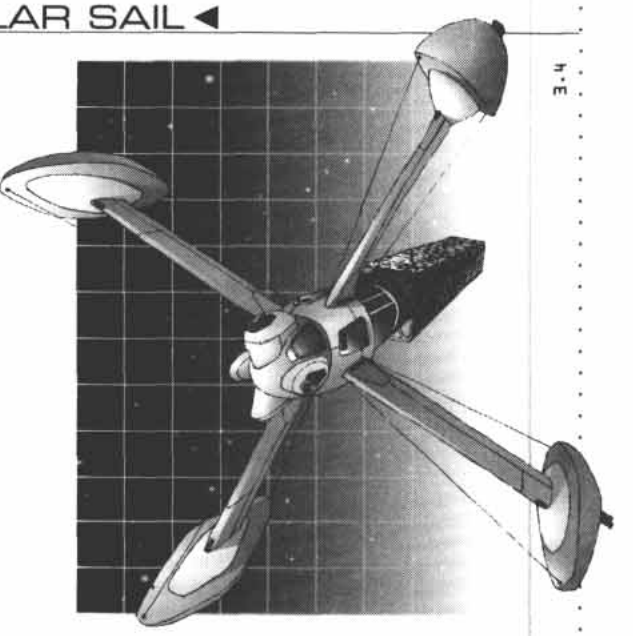
In open space, however, the Vulcan is less impressive. Flush mounted verniers and a limited reaction mass reserve make travel difficult for the machine. It also suffers in more conventional gravity conditions, where its multiple limbs and odd joints hinders rather than enhances its agility.

VEHICLE DATA

Threat Value:								860 (1,000,000 credits)
Crew:								1 (2 Actions)
Size:								4 (2 tons)
Armor:								10/20/30
▼ MOVEMENT DATA								
Movement Mode			Combat Speed		Top Speed			Maneuver
Walker			3 (18 kph)		5 (30 kph)			+1
Space			4 (4.0 g)		8 (0.8 g)			-1
Deployment Range:								300 km
Reaction Mass:								100 BPs
▼ ELECTRONICS DATA								
Sensors:								+0/2 km
Communications:								+0/10 km
Fire Control:								-1
▼ PERKS & FLAWS DATA								
Name				Rating				Game Effect
Ammo Storage				-				Blasting Charges
Backup Life Support				-				Life Support unaffected by "Aux" hit
Computer				1				KNO+0, CRE+0, PP1, flexible
Hostile Environment Protection				-				Radiation (4), Vacuum
Life Support				-				Limited, one person
2 x Manipulator Arm				4				Can punch
4 x Tool Arm				5				Cannot punch
Mining Equipment				-				Light duty, combat ready
Reinforced Chassis, Reinforced Crew Compartment				-				Absorb first "Structure" and "Crew" hits
Searchlight				-				Fixed forward, 100 meters
Annoyances				-				Piloting requires special training; +1 MP/hex to walk in gravity
Decreased Maneuver				2				Space
HEAT Vulnerable				4				Reduce armor against HEAT
Inefficient Combat Computer				-				-1 after first attack
Large Sensor Profile				1				Easier to spot
Sensor Dependent				-				Must use sensors
▼ OFFENSIVE & DEFENSIVE SYSTEMS DATA								
Qty	Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
1	Mining Equipment	F	x3	Melee	-1	0	N/A	-
8	Blasting Charges	F	x15	Melee	-1	0	N/A	HEAT, SD, Time Delay/Remote
1	Drill	F	x5	Melee	+0	+3	Inf.	AP

SERAPH-CLASS SOLAR SAIL ◀

Name:	Seraph
Origin:	Mercurian Merchant Guild
Manufacturer:	Aeon Shipyards
Type:	Solar Sail Barge
Control System:	Bridge
Length:	450 m
Width:	450 m (barge)/140 km (sail)
Empty Weight:	3125 tons
Loaded Weight:	60,000 tons
Main Drive:	Solar Sail
Secondary Powerplant:	4000 kW
Main Thrusters:	N/A (light pressure)
Apogee Motors:	N/A (3-axis flywheel)
Acceleration:	Varies with distance to Sun
Onboard Sensors:	Fire Control Radar, Infrared/Ultraviolet, Lidar, Magnetometer, Radcounter, Telescope
Fixed Armament:	None
Additional Armament:	Auxiliary craft
Defense Systems:	Mag Screen, PDS
Equipment:	Centrifuge, Escape Pods, Satellite Uplink, EVA Bay, Cargo Hardpoints



3-4

OVERVIEW ◇

The formation of the Solar System left Mercury rich in dense elements such as metals but relatively poor in the lighter elements that form common gases and ices, collectively called *volatiles*. Volatiles provide two necessary components to a space age society: they provide the reaction mass used to propel conventional spacecraft, and they provide the majority of consumable life support resources. For Mercury's gigantic fleet of merchant ships, a form of propulsion that does not require the expenditure of volatiles is highly desirable. The Sun itself provides such a resource, a steady, inexhaustible means of propulsion. Sunlight and the solar wind can be harnessed much like the moving atmosphere of a planet to provide an unending supply of free thrust. Solar sail barges such as the Seraph-class and magsail barges such as the Ophan-class (p. 31) make up the majority of the Mercurian merchant fleet.

CAPABILITIES ◇

Although the sunlight used to propel the Seraph barges is effectively infinite, it is not particularly powerful. Seraphim are never subjected to the stresses conventional spaceships experience. As a result, these majestic beauties tend towards a graceful elegance that gives the impression of being almost organic. The four swooping observation decks, one of which is actually the bridge, as well as the six brilliantly reflective panels that form the sail, lend the Seraph its name. The sail housing is mounted at the bow of the ship on a sturdy projection; Ophanim differ from Seraphim only in the sail housing used. A spacious crew habitat is mounted rearward of the main control section, followed by the long cargo spine to which up to 56,000 tons of cargo are attached. For particularly long hauls, past the orbit of Mars, some cargo space is sacrificed for an additional crew section and provisions. Since Seraphim almost never travel that far, this modification is extremely rare.

Due to the civilian nature of the Mercurian Merchant Guild, as well as to Mercury's political neutrality, Seraphim have no offensive or defensive capabilities beyond the requisite laser defense system. In order to deter pirates, however, it is not uncommon to find a pair of Brimstone exo-armors attached to the hull and a squadron of Hellhound exo-suits in the cargo section of any Seraph on a journey past Earth. All Seraphim (and Ophanim) carry a moderate complement of M-Pods called Motes in order to facilitate in-flight maintenance of their sails.

SERVICE RECORD ◇

The Seraph has a long history. The first solar sail spaceships used to transport cargo were designed to haul raw materials from mines on Mercury to orbit around Venus in 2076 as part of Project New Earth. These raw materials went into the construction of the early Venusian space stations, the first Venusian skyhooks and the massive cooling fins on which the arcologies rest. The present-day Seraph is a 140-year evolution of the original *Space Angel* solar sail transports. Today, there are over one thousand Seraphim in orbit around the Sun on active service.

The history of the solar sail goes back even further. The first solar sail spacecraft was the *Phoebus*, a test bed proof-of-concept vehicle that transported a small equipment package from Earth's L1 point to a sub-L1 point in 2003. It demonstrated the practicality of using solar sails for propulsion and for stationkeeping. In 2007, the *Heliopause Explorer* became the first spacecraft to use a solar sail as its primary propulsion on a strictly scientific exploration mission. The *Heliopause Explorer* harnessed the solar radiation to travel out beyond the Sun's heliopause and into interstellar space.

◇ SOLAR SAILING PHYSICS

The photons that make up light have no mass, but they do have momentum. As a result, when spread out over an area, light exerts pressure. The acceleration of an object is proportional to the pressure applied. There are two ways to harness this photonic pressure for thrust: it can be absorbed, or it can be reflected. By reflecting photons, the effective pressure is doubled, so nearly every solar sail is highly reflective. Absorptive ("black") solar sails are used only in very specialized and rare military roles.

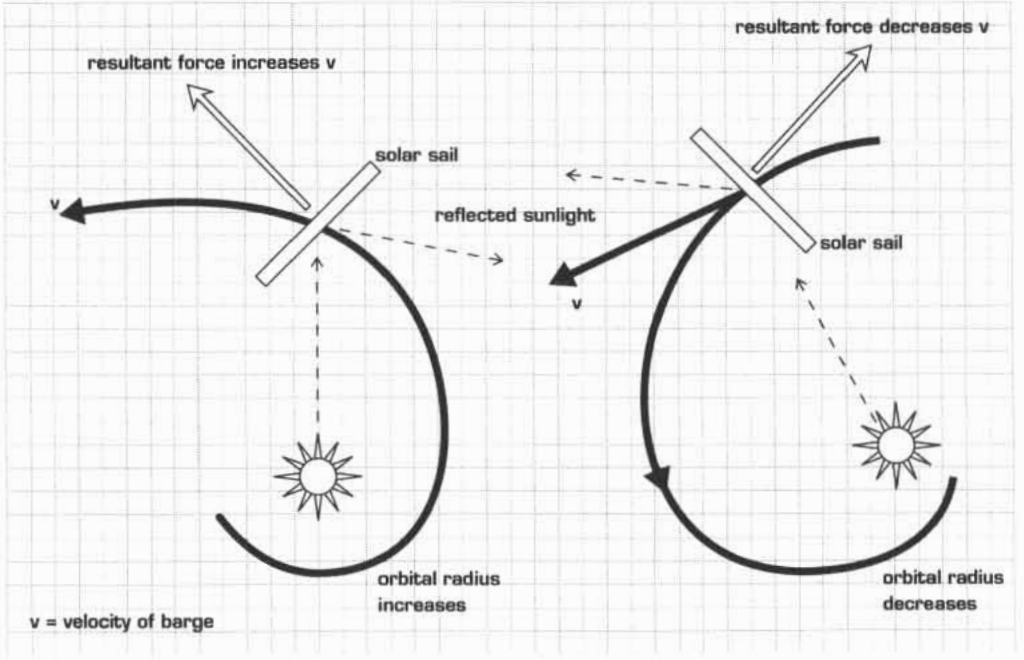
Photonic pressure is extremely weak. At the Earth's distance from the Sun (1 AU), the pressure is only 8.3 micronewtons per square meter of surface area. For comparison, 10 newtons of force will accelerate a one kilogram object at roughly one gee; photonic pressure is one millionth of this strength. In order to use photonic pressure effectively, a spaceship or satellite must have an enormous ratio of surface area to mass: the 60,000-ton Seraph needs a sail with a radius of 70 km in order to achieve an acceleration of 1 mm/s². The photonic pressure obeys an inverse square law. At 2 AU from the Sun, the acceleration of a fully loaded Seraph is 0.25 mm/s². At 0.5 AU, the acceleration is 4 mm/s².

To use sunlight to move outward in the Solar System, a solar sail ship angles its sail so that the reflective side faces the direction opposite the ship's direction of orbit around the Sun. This action results in an outward spiraling orbit. To journey inward, the ship simply orients the sail in the same direction as its orbital direction, causing it to fall inward on a spiral orbit. Trips between planets are complicated by the fact that the acceleration is always changing according to the distance between the ship and the Sun. The journey is further complicated by the need to circularize the ship's orbit eventually, so that it can match position and velocity with its final destination. The navigation computers aboard a solar sail ship are among the most powerful such computers in the Solar System. Solar sails can also be employed for *stationkeeping*, in which the thrust is used to hold a spaceship's or satellite's position in space in a position that would otherwise be impossible without a constant source of thrust. For example, satellites can "hover" over the poles of the Sun by using solar sails to keep their station.

◇ THE SOLAR SAIL

The solar sail itself must be very thin, lightweight and reflective. The Titanian Hydrocarbon Corporation manufactures a 1.5 micron thick plastic film suitable for such a sail. Mercurian sail manufacturers coat the film with a layer of aluminum atoms to provide 90% reflectance. Individual sheets of this film are arranged in a grid and connected by a lightweight, strong plastic. The construction of sails from smaller panels prevents the catastrophic loss of the sail from meteorite punctures and makes sail repair as simple as replacing the damaged panel. The connecting strips also include a simple electrical shorting mechanism to prevent electrical arcing across the plastic panels, which can rip or melt the sail.

The sail is spun very slowly for rigidity. Nearly every commercial and military solar sail is based on the heliogyro design. Instead of one circular sail, the sail consists of a number of large panels. The panels can be angled much like the blades of a helicopter, allowing the ship to redirect thrust without having to reorient the entire hull. The Seraph heliogyro is a six-panel sail.



TRADE ROUTES ◇

Due to the small maximum acceleration that solar sail spaceships and their magsail sisters attain using the Sun's energy, travel by sail is a slow and lengthy process. Voyages that last more than two hundred days are the norm for sail travel, even between planets in the Inner Solar System. The fact that the propulsion is free, however, means that sail travel is substantially cheaper than conventional means. Not only does the Mercurian Merchant Guild not have to pay for reaction mass, the deadweight freed up by having no remass means the ships can carry even more cargo. As long as the customer doesn't mind the long travel time, shipping via sail is the most economic option available.

Sail shipping is ideal for raw materials and most manufactured goods. It is less ideal for products with short market life spans, such as consumer electronics and perishable foods, however, which are usually shipped via conventional systems. Works of art are often shipped by sail, although entertainment products are usually broadcast electronically from planet to planet.

The dependence of a sailing ship's acceleration on an energy source that follows an inverse square law has one important consequence for trade: such a ship's acceleration in Mercurian space is almost ten times as strong as in Terran space. Because of this fact, it is often faster to sail from one planet to another via Mercury: the ship can spend much of the inbound journey building up speed, and can decelerate rapidly once it nears Mercury. (The process is reversed for the outbound voyage.) Mercury's swift orbital period often means it doesn't take long for optimal alignment for the next leg of the journey; waiting for optimal alignment on other planets usually takes far longer. Most Mercurian sailors have a strong psychological dependence on the presence of the Sun, so its strong presence in Mercurian space tends to keep the crews in good spirits, too.

Although solar sail barges can only achieve about 10% of the acceleration that their magsail cousins can, they still dominate trade in the Inner Solar System. Some analysts attribute this fact to internal politicking amongst the secretive Guild Princes. Others ascribe it to tradition. Whatever the reason, solar sails cannot operate past the orbit of Mars effectively, so the magsail barges dominate that portion of the MMG's trade.

TRAVEL TIMES VIA SAIL ◫

	Mercury	Venus	Earth	Mars	Ceres	Jupiter	Acceleration (mm/s²)
Mercury	-	210	240	290	390	520	6.6
Venus	110	-	430	550	740	980	1.9
Earth	160	180	-	750	1040	1390	1.0
Mars	230	330	330	-	1550	2110	0.44
Ceres	340	570	720	850	-	3950	0.13
Jupiter	480	860	1140	1570	2160	-	0.037

These travel times (in days) are crude, but they are fairly realistic for sail spacecraft. Divide by three for magsail spacecraft, which can travel at ten times the acceleration of solar sail craft. Entries in the upper echelon are maximum travel times; entries in the lower echelon are minimum.

PIRACY AND PRIVATEERING ◇

Pirate attacks on ships in the Inner Solar System are rare. The frequency of attacks does increase beyond the orbit of Earth, however, and rises dramatically past the orbit of Mars. The slow acceleration and almost total lack of maneuverability makes a sailing ship a plump target for plunder. A pair of Brimstone exo-armors and a squad of Hellhound exo-suits is often sufficient to ward off all but the most powerful — or most desperate — pirates, but the Mercurian Merchant Guild must still deal with the problem. To deter piracy, the MMG offers an impressive bounty for the live capture of pirates who prey on MMG ships. What happens to a pirate who is brought to Mercury is known only to the Guild Princes, the families of the victims, and the pirate himself; the latter is aware of his predicament for only a few hours, however. The Guild has zero tolerance for piracy.

Growing tensions between CEGA and the Jovian Confederation are of increasing concern among the Princes. It is expected that the outbreak of war between the two nations will result in CEGA-sponsored privateers preying on Mercurian sailing ships. A handful of exos will not provide sufficient deterrent. Administrator Golan Fairbanks is faced with the distasteful prospect of appealing to Venus for help should such a situation come about.

◇IN PORT

When a solar sail or magsail spaceship reaches its destination, her captain has two options for handling arrival. Some captains furl their sails and hire tugs to bring the ship into port. Due to their large size, the sails must be furled well in advance of arrival. Furling or unfurling a sail, either solar or mag, however, requires at least a full day of painstaking work and leaves the ship without any means of propulsion. For those reasons, most captains only furl their sails for long layovers.

Instead, most captains keep their sails unfurled for use in stationkeeping. They "park" their ships far enough away from space stations so that there is no chance of a collision. In this case, they use ferries to transfer their cargo back and forth between their ship and the actual port of call. When stationkeeping, sailing ships — especially solar sail ships — keep inside the planet's orbit to avoid falling into the planet's shadow and losing propulsion.

◇CREW COMMENTS

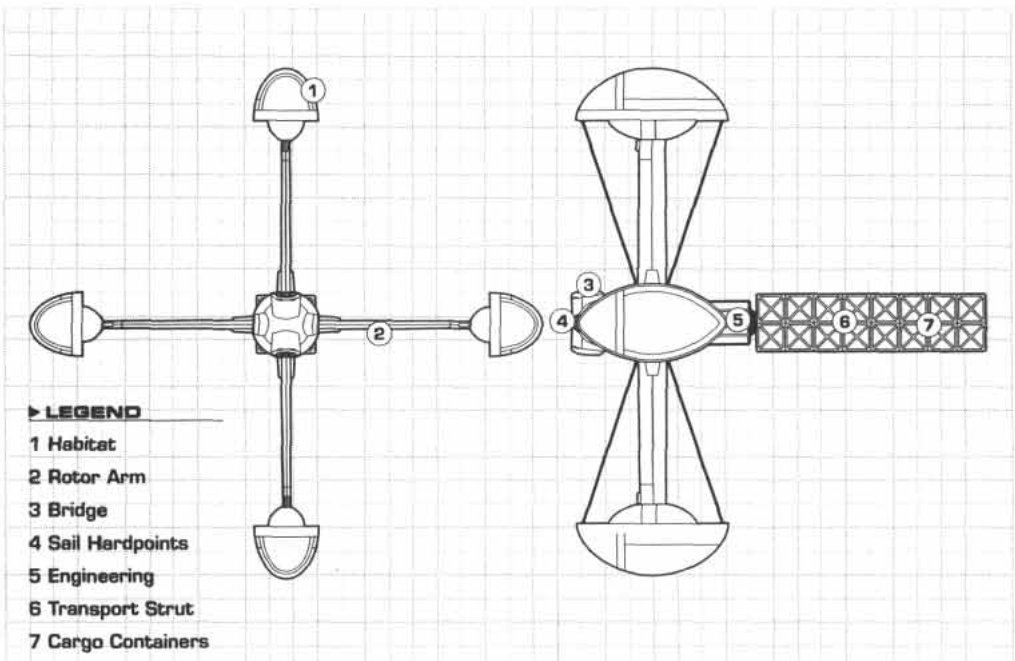
"'Tis a damned tough life, full of toil and strife, we sailormen undergo...' The opening lines of the old shanty ring true. Being a sailor aboard a solar sail barge is no picnic. For the better part of a year, you're slowly dropping down the Sun's gravity well or clawing your way back up. When you finally get where you're going, you might have a week in port or you might have a couple of months. Then it's time to weigh anchor and head back out into the endless night. Many of us spend only our mandatory time in the Merchant Fleet before calling it quits, and that's the last we ever see of a sailing ship. Some folks, though, find their life's calling as a sailor. I guess I'm in the latter category; I've spent 25 years in the Fleet, and you don't make Master of the Tops casually.

"As Master of the Tops, I'm in charge of my ship's sails. I'm the one that schedules the daily inspections of all 15,000 square kilometers. I oversee repairs to the sail and make sure everything's running in tip-top shape when we furl or unfurl them. In fact, when it comes to the sails, there's God Almighty, there's the Master of the Tops, and then there's the skipper. Without the sails, we're nothing, dead in the water. Actually, it's not that bad; because of our long hauls, we'll have plenty of provisions on hand in case the sails go out. My life would pretty much be over, but at least the rest of the crew would be fine while awaiting rescue.

"Of course, being Mercurian merchants and all, we're greedy, conniving traders who'll sell our own mothers if it'll make a quick credit or two. That's the stereotype, anyway, and while we may try to deny it, there's at least a hint of truth to the myth. Some skippers allow their crew 100 kilograms of extra cargo per person, to be strapped to the outer hull for personal business transactions. Old Man Bazille, my skipper, is like that. Some of the stuff we come up with for trading . . . Ever hear of space cheese? That's one of ours. A mate of mine once got the idea of aging cheese on the long hauls and selling it when we got back to port. The stuff sold like wildfire! I prefer to deal in collectibles. I once made a pretty penny on a crate of rare, variant-painted action figures from Johji Watanabe-Hitomi's *Space Explorer Girl Kelli-Kelli* cartoon."

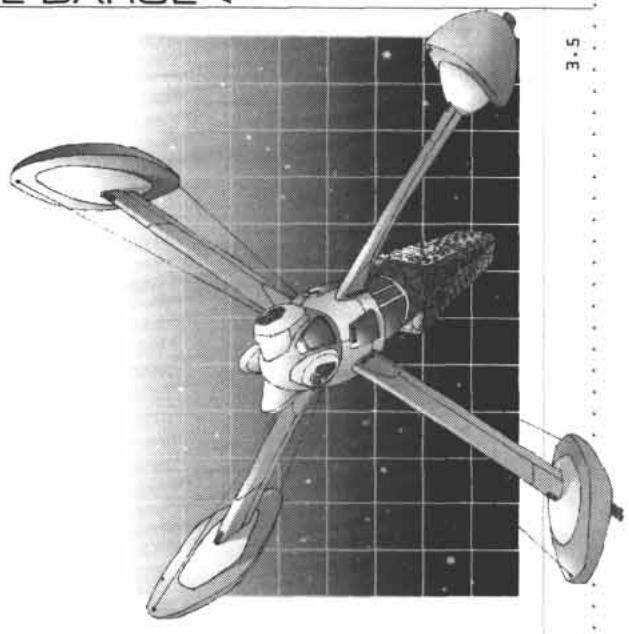
— D. Phillip Dawson, Master of the Tops, MSS *Achaiah*

◫SHIP DIAGRAM



OPHAN-CLASS MAGSAIL BARGE ◄

Name:	Ophan
Origin:	Mercurian Merchant Guild
Manufacturer:	Aeon Shipyards
Type:	Magsail Barge
Control System:	Bridge
Length:	450 m (hull)/140 km (sail)
Width:	450 m
Empty Weight:	3125 tons
Loaded Weight:	60,000 tons
Main Drive:	Magsail
Secondary Powerplant:	4000 kW
Main Thrusters:	0 (solar wind)
Apogee Motors:	0 (3-axis flywheel)
Acceleration:	Varies with distance to Sun
Onboard Sensors:	Fire Control Radar, Infrared/Ultraviolet Lidar, Magnetometer, Radcounter, Telescope
Fixed Armament:	None
Additional Armament:	Auxiliary craft
Defense Systems:	Mag Screen, PDS
Equipment:	Centrifuge, Escape Pods, Satellite Uplink, EVA Bay, Cargo Hardpoints



3-5

OVERVIEW ◇

In addition to its steady stream of photons, the Sun radiates a second medium that a spaceship can harness for virtually no cost, the solar wind. In order to make use of the solar wind, a vessel must employ a large magnetic field, known as a magnetic sail or *magsail*. The Ophan is the most common magsail barge in the Mercurian Merchant Fleet, outnumbering its larger sister magsail, the Galgal-class, by almost 25 to 1.

While magsail barges are just as common as solar sail barges, they dominate the public's eye for two important reasons: first, the more exotic and insubstantial magsail has captured the imagination of 23rd-century science fiction authors, who often use the barges as the focus of both heroic tales of survival and paranormal thrillers. More importantly, however, is the fact that Ophanim and Galgalim can go where the Seraphim cannot: they can reach Jupiter and the Jovian Confederation.

CAPABILITIES AND SERVICE RECORD ◇

The Ophan-class magsail barge gets its name from its sail's rigging: "Ophan" is a Hebrew word meaning "hoop" or "wheel," and it is a 140-km diameter loop of superconducting cable that generates the Ophan's magnetic sail. The sail drive is the only component that differentiates it from the Seraph-class solar sail barge; converting the one into the other is as simple as swapping sail drives. Because they make most of their voyages beyond the orbit of Earth, Ophanim almost always carry a complement of exo-vehicles for defense.

The first magsail spacecraft were little more than technology-demonstrating showpieces, although a few were used for scientific missions. In 2157, Hermes Aerospace perfected a technique for mass-producing the quantities of superconducting cable required for a practical magsail generation loop. In 2159, they launched the first commercial magsail transport, a small, Mercury-Venus passenger liner called the *Ether Princess*. A few years later, Aeon Shipyards began retrofitting several of their solar sail barges with magsails. Today, there are almost 1000 Ophan-class barges in the Mercurian Merchant Fleet.

SAILING THE SOLAR WIND ◇

The solar wind is a stream of charged particles that have escaped the Sun's outer layers. A carefully designed magnetic field can deflect these particles and control the direction of the deflection. If the field is large enough compared to its source, the deflected stream will give the generator a small amount of acceleration. A magsail is exactly such a magnetic field, and can use the solar wind just like a solar sail uses sunlight. One major difference between the two systems, however, is that magsail spacecraft can get up to ten times the acceleration of solar sail craft. This fact cuts down dramatically on a magsail ship's travel time, permitting routine travel past the orbit of Mars.

The magsail proper is an invisible field; only the rigging is visible. The rigging, a bundle of superconducting cables wrapped in a protective sheath, forms a loop that originates from the drive housing. As current circulates in the cables, it generates a magnetic field around them and places hoop stress on the loop, keeping the rigging in its circular shape. It requires no additional support structure apart from bundles of shroud cables that connect it to the hull. The hull rests at the center of the loop, where it is safe from the adverse effects of the strong magnetic field and the intense particle activity in its vicinity.

▼ SERAPH/OPHAN SAIL BARGES

▼ OVERALL PRODUCTION DATA

THREAT VALUE:	20,500/20,800
OFFENSIVE:	1700/1700
DEFENSIVE:	620/620
MISCELLANEOUS:	59,100/60,100
COST:	21 M/22 M credits
PRODUCTION TYPE:	Early (Effective)
INDV. LEMON DICE:	2

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Solar Sail/Magsail	varies	varies	-8

Deployment Range:	5000 hrs	Fusion/Electric
Reaction Mass:	0 BP	N/A

▼ SECTIONS

1 x Main Hull
1 x Habitat Section
1 x Cargo Spine
1 x Drive Section
Various Cargo Containers (p. 91 Yggdrasil cargo module)

▼ OFFE. & DEF. SYSTEMS

1 x Point Defense System (main hull)

▶ MAIN HULL

COST:	7,000,000 credits
CREW:	6
ACTIONS:	4
HULL SIZE:	38
DEFAULT SIZE:	19
STACKING SIZE:	38
INDV. LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	30/60/90
MOVEMENT DATA:	Towed by Drive Section
DEPLOYMENT RANGE:	5000 hrs
SENSORS:	0/4 km
COMMUNICATIONS:	0/20 km
FIRE CONTROL:	-2

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as Level 1 Pilot	Passenger Accommodations	-	300 m³, observation decks
Backup Systems	-	Comm, FireCon, Life Supp., Sens.	Reinforced Crew Compartment	-	Absorbs first "Crew" hit
Computer	3	CRE -2, KNO 0, PP3	Satellite Uplink	-	1000 x Communication Range
Computer	4	CRE -2, KNO +1, PP4, Space Nav.			
Ejection System	-	Escape pods, 32 places			
HEP: Extreme Heat	-	Extra radiators			
HEP: Radiation	4	Screen			
HEP: Vacuum	-	Space Protection			
Life Support	-	Full, 32 people			

▼ WEAPONS

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS (ranged)	T	x8	1	0	0	Inf.	AM, HEAT	8	2900	N/A
	PDS (shield)	FF	x16	M	0	0	Inf.	Def, E-Shield, HEAT	3	48	N/A

▶ HABITAT SECTION

COST:	10,000,000 credits
CREW:	0
ACTIONS:	0
HULL SIZE:	34
DEFAULT SIZE:	22
STACKING SIZE:	34
INDV. LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	30/60/90
MOVEMENT DATA:	Towed by Drive Section
DEPLOYMENT RANGE:	5000 hrs
SENSORS:	-3/1 km
COMMUNICATIONS:	-3/5 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Sup. unaffected by "Aux" hits	Life Support	-	Full, 64 people
Ejection System	-	Escape pods, 64 places	Passenger Accommodations	-	4500 m³
HEP: Extreme Heat, Radiation (4), Vacuum		Extra Radiators, Screen, Space Prot.	Reinforced Crew Compartment	1	Absorbs first "Crew" hit
Laboratories	0	Cooking, Teaching, Athletics	Sick Bay	4	Four surgical theaters

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ CARGO SPINE

COST:	2,400,000 credits
CREW:	0
ACTIONS:	0
HULL SIZE:	24
DEFAULT SIZE:	13
STACKING SIZE:	24
INDV. LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	20/40/60
MOVEMENT DATA:	Towed by Drive Section
DEPLOYMENT RANGE:	1000 hrs
SENSORS:	-3/1 km
COMMUNICATIONS:	-3/5 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Cargo Bay	-	1000 m³, EVA bay	HEP: Vacuum, Radiation (4)	-	Space Protection
Ejection System	-	Escape pods, four places	Life Support	-	Full, four people
HEP: Extreme Heat	-	Extra radiators	8 x Tool Arm	20	Cargo handlers, cannot punch

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ SOLAR SAIL DRIVE (SERAPH)

COST:	1,100,000 credits
CREW:	4
ACTIONS:	4
HULL SIZE:	20
DEFAULT SIZE:	10
STACKING SIZE:	20
INDV. LEMON DICE:	2

ARMOR			
LIGHT/HEAVY/OVERKILL:			30/60/90
MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space (Solar Sail)	varies	varies	-8
DEPLOYMENT RANGE:			500 hrs
SENSORS:			0/4 km
COMMUNICATIONS:			0/20 km
FIRE CONTROL:			-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Cargo Bay	-	1000 m³, spare sail components	Life Support	-	Full, eight people
Easy to Modify: Movement	-	+2 to repair and modify	Large Doors	-	Extra-wide doors
Ejection System	-	Escape pods, eight places)	No Fuel Required	-	Solar Sail, power can't be cut off
HEP: Ext. Heat, Rad (4), Vacuum	-	Extra Radiators, Screen, Space Prot.	Large Sensor Profile	6	Extremely large sail

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▶ MAGSAIL DRIVE (OPHAN)

COST:	2,800,000 credits
CREW:	4
ACTIONS:	4
HULL SIZE:	20
DEFAULT SIZE:	10
STACKING SIZE:	20
INDV. LEMON DICE:	2

ARMOR			
LIGHT/HEAVY/OVERKILL:			30/60/90
MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space (Magsail)	varies	varies	-8
DEPLOYMENT RANGE:			500 hrs
SENSORS:			0/4 km
COMMUNICATIONS:			0/20 km
FIRE CONTROL:			-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Supp. unaffected by "Aux" hit	HEP: Radiation	6	Screen
Cargo Bay	-	1000 m³, spare sail components	HEP: Vacuum	-	Space protection
Easy to Modify: Movement	-	+2 to repair and modify	Life Support	-	Full, eight people
Ejection System	-	Escape Pods, eight places	Large Doors	-	Extra-wide doors
Haywire Resistant	-	Extra Insulation	No Fuel Required	-	Magsail, power can be cut off
HEP: Extreme Heat	-	Extra Radiators	Large Sensor Profile	3	Extremely large sail

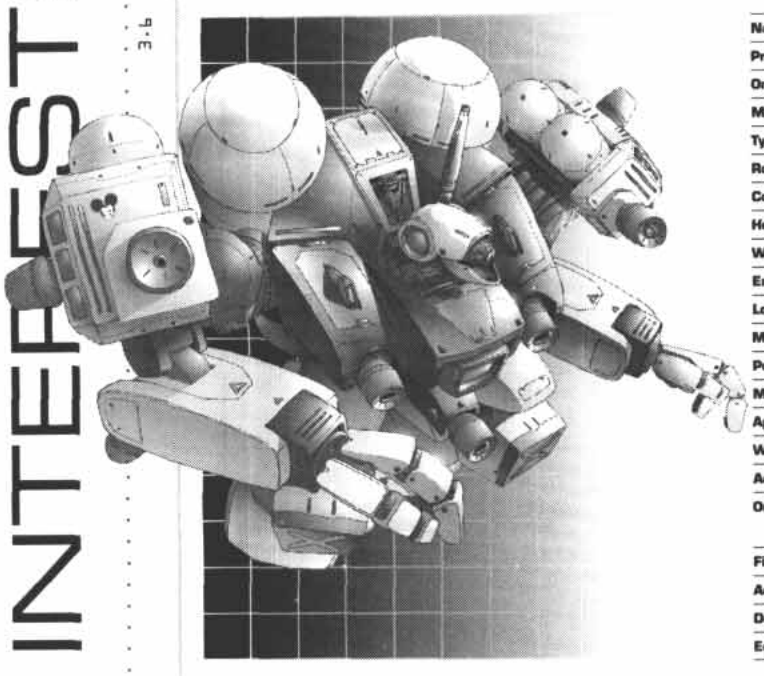
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▼ NOTES

JOVIAN CHRONICLES

▶ HOPLITE CIVILIAN EXO-ARMOR



Name:	Hoplite
Production Code:	Various
Origin:	Jupiter and Others
Manufacturer:	Various
Type:	Light Exo-Armor
Role:	Heavy Engineering and Construction
Control Systems:	Linear Frame
Height:	14.2 m
Width:	10.2 m
Empty Weight:	25 tons
Loaded Weight:	26.5 tons
Main Drive:	15 MW
Powerplant:	1300 kW
Main Thrusters:	3 x 7000 kg, 2 x 2000 kg
Apogee Motors:	10
Walking Speed:	18 kph
Acceleration:	1.0 g
Onboard Sensors:	Low-Light, Magnetometer, Microwave, Motion Detectors, Radcounter, Telescope
Fixed Armament:	None
Additional Armament:	None
Defensive Systems:	Mag Screen
Equipment:	None Standard

◇ OVERVIEW

"It's not so much a medieval knight in armor, lad, as it is more of a . . . a hoplite." With these words, a supervising engineer inadvertently christened the prototype of the first exo-armor in early 2162. By late 2163, Jovian Armor Works had delivered ten of the EAL-01 Hoplite exo-armors to the Jovian Armed Forces, and a new era in space warfare had begun.

When the second-generation exo-armor, the EAL-02 Explorer, replaced the Hoplite a dozen years later, the JAF mothballed many of the older machines in a newly-constructed exo-armor graveyard on Ganymede. They refitted the rest for non-combat duties and reassigned them to heavy engineering roles within the Service.

The Agora declassified the Hoplite in 2200. By that time, civilian technology had caught up with the exo-armor, and several non-allied foreign powers were clearly at work on their own sophisticated exo-armors that were based on the Jovians' second-generation models. Now, more than a decade later, a dozen different manufacturers throughout the Solar System produce Hoplites or imitations.

◇ CAPABILITIES

Although the lines and curves are more modern looking today, the civilian Hoplite retains its original ruggedness and durability. It comprises entirely civilian components, which keeps its overall cost down. The Hoplite plays a large role in modern, large scale engineering. Hardly a single such project doesn't involve a Hoplite, from the monolithic arcologies of CEGA's portion of Earth to the asteroid habitats of the belts.

The exo-armor isn't as fast or as maneuverable as a military model, but such details have little bearing on most civilian projects; its multi-environment capability and overall versatility make the Hoplite a valuable piece of equipment for construction firms. Why sink capital into a crane and an earthmover when a single machine can do both, on the ground as well as in orbit? With a few modifications, it can even operate reliably under water or deep within the atmosphere of a gas giant.

In addition to its service in the construction industry, the Hoplite plays several roles in the private sector. Many retired military exo-pilots own Hoplites and several run private exo-piloting schools. Corporate sponsors in the Jovian Confederation hold annual biathlon-style races, where pilots race modified Hoplite Marathons in space and on the ground for fame and fortune. For the Solar System's eccentric billionaires, Jovian Armor Works has released the limited edition, 50th anniversary Hoplite Gold, which looks exactly like the original 2163 model but bears a coat of gold-colored reflective foil.

SERVICE RECORD ◇

The civilian Hoplite has had a hand in just about every major construction and civil engineering project since 2200. One of its more interesting, however, was in the aftermath of the tragic series of events known as The Odyssey of 2210. Wherever military exo-armors made a mess, civilian Hoplites cleaned up afterward. They worked on salvage operations in the ruins of the Martian orbital elevator. They tended the remains of the CEGA battle fleet around Elysée. They even cleared out wreckage from Copernicus Crater on the Moon and looked for survivors.

On a less tragic note, Patrick "Crash" Harrigan won his sixth consecutive Callisto Invitational in November 2212 with his trusty Hoplite Marathon, "Carlo." He beat out nearly two dozen more advanced models, including the new Explorer Sprint, much to the delight of the octogenarian who gave the Hoplite its name in 2162.

VEHICLE DATA ◫

Threat Value:							660 (330,000 credits)
Crew:							1 (2 Actions)
Size:							10 (25 tons)
Armor:							15/30/45
▼ MOVEMENT DATA							
Movement Mode	Combat Speed	Top Speed					Maneuver
Walker	2 (9 kph)	3 (18 kph)					-2
Space	5 (0.5 g)	10 (1.0 g)					-2
Deployment Rage:							300 km
Reaction Mass:							450 BP
▼ ELECTRONICS DATA							
Sensors:							-2/2 km
Communications:							-2/10 km
Fire Control:							-3
▼ PERKS & FLAWS DATA							
Name		Rating					Game Effect
Autopilot		-					Acts as level 1 pilot
Backup Communications		-					Absorbs first "Communications" hit
Backup Life Support		-					Life Support not affected by "Aux" hits
Easy to Modify: All		-					+2 to repair and modify
High Towing Capacity		-					Double towing
HEP: Radiation		4					Screen
HEP: Vacuum		-					Space protection
Life Support		-					Limited, one person
2 x Manipulator Arm		10					Can punch
Reinforced Crew Compartment		-					Absorbs first Crew hit
Large Sensor Profile		4					Easier to spot
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
None							

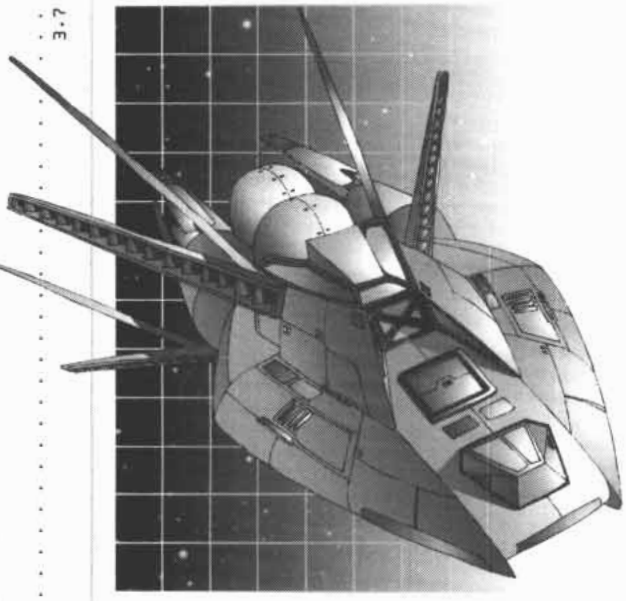
HOPLITE MARATHON ▼

The Marathon is a special class of racing Hoplite used in the various Jovian exo-armor biathlons. Each of the Hoplite manufacturers has a team of two or three custom Hoplite Marathons. Several well-known customization shops sponsor their own models as well. Favorites include Team Vervack's "Spark" and the crowd-pleasing "Fugitive" from the enigmatic Venusian design team known simply as Group C.

Typical biathlons consist of a ground-based obstacle course followed by a space-based speed race. The competitors are required to boost to orbit on their own, which means they have to budget their reaction mass expenditure carefully.

Add:	-
Remove:	Autopilot
Change:	Upgrade Space Movement to 2.4 g, Walker Movement to 60 kph, Maneuver to -1. Downgrade Deployment Range to 100 km, Reaction Mass to 300 BP
Modified Threat Value:	650
Production Type:	Late Prototype
Cost:	3,250,000 credits

▶ DELPHIN-CLASS QUICKSHIP



Name:	Delphin
Origin:	Mercury
Manufacturer:	Hermes Aerospace and Various
Type:	Courier/Rapid-Response Ship
Control System:	Cockpit
Length:	30.4 m
Width:	15.3 m
Height:	10.2 m
Empty Weight:	105 tons
Loaded Weight:	115 tons
Main Drive:	3.9 MW
Secondary Powerplant:	830 kW
Main Thrusters:	2 x 250,000 kg
Apogee Motors:	14
Acceleration:	4.9 g
Onboard Sensors:	Fire Control Radar, Infrared/Ultraviolet, Lidar, Low-light, Magnetometer, Radcounter, Telescope, Wideband Antenna
Fixed Armament:	None
Additional Armament:	None
Defensive Systems:	Mag Screen, PDS
Equipment:	Escape Pod, Satellite Uplink

◇ OVERVIEW

Since the mid-20th century, humanity has had to face the challenges of great distances and long transit times for most space travel beyond the Earth-Moon system. Limits on consumable resources have pushed engineering and design ingenuity forward as the human race has striven to shorten the travel time between two points. Mars Direct and other early human expeditions were the first attempts at shortening the mission cycle.

The Delphin-class spacecraft plays a pivotal role in enabling rapid travel between the Solar nations and organizations of the 23rd century. Brought into production in 2149, the design has gained increased acceptance as commerce and interplanetary travel have steadily gained momentum.

◇ CAPABILITIES

The Delphin is designed for the sole purpose of transporting its charge from point A to point B in the fastest time possible. To this end, the ship is a small, arrowhead-shaped craft with oversized engines. Fuel is housed in separate tanks that rest above and below the aft section, alongside the massive engines. At full thrust, the Delphin can push over 4.0 gees. Many engineers have modified the engines and fuel pods on their ships for even more impressive performance.

In addition to its impressive acceleration, the Delphin includes some unique features not found in many spacecraft in the 23rd century. One such feature is the inflatable thermal shields positioned across the forward section of the main hull. These shields allow the ship to aerobrake, a maneuver that uses the thin upper atmosphere of planets to decelerate the ship.

◇ SERVICE RECORD

The first Delphin-like courier spaceships were nothing more than cargo modules with massive engines attached. These ships were very inefficient, but quite effective in their primary role of rapid transport. Primarily used in the Inner System, these early quickships (as they were nicknamed) inspired the concept of the Delphin design and others, including the SolaPol Cutter and the SolaPol Quickship. Both Mercury and Venus designed quickships in the mid-22nd century, but the Mercurian design for the Delphin managed to seize the market from the Venusian Denkou quickship, mostly as a result of the Merchant Guild's heavy focus on shipping.

Almost unchanged since the first prototypes boosted out of the Hermes Aerospace shipyards in 2149, the Delphin is a solid and efficient design. The Merchant Guild originally commissioned the vehicle for its own fleets, utilizing the craft for all manner of rapid service. It gained additional popularity when Administrator Samiel Beaufort made the Delphin his personal transport in 2150. Other Guild bosses followed suit, spawning a minor luxury Delphin market. Non-Guild corporations benefited from maintaining small fleets of quickships of their own, and the market for the standard model boomed as well. Since that time, Delphins have expanded their reach across the entire Solar System.

◇ [SERVICE RECORD CONTINUED]

Delphins are found in large quantities primarily in the commercial fleets of the Guild, the Jovian Gas Mining Corporation and the Titanian Hydrocarbon Corporation. Still, the design is not limited to these larger players. Some decommissioned ships have been sold off to private entities, resulting in freelance services and even some piracy and smuggling. Indeed, in the last twenty years, many entrepreneurial pilots have bought and recommissioned these ships, providing a myriad of "discreet" transport services.

NAVIGATING THE GRAVITY WELL ◇

Pilots, engineers and scientists have always had to wrestle with the need to maximize consumable reserves in order to enable vehicles (and their crew) to reach their destinations before those reserves are spent. These reserves include not only reaction mass, but power and life support as well. Calculating an appropriate balance for each of these needed reserves presents difficult challenges for even the most seasoned spacer.

There is little doubt that life support is vital to a spacer's immediate survival, but remass reserves are perhaps the most precious commodity with regard to a spacer's long term survival. Efficient use of remass is thus of the highest priority. As a result, most space vehicle navigation relies on the use of gravity wells and careful burn timing as methods of preserving remass and even shortening the length of the journey whenever possible. A gravity whip is a navigational method that uses a planetary body's orbital momentum to accelerate or decelerate a space vehicle. Using carefully plotted angles of approach, the spacecraft can use this change in momentum to rocket off toward another destination or to move slowly into standard space lanes. Occasionally, pilots can employ other methods such as aerobraking or short bursts of hyperthrust, but these are used very sparingly due to the operational limits of most cargo vehicles and the risky nature of the maneuvers.

Few people in the Solar System know how to utilize these principles better than quickship pilots. Low-periapsis gravity whips, mid-atmospheric aerobraking and extended hyperthrusting are some of the more dangerous maneuvers that quickship pilots often perform to deliver their cargo ahead of schedule. In addition to these maneuvers, pilots coordinate with the necessary International Space Traffic Control Offices (ISTCO) around the Solar System to verify flight paths. Routes are intensely calculated ahead of time, checked by sophisticated computer models and then rechecked through the ISTCO. Still, despite these preparations, uncertainties that require constant adjustment do exist; sudden equipment failures or environmental anomalies can doom a crew that cannot react instinctively. Quickship pilots are eager to point out that it is this element of intuitive application that separates the quickship pilots from common freighter pilots.

THE NEED FOR SPEED ◇

For many quickship pilots, nothing is more exciting than shaving time off of a shipment. The extra money is good, but the bragging rights are better. The so-called "need for speed" is a natural outgrowth of this attitude, descended from the first days of aerospace research.

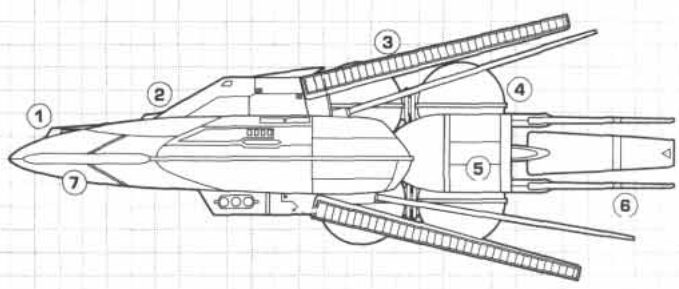
When it comes to displays of speed, not much can compare to the Great Race. Held every two years, the Great Race is an official competition pitting quickship pilots from across the Solar System against each other for the best times. Shipyards, financial institutions, cargo carriers and many consumer industries fund the race's substantial prize pot, primarily for marketing purposes. The race is recorded and broadcast across the Solar System; ZONet has maintained primary coverage rights over this event for the last few decades. On the seamier side of things, the Great Race is the focus of several large and well-organized gambling rings, many of which operate in nations where gambling is regulated or illegal.

Every race begins at a carefully chosen planet or moon; the pilots are transmitted their intended destination at the start of the clock. Pilots must scramble to plot the best route while still complying with space traffic control regulations for any obstacles or heavenly bodies that intersect their flight path. Over the race's sixteen-year history, there have been several lost ships as well as four well-publicized fatalities. However, despite (or possibly because of) these dangers, there is no shortage of quickship pilots willing to compete in the Great Race.

SHIP SCHEMATICS ◻

▸ LEGEND

1 Bridge
2 Docking Bay
3 Main Heat Sink
4 Reaction Mass Tanks
5 Drive Housing
6 Drive Fins
7 Re-entry System Housing



◇ SOLAPOL AND THE IRC

Operating out of SolaPol headquarters on Pyrea Station, SolaPol's Information Regulatory Commission (IRC) maintains hundreds of consigners and pilots for ferrying information, case witnesses and valuable evidence around the Solar System. Most of these pilots are freelance quickship pilots, kept on retainer by the IRC to help maintain SolaPol's information network. Although they are often perceived as undercover agents, these men and women are not actually career SolaPol employees; almost all have separate careers as smugglers or legitimate couriers.

While most consigners are generally trustworthy and unwilling to jeopardize a steady paycheck for a quick buck, the lure of a huge payoff from a smuggling ring or large corporation is occasionally too much to resist. There have been many occurrences of corrupt transactions, where IRC consigners have "lost" some of their cargo and subsequently dropped out of sight. Sometimes the cargo is relatively harmless, but there have been several disturbing instances in which Information Systems Administration datacores or witness protection program enrollees have failed to arrive at their appointed destinations.

IRC counterintelligence runs regular checks on its personnel, and also conducts surveillance and sting operations against suspects. However, even in cases of unquestioned guilt, the IRC has to weigh the cost of prosecuting its findings against the benefits of semi-reliable underworld connections and unmatched delivery times. Even discounting the internal corruption within the IRC, the general consensus in SolaPol is that, except in cases of severe crimes or Edict violations, the occasional lost cargo is an acceptable price to pay.

◇ NEEDLE IN A HAYSTACK

Few fates are more frightening than being stranded in space, far away from any colony or commercial traffic. Despite the best precautions, disasters do occur, reducing a spaceship into a tomb for its crew. Search and rescue operations are therefore a vital necessity for the Solar colonies, both for saving lives and salvaging property.

The logistics of search and rescue are complicated in space. The rules can change rapidly, depending on the search area's distance from gravity wells and the sun. Also, tracking down a live vehicle can be tough enough in empty space; a dead ship is an even greater challenge. Emergency beacons, required on all ships since the formation of the ISTCO in 2022, help in these cases, but the sheer scale of the Solar System still makes time a precious commodity.

Typically, search procedures aboard Delphins and other smaller search craft involve trolling with sensor tows in small groups. Each ship is given a position in formation, and the vehicles traverse through the search area scanning for their target. Orbital rescue operations are by far the easiest to perform. Ships lost in the gravity well of a planet are typically caught in elliptical orbits, often reducing post-discovery salvage operations to running a few calculations and then plotting an intercepting orbit.

The most costly and dangerous type of search and rescue occurs in open space, far from any planet. Without a planetary gravity well to help capture the damaged vessel, the disabled craft is often left drifting along its last vector. Fortunately, most space travel occurs along the plane of the ecliptic, the imaginary plane representative of the similar orbital inclinations of the planets. This allows most rescuers to limit their search to an almost two-dimensional search area. However, sometimes ships plot unusual courses with steep inclinations to the ecliptic. Such rescue operations are difficult to navigate through without expending excessive amounts of fuel. Delphins and other quickships, with their high thrust and large fuel reserves, are often the craft of choice for such rescue attempts.

◇ TO AID AND TO SERVE

More than anyone else, the Solar Cross carries the duty of rescue operations throughout most of colonized space. Due to the enormous size of this territory, the Solar Cross maintains more than a handful of Delphin quickships to help extend the Solar Cross' reach. The quickships are tasked with long patrols in the areas outside the reach of the larger mothercraft and her quarry. Once, the emergency situation is ascertained; the Delphin crew will contact the nearest command ship and either request assistance or arrange a rendezvous. In either case, the Delphin crew will begin triage and necessary surgery. The patients are eventually transferred to better hospital facilities once they are available.

The Delphins used for the Solar Cross are extensively modified to accommodate the additional sensor and life support requirements for search and rescue (see facing page).

VEHICLE DATA

Threat Value:								3400 (6,800, 000 credits)
Crew:								2 (3 Actions)
Size:								15 (90 tons)
Armor:								30/60/90
▼ MOVEMENT DATA								
Movement Mode		Combat Speed		Top Speed				Maneuver
Space		25 (2.5 g)		49 (4.9 g)				-3
Deployment Rage:								1000 hrs
Reaction Mass:								6000 BP
▼ ELECTRONICS DATA								
Sensors:								0/4 km
Communications:								0/10 km
Fire Control:								-5
▼ PERKS & FLAWS DATA								
Name				Rating				Game Effect
Autopilot				-				Acts as level 1 pilot
Cargo Bay				-				20 m³
Computer				4				CRE 0, KNO 0, PP 4
Ejection System				-				Escape pods, four people
HEP: Radiation				4				Screen
HEP: Vacuum				-				Space protection
Life Support				-				Full, four people
Passenger Accommodations				-				3 m³, sleeping compartment
Passenger Seating				2				Two passengers
Reentry System				-				Single-use system
Satellite Uplink				-				1000 x Comm Range
Annoyance				-				Tight crew area, including cockpit
Exposed Movement Systems				-				"Movement" hits are one step higher
Traceable Emissions				3				Easier to detect, Guided weapons get automatic lock-on
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA								
Qty	Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
1	PDS (ranged)	T	x6	1	0	6	Inf.	AM, HEAT
	PDS (shield)	FF	x8	M	0	4	Inf.	Def., E-Shield, HEAT

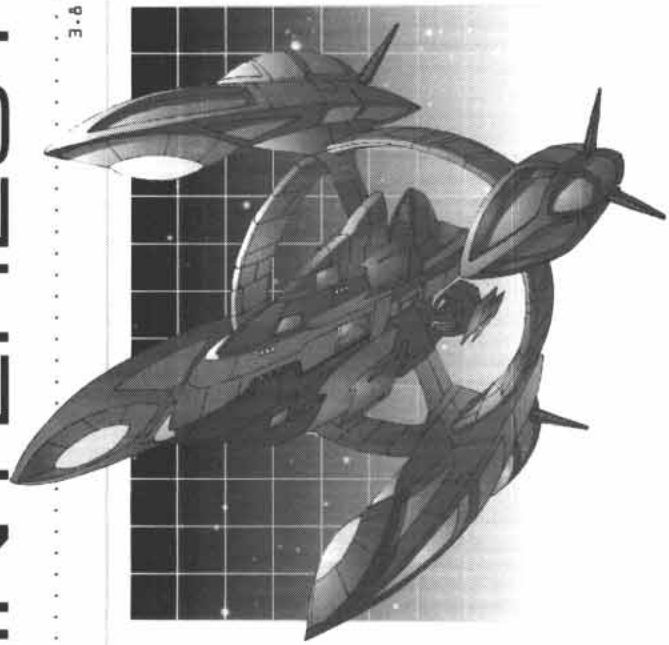
SOLAR CROSS DELPHIN ▼

Fulfilling a different role than the shuttles of the Geneva-class Hospital ship, the Solar Cross' handful of customized quickships are tasked with long patrols in the areas outside the reach of the larger motherships. These modified Delphins are functionally similar to the MASH units of the 20th century, able to move into a rescue area and begin conducting triage operations long before the rescue command ships can arrive on the scene. In addition to adding crew space for medical staff and patients, two additional pressurized cargo capsules are attached below the main hull. These capsules are used to store exosuits, sensor tows and medical supplies, and they also contain surgical, triage and quarantine facilities.

SOLAR CROSS DELPHIN

Add:	Cargo Bay (20 m³), Laboratory (First Aid, Rating 2), Laboratory (Medicine, Rating 1), Sick Bay (Rating 8)
Remove:	Reentry System
Change:	Sensors to +1/10 km, Life Support to 20 people, Reaction Mass to 8000 BP, Ejection System to 20 people, Passenger Accommodations to 20 m^3, Size to 20 (210 tons)
Modified Threat Value:	8300
Production Type:	Late Prototype
Cost:	41,000,000 credits

▶ EMPRESS-CLASS LINER



Name:	Empress
Origin:	Earth System
Manufacturer:	Alberville L5 Shipyards
Type:	Passenger Liner
Control System:	Bridge w/Astronomical Display
Crew Complement:	212 (optimal)
Passenger Capacity:	2300
Length:	210 m
Width:	162 m
Empty Weight:	33,140 tons
Loaded Weight:	38,000 tons
Main Drive:	4 x 22 MW
Secondary Powerplant:	4 x 2000 kW
Main Thrusters:	4 x 4,300,000 kg
Apogee Motors:	50
Acceleration:	0.3 g
Onboard Sensors:	Fire Control Radar, Infrared/Ultraviolet, Lidar, Radcounter, Wideband Antenna
Fixed Armament:	None
Additional Armament:	Exo-suits
Defensive Systems:	PDS, Mag Screen
Equipment:	Escape Pods, Lifeboats, Satellite Uplink

◇ OVERVIEW

Although commercial trade ships like the Inari offer interplanetary transport to civilians at reasonable rates, the bulk of such travel is handled by a small handful of passenger liner fleets. While more expensive and less regular, passenger liners offer something that most other ships cannot: a comfortable journey. Passenger liners offer simulated gravity, large living spaces and dedicated passenger service. They are also faster than most commercial traders, as they seldom transport any significant cargo other than the personal effects of the passengers.

◇ CAPABILITIES

The average passenger liner has more in common with a small space station than it does a regular space vessel. The majority of its bulk is taken up by a large habitat ring with numerous passenger compartments extending both forward and back from the main ring structure. Additional structural reinforcements stabilize this arrangement fore and aft, connecting the ring to the relatively small central main body of the vessel, which serves mostly as a connection point for the drive systems. Built to produce a simulated gravity of 0.8 gees, the habitat ring provides a great deal of comfort to those passengers not used to living in microgravity conditions.

Once aboard, a passenger can expect a broad variety of services depending upon the class of passage they have purchased, but every ship boasts spacious common areas for the use of all passengers. A prominent feature on the Empress-class is its Promenade, which runs the full length of the habitat ring and acts as a strip mall and service area. Additionally, each ship comes equipped with hospitals, schools and even businesses where passengers can work to offset the costs of their journey. In effect, a passenger liner is more of a mobile space town than a traveling hotel or pleasure cruise vessel.

◇ SERVICE RECORD

The first dedicated passenger vessels were built in 2058, as the first settlements on Mars and Venus began to accept wider immigration. The social collapse on Earth in the 2080s spurred a tremendous growth in the passenger liner industry, which allowed for the mass emigration from Earth to the colonies in the 2090s and beyond. The total collapse of government on Earth nearly destroyed the industry, as intersettlement transport ground to a virtual halt. Most passenger liners were eventually decommissioned and converted into small but comfortable space stations by the very crews that once served on them. Only once the Central Earth Government and Administration had solidified its hold on Earth and the nearby colonies did the industry experience a rebirth. By the year 2200, there were eight passenger liner companies working to move people about the Solar System, each with a fleet of six to fifteen vessels.

Service to the Jovian Confederation has seen a marked decrease in the last few years. CEGA has put more than a few liners under intense scrutiny upon returning from Jovian space, supposedly in an effort to prevent spies and saboteurs from entering CEGA-controlled areas. Faced with ever increasing difficulties with red tape and heavy handed methods from all sides, the major liners are concentrating on the less troublesome Mars-Earth-Venus routes for the near future.

ROUTES AND SCHEDULES ◇

The sheer volume of space transport allows the average person to find transport to and from any major port within a week's time. Of course, such transportation might be aboard a cramped scout ship, or a more comfortable Inari, or wedged between the cargo of an Ebiiru. Passenger liners are by necessity less common and more heavily scheduled. For economical reasons, passenger liner companies try to travel with the most passengers in the least amount of time. This means that transport between major colonies can expect monthly service, though this can vary by several months if the two destinations are in unfavorable orbital positions.

By far the most common route is the Venus-Earth-Mars run, which all major passenger lines offer at least three times a year. The order of destinations may vary (one route might be Venus to Mars to Earth, while the next may be Earth to Venus to Mars) due to orbital position, but a passenger can expect to book passage for, travel to and arrive at any one of those destinations within four months time — often less. The actual travel time between these relatively close destinations is measured in weeks rather than in months, so a lucky traveler could reach his destination in a single month.

Travel to more outlying regions of the Solar System is less common and usually takes longer. Travel to Mercury by passenger liner is almost unheard of, due to the low volume of travelers and the high availability of travel with the Mercurian Merchant Guild. Still, the odd voyage is made from the other Inner System planets, usually as an extension of the usual Venus-Earth-Mars route.

Conversely, travel volumes to the Jovian Confederation are high, but pressures from both the CEGA and Jovian governments are making such routes less and less frequent. Travel to Jupiter itself is available from the Inner System four times annually, typically making a trip past each Trojan state as well as Jupiter itself before returning to the inner system. However, each trip is likely to be made from a different inner system planet, depending upon orbital position, so a would-be traveler must either wait or make a connecting journey. At the industry's peak, up to sixteen annual transits were made to Jupiter. Travel to and from Jupiter typically takes anywhere from three and a half to six months.

One important exception, Trojan Passenger Lines, makes frequent trips within the Jovian system, and even between each Trojan state and Jupiter. Travelers can expect to find a passenger liner making such a trip every two months to any particular destination within the Jovian system; actual travel takes at least a month and a half between each destination, if not more. Their only serious competition is the Hanson Circuit (**Jupiter Planet Sourcebook**, p. 49), which is much cheaper but requires a passenger to be in a state of hibernation. Saturn (specifically, Titan) and the outer system see virtually no passenger liner service. Occasionally the Titanian Hydrocarbon Corporation expands its industry and imports a large number of new employees by passenger liner at its own expense, but the last such occurrence took place in 2209 and there are no current plans for another.

OCCUPATIONAL TOURISM ◇

The crewmembers of a passenger liner are some of the most traveled people in the Solar System. While naval personnel and cargo ship employees are likely to have logged many more kilometers of travel, it is typically on boring patrols or to uninteresting destinations. Liner crews travel to and from the major population and cultural centers of the Solar System, and it shows.

Passenger liners always undertake scheduled maintenance at their various destinations, which usually takes several days. The bulk of the crew is intentionally free from these duties and usually engages in what is called 'occupational tourism.' After weeks or months living aboard ship, serving passengers twelve (or more) hours a day and with a full bank account, liner crews are the ultimate tourists, seeing and doing everything that a destination has to offer. If a few days are insufficient for such recreation, ship transfers are often available in limited quantities. Until the new ship arrives, the crewmember works at the local liner offices, training new employees or acting as a travel agent when not taking in the local culture. While at first this seems an aberrant business practice, it produces the tolerant, cosmopolitan and (reasonably) stress-free work force that is required to deal with passengers from all walks of life.

COSMOPOLITANS ◇

The crew of a passenger liner is likely to be drawn from all regions and groups, but several dominant traits emerge. Most are friendly and attractive (+1 in ATT and PSY) and have high scores in Etiquette, Grooming and Human Perception as well as the skills that relate to their own jobs aboard ship. Specialist personnel such as engineers or onboard security often vary from this mold, but not very far if they wish to remain employed for a long period of time.

◇ TRAVELING IN STYLE

Most passenger liners offer a variety of classes of accommodation. All cruise lines charge by the distance involved, with a cargo limitation on a per person basis; extra cargo is typically charged at an extra 25% of the class fare per increment of cargo over the maximum (so a first class passenger with 200% of his cargo limit would be charged 125% of his ticket). Quite often, passengers send any large cargo they might have on some other cargo vessel to the same destination to save on costs. The charge is calculated from the square root of the distance (in kilometers), times a Transit Multiplier that varies with the fare.

For example, a passenger that wishes to travel from Earth to Jupiter during the best possible transit window is going to travel (according to **Jovian Chronicles**, p. 168) nearly 628,700,000 kilometers. The square root of 628.7 million is approximately 25,000, so that will be the base fare rate, which is then multiplied by the Transit Multiplier (see below). By comparison, the average Earth to Mars trip has a base price of 16,500 credits. Passenger liners are more expensive than most other forms of travel, however, so the average ticket cost is likely to be two to three times this amount, depending upon accommodation. Transits made at the best times are often charged a premium of ten to fifteen percent more on average.

◇ ACCOMODATIONS

First Class: *The most expensive and luxurious accommodations, first class offers the passenger a suite of rooms and unlimited shipboard privileges.* First Class passengers can expect priority access to all theaters, game rooms, restaurant reservations, viewing lounges and personal services. The passenger is allowed 300 kilograms of cargo. Transit Multiplier: x 4

Second Class: This is the most common fare aboard a passenger liner. It includes a decent selection of meal plans, a room with a private washroom, and access to most onboard services at only a small additional fee (per use). The passenger is allowed 200 kilograms of personal cargo. Transit Multiplier: x 2.5

Business Class: A variation of Second Class service, the Business Class offers less cargo mass but increased services, including a higher priority access to the ship's communications and computer services. It is expected that Business Class passengers will be working during their trip, and the available services and the fees for them are adjusted with an eye towards their needs. The Business Class passenger is allowed 50 kilograms of personal cargo. Transit Multiplier: x 2.5

Third Class: Third Class offers the passenger a reasonable amount of privacy but limited services. The passenger receives basic meals and a small room with a shower cubicle and sanitary facilities, but little else. Onboard services are not discounted at all for Third Class passengers. Experienced spacers used to long tedious journeys often book into Third Class. Third Class passengers are allowed 50 kilograms of personal cargo. Transit Multiplier: x2

Economy Class: *Economy Class offers only basic meals with dormitory style sleeping arrangements and communal sanitary facilities.* Economy Class passengers are limited to 20 kilograms of personal cargo. Transit Multiplier: x 1.5

Cryogenic Storage: While the passenger liner is designed with ambulatory passengers in mind, most have a modest amount of hibernation capsules available for those who wish to travel at the absolute minimum cost. Storage Class passengers spend their entire journey in suspended animation, monitored by computers and the ship's medical personnel. Storage Class passengers are allowed 50 kilograms of personal cargo. Transit Multiplier: x 0.5

◇ SERVICES

Services aboard a passenger liner vary from ship to ship. Typically, a liner will offer entertainment services as well as teaching and training services. The long journeys are an excellent opportunity for a 'dirtsider' (planet-born individual) to learn about space survival and low gravity maneuvering. Conversely, a lightworlder can work on improving his physique and practice working in gravity conditions — or even learn to swim, a rare skill away from any significant colony!

The Empress-class offers excellent entertainment facilities, including holotheaters, several kinds of clubs and bars for socializing, simulator banks, and exercise and game rooms. Common areas also include reasonably large 'parks' with real vegetation and plenty of open area. The Empress-class offers computer assisted teaching and training for almost all pre-graduate courses and non- specialized professions. A small onboard teaching staff is also available, and often other passengers can make extra money working as tutors.

In a similar vein, almost any skilled passenger can find work aboard a passenger liner to help reduce the price of their passage. Wages and work hours vary with the skills of the individual, and such temporary labor must pass a security check if recruited to work in sensitive areas of the ship.

ABANDON SHIP! ◇

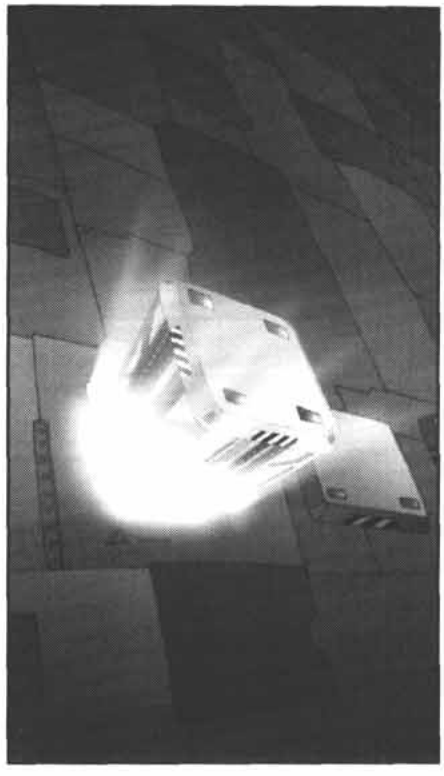
In the most extreme of circumstances, a passenger liner may have to evacuate one or more habitat sections. While each section is amply provided with lifeboats, escape pods and emergency space survival suits, these measures are largely useless without the proper procedures in place. Empress Space Lines has an admirable safety record, and puts great emphasis on emergency training. A passenger can expect the following layers of emergency preparation while on his journey:

Basic Survival Training: Shortly after boarding, all passengers are required to attend an emergency procedures session. Taken in small groups of eight to twelve, passengers are shown how to put on an emergency space suit, how to find a lifeboat or escape pod in the event of an emergency, and the penalties for interfering with the crew in the event of an emergency.

Blast Doors: In the event of decompression, armored doors will attempt to seal off an area to prevent additional atmospheric loss. These doors are not passenger friendly, and are more than capable of shearing off a limb or cutting an unfortunate passenger in half. Passengers and crew are informed to don a space suit or board an escape pod rather than risk trying to escape a decompressing area of the ship.

Survival Suits: Emergency space suits can be found nearly everywhere aboard ship. Most are recessed into the floor or wall and will rise out in the event of an alarm or drop in pressure. These suits are virtually identical to those described in **Ships of the Fleet Volume One**, p. 137.

Escape Pods and Lifeboats: A passenger's best refuge, escape pods are scattered throughout the ship and lifeboats are stored near all living quarters. Even if they are not required to eject, these vessels provide the best protection for a passenger in the event of an emergency.



ADVENTURE HOOKS ◇

Passenger liners are an excellent setting for a short campaign in Jovian Chronicles — almost as good as any space station or colony cylinder. Due to their very nature, they are inhabited by a large variety of individuals and are the setting of any number of possible adventures. Here are just a few ideas to make that interplanetary journey more exciting:

The Big Heist: There is something very valuable aboard ship, and someone plans on stealing it. Perhaps the thieves are the Player Characters, or perhaps it is their job to prevent the theft.

Terrorism: There's a bomb aboard the ship — maybe more than one. Passenger liners are huge, so finding that bomb is not going to be easy. Finding whoever planted it might even be more difficult.

Piracy: Most so-called 'space pirates' are actually skyjackers that steal raw materials from automated barges. However, the occasional pirate manages to acquire a bit more firepower and has greater ambitions. Passenger liners make tempting targets, especially with inside help.

Rude Awakening: Hibernating passengers are suddenly brought out of coldsleep by the automated systems. The ship is deserted and in bad condition — survival takes priority. Later, the few remaining people aboard must find out what happened and a way to get home.

Murder: People aboard ship are dying, by simple means (stabbing, choking, etc.) or by more complex ones (blast doors sealing for no good reasons). Security must find out who is behind it before the body count rises.

Romance: Months aboard ship can make for lonely travel, unless you can find somebody else to spend time with. This particular plot works on its own or in conjunction with any of the other plot seeds.

Stowaways: Sometimes, impoverished people get aboard passenger liners and elude security for the duration of their journey. Cash-strapped Player Characters could attempt to stow away aboard a liner to get to their destination.

Disaster: Something has gone wrong: an asteroid has made it through the screens, a bomb goes off, life support fails, engines explode. The passengers and crew must abandon ship, either in whole or in part. Then the real difficulty starts, as they must survive long enough to be rescued . . .

▼ EMPRESS-CLASS PASSENGER LINER

▼ OVERALL PRODUCTION DATA

THREAT VALUE:	370,000
OFFENSIVE:	9000
DEFENSIVE:	7000
MISCELLANEOUS:	1,100,000
COST:	757,000,000 credits
PRODUCTION TYPE:	Limited Production
INDV.LEMON DICE:	2

▼ SECTIONS

1 x Main Hull
4 x Habitat Section
1 x Habitat Ring
4 x Drive Section

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	2 (0.2 g)	3 (0.3 g)	-5

DEPLOYMENT RANGE:	4000 hrs	Fusion/electric
REACTION MASS:	3750 BP (equivalent)	Hydrogen

▼ OFFE. & DEF. SYSTEMS

1 X Point Defense System (main hull)

▶ MAIN HULL

COST:	43,000,000 credits
CREW:	20
ACTIONS:	6
HULL SIZE:	40
DEFAULT SIZE:	28
STACKING SIZE:	40
IND.LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	50/100/150
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	4000 hrs
SENSORS:	+0/5 km
COMMUNICATIONS:	+2/40 km
FIRE CONTROL:	-1

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	Life Support		*Full, 128 people*
Backup Systems	-	Comm, FireCon, Life Sup., Sens.	Passenger Accommodations		5000 m³
Cargo Bay	-	500 m³	Reinforced Crew Compartment	2	Absorbs first two "Crew" hits
Computer	-	KNO 0, CRE 0, PP4	Satellite Uplink	-	1000 x Comm range
Ejection System	-	*Escape pods, 128 people*	Sick Bay	4	Four surgical theaters
HEP: Vacuum	-	Space protection			
HEP: Radiation	5	Screen			
Laboratory: Electronics	1	Electronics			
Laboratory: Mechanics	1	Mechanics			

▼ WEAPONS

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS (ranged)	T	x10	1	+0	6	inf	AM, HEAT	10	4950	-
	PDS (shield)	FF	x20	M	+0	0	inf	Def.,E-Shield,HEAT	3	75	-

▶ 4 X HABITAT SECTION

COST:	120,000,000 credits
CREW:	8
ACTIONS:	5
HULL SIZE:	60
DEFAULT SIZE:	39
STACKING SIZE:	60
IND.LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	50/100/150
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	4000 hrs
SENSORS:	-2/4 km
COMMUNICATIONS:	-1/10 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Supp. unaffected by "Aux" hit	Passenger Accommodations	-	70,000 m³
Cargo Bay	-	5000 m³	Reinforced Crew Compartment	-	Absorbs first "Crew" hit
Ejection System	-	Escape pods, 750 people	Sick Bay	10	*Ten surgical theaters*
HEP: Vacuum, Radiation(5)	-	Space protection	Brittle Armor	-	Loses twice Armor per hit
Lab: Cooking (2), Teaching (1)	-	Dining halls, classrooms	Weak Point: Crew	10	Subtract 10 Armor on Crew hit
Life Support	-	Full, 750 people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ HABITAT RING

COST:	46,000,000 credits
CREW:	4
ACTIONS:	4
HULL SIZE:	45
DEFAULT SIZE:	28
STACKING SIZE:	45
IND.LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	40/80/120
MOVEMENT DATA:	Towed by Drive Section
DEPLOYMENT RANGE:	4000 hrs
SENSORS:	-2/4 km
COMMUNICATIONS:	-1/10 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Support unaffected by "Aux" hit	Passenger Accommodations	-	30000 m³
Cargo Bay	-	1000 m³	Reinforced Crew Compartment	-	Absorbs first "Crew" hit
Ejection System	-	Escape pods, 250 people	Reinforced Chassis	-	Absorbs first "Structure" hit
HEP: Vacuum, Radiation (5)	-	Space protection	Brittle Armor	-	Loses twice Armor when hit
Life Support	-	Full, 250 people	Weak Point: Crew	8	Subtract 8 Armor on Crew hit

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ 4 X DRIVE SECTION

COST:	47,000,000 credits
CREW:	2
ACTIONS:	3
HULL SIZE:	35
DEFAULT SIZE:	29
STACKING SIZE:	35
IND.LEMON DICE:	2

ARMOR:			
LIGHT/HEAVY/OVERKILL:			50/100/150
MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	10 (1.0 g)	20 (2.0 g)	-5
DEPLOYMENT RANGE:			4000 hrs/25,000 BP
SENSORS:			-2/4 km
COMMUNICATIONS:			-1/10 km
FIRE CONTROL:			-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Support unaffected by "Aux" hit	Reinforced Crew Compartment	-	Absorbs first "Crew" hit
Ejection System	-	Escape pods, eight people	Large Sensor Profile	2	Easy to spot
HEP: Vacuum	-	Space protection			
HEP: Radiation	5	Screen			
Life Support	-	Full, eight people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▶ EMPTY

COST:	-
CREW:	-
ACTIONS:	-
HULL SIZE:	-
DEFAULT SIZE:	-
STACKING SIZE:	-
INDV. LEMON DICE:	-

ARMOR:	-
LIGHT/HEAVY/OVERKILL:	-
MOVEMENT DATA:	-
DEPLOYMENT RANGE:	-
SENSORS:	-
COMMUNICATIONS:	-
FIRE CONTROL:	-

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT

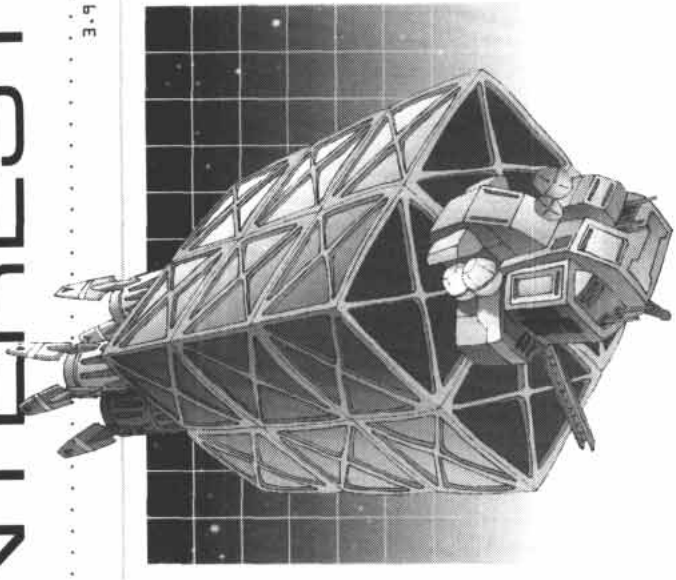
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▼ NOTES

JOVIAN CHRONICLES

▶ PANAMA-CLASS BARGE



Name:	Panama Raw Materials Barge
Origin:	Orbitals (L-5)
Manufacturer:	Kim Heavy Industries
Type:	Raw Materials Barge
Control System:	Bridge
Length:	200 m, up to 1000 m
Width:	50 m
Empty Weight:	7,000 tons (w/eight cargo modules)
Loaded Weight:	27,000 tons (w/eight cargo modules)
Main Drive:	8 x 50 MW
Secondary Powerplant:	4000 kW
Main Thrusters:	8 x 700,000 kg
Apogee Motors:	25
Acceleration:	0.2 g (w/eight cargo modules)
Onboard Sensors:	Fire Control Radar, Infrared/Ultraviolet, Lidar, Magnetometer, Radcounter, Telescope
Fixed Armament:	None
Additional Armament:	None
Defense Systems:	Mag Screen, PDS
Equipment:	M-Pods (2), Escape Pods

◇ OVERVIEW

The Panama-class raw materials barges are typical of the ships that move large amounts of material around the inhabited parts of the Solar System. The Panama-class ships are built in a predominantly ethnic Korean colony cylinder in the L-5 group orbiting Earth, but the Mercurian Merchant Guild is their biggest customer. Each ship is a 200-meter long train designed to haul large quantities of material over long distances. The basic design is quite old since raw materials barges have been used to carry cargo ever since people started living permanently off-planet in city-sized populations. One of the initial lures of space was the ability to gain access to numerous raw materials without damaging the Earth's biosphere.

Of course, it didn't make sense to spend millions of credits on an expensive spaceship and a large crew to ship ores and chemicals large distances when those items could have been found on Earth, albeit for a steeper extraction cost. The transportation costs far outweighed the cost savings on the extraction side of the business, hence the need for the raw material barge. Each barge has a small section for the bridge and a small engine section coupled with huge containers for basic materials that have been mined. Although the ship is slow and unglamorous, it can carry an immense quantity of material at a low cost. Since the ship relies on normal reaction mass engines, it can pick up its cargo at the Belt or the Trojan States and return to the Inner System.

◇ CAPABILITIES

The raw materials barge is designed to be cost-effective. One of the big problems with a spaceship crew is finding people willing to be away from home for long periods of time. The very well paid crew are thus few in number. A typical crew will have about eight people, five of whom will be bridge crew working in shifts, and three engineers or technicians who work on the engines and make sure the cargo is secure. One of the bridge crew is usually appointed the captain, though sometimes an engineer is assigned the job.

The crew compartment is kept small to minimize life support costs. Each crewmember gets his own modestly spacious bedroom and they share two bathrooms between them. These are on the third and fourth floors of the vessel. The second floor of the crew module is a commons area where the crew can share meals or maybe watch a movie. The top floor of the module is the bridge and also has an airlock. The airlock leads to three destinations: an escape pod, two M-Pods, and steps that lead down onto the spine. The spine is 100 meters long, but can be expanded to up to one kilometer. It is designed to be able to keep the cargo modules securely fastened and nothing more. It is actually just a superstructure and is not even enclosed. Crew members travelling to inspect the cargo modules or the far away modules must either walk using magnetized shoes along a gangway or use one of the M-Pods to scoot down the length of the spine.

Most raw mineral containers are not very fancy; they are basically long boxes capable of storing a few thousand tons of material. If the vessel is carrying material from a processing center, the containers often have internal submodules so that the material is safely stored. Chemical containers have spigots to allows service personnel to drain the chemicals using the proper equipment. Materials that are particularly hazardous are transported in special reinforced containers. The crew keeps close watch on those and can jettison them if they start to leak and endanger the ship.

SERVICE RECORD ◇

The Panama-class ships have performed admirably, with few problems that can be tracked back to the manufacturer. The main issue has been owners who fail to provide adequate maintenance. Commercial traders often want to cut corners in order to save a few credits; when cutting corners results in the ship getting stuck out in the middle of space, the owner has to pay a large number of credits in order to get a repair ship to burn out to the Panama's location and fix the problems. The services of repair ships are never cheap.

Currently most raw materials barges supply the Orbital colonies around Earth. These colonies have become seriously overcrowded and funds are slowly being appropriated to build more cylinders. The building materials mainly come from the Belt on Panama-class ships owned by the Mercurians and other private contractors, since most of the near-Earth asteroids have been mined out already.

ECONOMICS OF RAW MATERIALS ◇

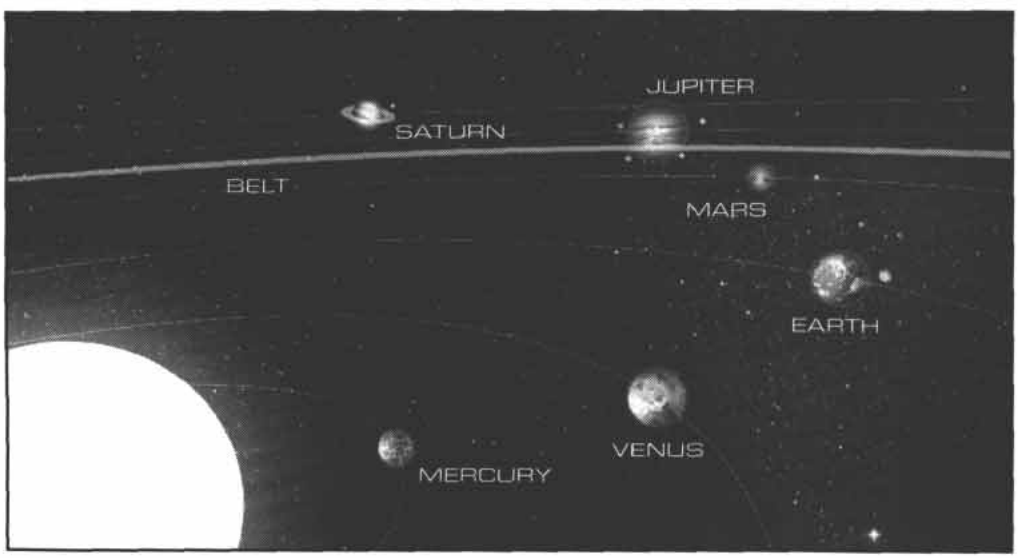
The raw materials barge has benefited from its initial success in making the colonization of the Solar System financially feasible. The desire of people to escape the Earth led to a need for more massive quantities of construction material to build the colony cylinders that orbit each planet and the Jovian Trojan Points. The amount of material needed for a 20-kilometer colony is staggering. Colony designers realized early on that it would require too much expensive reaction mass and scarce shuttles to move this kind of material from the surface of a planet.

The raw materials barge allows mineral mines on asteroids and chemical mines on the moons of Jupiter to export their products relatively cheaply to the orbital settlements around Jupiter and the Inner System planets. Each mining or processing facility fills a large cargo module with product and then a space tug moves the module into position and attaches it to the barge itself. Many modules can be loaded depending on the amount of raw material on hand and the amount ordered by the barge's final destinations. Once loading is done, the barge slowly but steadily burns to its next supplier.

There are always large numbers of barges in transit around the system. Colony planners need to know well in advance how much material they will need, because it can take more than a year before an order can be fulfilled and brought to the customer. The main hindrances are the slow speeds of the barge and the need to run regular routes for efficiency purposes.

SOLAR SYSTEM RESOURCES ◫

Mercury:	Uranium, various metals
Venus:	Carbon, sulfur
Earth System:	Lunar minerals, oxygen
Mars:	Very little after destruction of the elevator
Belt:	Processed metal ore, water
Jupiter (Olympus):	Volatiles
Vanguard Mountain:	Processed metal ore
Newhome:	Processed metal ore
Titan:	Volatiles, processed chemicals and organic compounds (transported by THC)



▼ PANAMA-CLASS BARGE

▼ OVERALL PRODUCTION DATA

THREAT VALUE:	45,000
OFFENSIVE:	5200
DEFENSIVE:	5500
MISCELLANEOUS:	125,000
COST:	23,000,000 credits
PRODUCTION TYPE:	Mass Production
INDIVIDUAL LEMON DICE:	3

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	1 (0.1 g)	2 (0.2 g)	-6

DEPLOYMENT RANGE:	3,000 hours	Fusion/electric
REACTION MASS:	1500 BP (equivalent)	Hydrogen

▼ SECTIONS

1 x Main Hull
8 x Cargo Module (number can vary)
8 x Drive Section

▼ OFFE. & DEF. SYSTEMS

1 x Point Defense System (main hull)

▶ MAIN HULL

COST:	3,000,000 credits
CREW:	5
ACTIONS:	4
HULL SIZE:	34
DEFAULT SIZE:	18
STACKING SIZE:	34
INDV. LEMON DICE:	3

ARMOR:	
LIGHT/HEAVY/OVERKILL:	35/70/105
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	3,000 hrs
SENSORS:	0/2 km
COMMUNICATIONS:	0/10 km
FIRE CONTROL:	0

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	Passenger Accomodations	-	400 m³
Backup Systems	-	Comm, FireCon, Life Supp., Sens.	Satellite Uplink	-	1000 x Comm Range
Cargo Bay	-	100 m³, vehicle storage			
Computer	2	CRE 0, KNO 0, PP2			
Ejection System	-	Escape pods, eight places			
HEP Radiation	3	Screen			
HEP Vacuum	-	Space protection			
Laboratory: Cooking	1	Kitchen			
Life Support	-	Full, eight people			

▼ WEAPONS

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS (ranged)	Turret	x8	1	0	6	Inf.	AM, HEAT	8	2900	N/A
	PDS (shield)	FF	x16	M	0	0	Inf.	Def, E-Shield, HEAT	3	48	N/A

▶ 8 X CARGO MODULE

COST:	790,000 credits
CREW:	0
ACTIONS:	0
HULL SIZE:	12
DEFAULT SIZE:	12
STACKING SIZE:	12
INDV. LEMON DICE:	3

ARMOR	
LIGHT/HEAVY/OVERKILL:	40/80/120
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	3,000 hrs
SENSORS:	N/A
COMMUNICATIONS:	N/A
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Cargo Bay	-	20,000 m³			
HEP Radiation	1	Screen			
HEP Vacuum	-	Space protection			
No Communications	-	Cannot communicate			
No Sensors	-	Cannot perform active scans			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ 8 X DRIVE SECTION

COST:	1,700,000 credits
CREW:	3
ACTIONS:	3
HULL SIZE:	30
DEFAULT SIZE:	15
STACKING SIZE:	30
INDV. LEMON DICE:	3

ARMOR:			
LIGHT/HEAVY/OVERKILL:			30/60/90
MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	5 (0.5 g)	10 (1.0 g)	-6
DEPLOYMENT RANGE:		3000 hours	Fusion/electric
REACTION MASS:		7500 BP	Hydrogen
COMMUNICATIONS:			-2/10 km
FIRE CONTROL:			-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Supp. unaffected by "Aux" hits			
Ejection System	-	Escape pods, four places			
HEP: Radiation	3	Screen			
HEP: Vacuum	-	Space protection			
Life Support	-	Full, four people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▶ EMPTY

COST:	-
CREW:	-
ACTIONS:	-
HULL SIZE:	-
DEFAULT SIZE:	-
STACKING SIZE:	-
INDV. LEMON DICE:	-

ARMOR:	-
LIGHT/HEAVY/OVERKILL:	-
MOVEMENT DATA:	-
DEPLOYMENT RANGE:	-
SENSORS:	-
COMMUNICATIONS:	-
FIRE CONTROL:	-

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ EMPTY

COST:	-
CREW:	-
ACTIONS:	-
HULL SIZE:	-
DEFAULT SIZE:	-
STACKING SIZE:	-
INDV. LEMON DICE:	-

ARMOR:	-
LIGHT/HEAVY/OVERKILL:	-
MOVEMENT DATA:	-
DEPLOYMENT RANGE:	-
SENSORS:	-
COMMUNICATIONS:	-
FIRE CONTROL:	-

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT

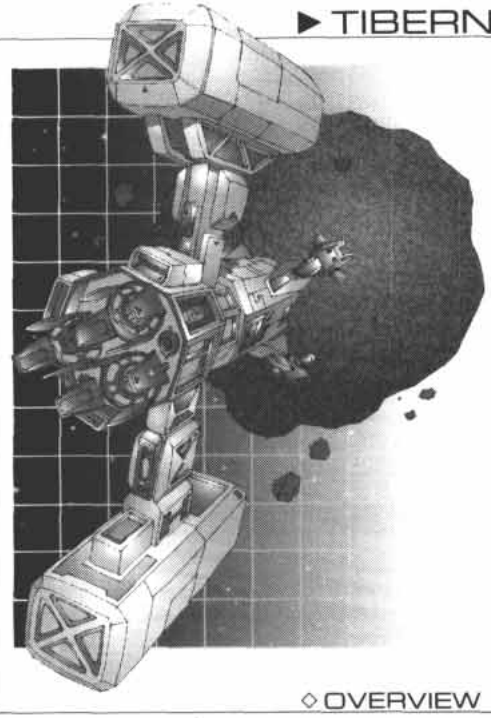
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▼ NOTES

JOVIAN CHRONICLES

▶ TIBERNIAN-CLASS MINING SHIP



Name:	Tibernian
Origin:	Varies
Manufacturer:	Gurizuzuri Shipyards
Type:	Mining Ship
Control System:	Bridge
Length:	330 m
Width:	80 m
Empty Weight:	5800 tons
Loaded Weight:	9500 tons
Main Drive:	2 x 0.5 GW
Secondary Powerplant:	2 x 6000 kW
Main Thrusters:	2 x 1,900,000 tons
Apogee Motors:	150
Acceleration:	0.6 g
Onboard Sensors:	Fire Control Radar, Infrared/Ultraviolet, Lidar, Magnetometer, Radcounter, Spectroscope, Telescope
Fixed Armament:	None
Additional Armament:	Auxiliary Craft
Defensive Systems:	PDS, Mag Screen
Equipment:	Magnetic Linear Accelerator Catapult (2), Centrifuge, Escape Pods, Satellite Uplink, Vehicle Bay, Grappling arms (4)

◇ OVERVIEW

The large mining ships that spend most of their time in the Asteroid Belt function as mobile mining colonies. These ships carry all of the equipment necessary for the extraction and processing of mined ores, along with the amenities to support the miners and their families. The main body houses the mining, processing and command areas, while the gravity wheel contains living quarters and executive offices.

◇ CAPABILITIES

Mining ships of the Tibernian class approach an asteroid head-on in a slow controlled collision, maneuvering to a predetermined spot using many small thrusters. The arms that line the bow are actually claws that are used to anchor the ship to the asteroid. Once anchored, a Tibernian extends a long, hollow drill, called a coring shaft, from a recessed housing in the front of the ship and it begins to bore itself into the asteroid. When the initial shaft is completed, the drill head of the corer is removed and the mining tunnels are dug out using mobile boring machines. The coring shaft will remain dug in until the ship is finished mining, acting not only as the primary anchor but also as the primary transportation shaft between the ship and the asteroid. Five series of rails run along the inside wall of the shaft, and along these rails run the mining cars that are used to transport personnel and materials to and from the mining point. These rails can be extended into the asteroid by adding rail sections to the end of the coring shaft.

The miners have at their disposal a wide variety of mining equipment, from the hand held vibro-pickaxe to large tunnel-creating boring machines to rail mounted material transport systems that move the rock into the ship. The extracted ore is cleaned and processed in the onboard refinery. This refined ore is then packed into a standard transport module which is launched to its next destination, another company facility or customer site, using the Magnetic Linear Accelerator (MLA) mass driver.

Along with the capability to extract and refine ore, mining ships are also capable of searching for new sources of ores to be mined. The mining ship's sensor array assists in the discovery of mineral resources on an anchored asteroid and scans the local area for other mineral rich sites. This sensor range is further bolstered by shuttles equipped with geological survey gear that gather detailed profiles of the entire asteroid as well as any moonlets it mat possess. A well-equipped geology lab analyzes samples returned from these secondary survey missions and monitors quality control for the refining process.

◇ SERVICE RECORD

Mining ships of the Tibernian-class first appeared in 2183 as a replacement for the Rock Mosquito-class. The mining ships stay close to the asteroids that provide the revenue for their parent companies and only return to port every few years for large repairs. Although designed to survive in the Asteroid Belt, there are inherent dangers to any ship working amongst large, potentially unstable spaceborne rock. As of 2213, four of the Tibernian-class have been lost. Of these four, three ships were lost to accidents and the remaining one, the Craton, went missing under mysterious circumstances.

CREW COMMENTS ◇

"A mineral-sucking asteroid vampire. That about sums up the Yukon. There's no better ship out there that can do what we can do. If you want an asteroid mined, then you call in a Tibernian. We've got everything that you could possibly need to suck — excuse me — extract minerals or volatiles from space rocks. Once the Spike — that's what we call the coring shaft — is dug in we don't leave until everything in the rock is ours. We have trains running from the mine to the refinery so we can move the ore very quickly. Refined ore is taken from the refinery to be packed into cargo containers that are stored in the warehouse before getting shipped. The warehouse is almost entirely automated, with robotic cranes moving the containers around. The whole operation is very efficient. Sometimes we will load the containers onto a cargo ship but mostly we fire them out of the MLA. The lights in the rooms near the MLA flicker when the thing fires — something about inadequate shielding. The MLA boom houses three of the accelerators, for redundancy and rapid firing.

"Like a good chunk of the crew onboard I come from Nomad stock. I spent years working my clan's mines and even spent a few years on a Firefly — that's spacer slang for an Anopheles — but if you really want a career then you have to serve on the big ships. The work is pretty much the same but everything else is different, especially the pay. A steady paycheck is quite attractive. Workdays are divided into three eight-hour work shifts: Gold, Red and Blue. I work the Gold shift but I sometimes work a little overtime with the Red shift if they need people. The pay is pretty good and I get to use the latest mining gear.

"Pay's not the only motivating factor for my being here. There is also the community and camaraderie among the miners. We have a couple of restaurants, a few taverns and some shops onboard. Nothing big and impressive, mind you, but their deck serves as a great meeting place. One of the restaurants is even run by a real Earth Tex-Mex cook. We have decent medical benefits and get a couple weeks' vacation each year. I've been with the company long enough to qualify for a pension, which is very nice. Our entertainment committee brings in vids to show in the theatre and we get some live bands and acts through now and then. Our families are provided for as well. My wife works in the lab and my kids go to school during the day. The school covers kindergarten to high school and courses are also offered to employees so that we can keep our skills up to date. We even have some house-league sports. Our basketball team is going to challenge the Klondike's team for the company championship in few weeks. We've got quite the little community onboard. It gets even more exciting when the crew from a cargo ship is in town.

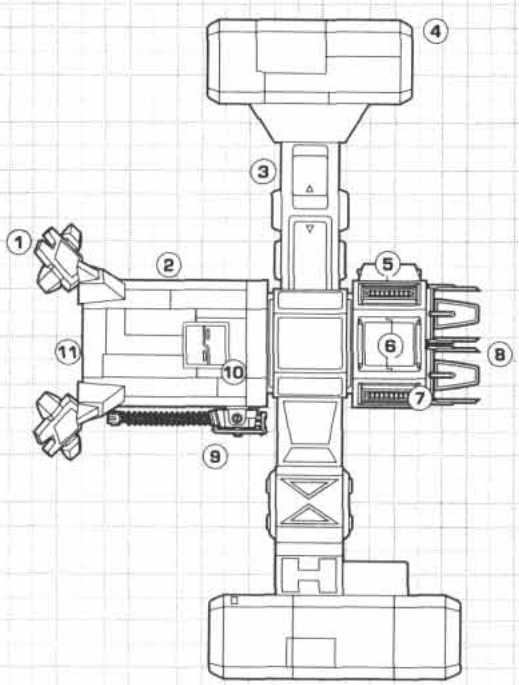
"I don't see myself slinging rock too much longer though. The Klondike is looking for a Junior Operations Officer and I'm thinking to apply."

— Rochefort Liang, Senior Crew Chief, Gold Shift, RSS Yukon

SHIP SCHEMATICS ◫

▸ LEGEND

1 Anchoring Claws
2 Engineering Hull
3 Rotor Arm
4 Habitat
5 Heat Sink
6 Reaction Mass Housing
7 Plasma Combustion Chamber
8 Drive Fin
9 MLA Catapult
10 Hangar Bay
11 Coring Shaft Housing



◇HISTORY OF THE MINING SHIPS

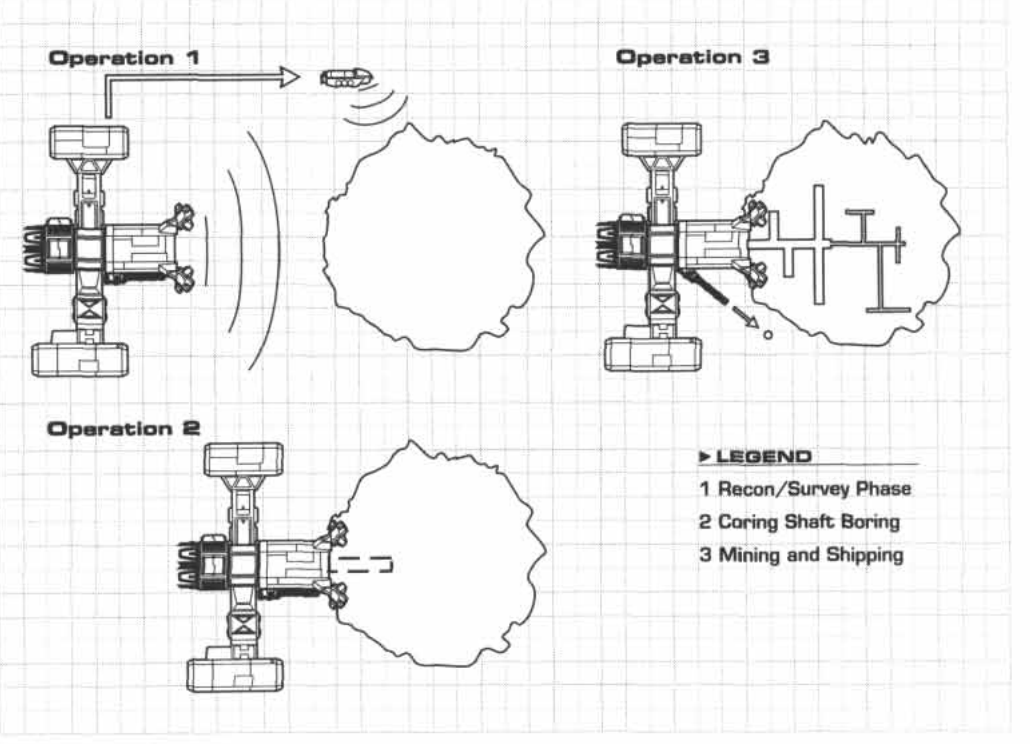
To facilitate the development of space travel and orbital habitats, mankind has long sought to acquire the resources of planetary bodies within the Solar System. There were many challenges that had to be overcome to make space mining a reality. The first was the task of transporting work materials to the source. Second was the problem of keeping the miners at the site. Setting up colonies and habitats is an expensive undertaking and only suitable to large planetary bodies, such as moons. Mining colonies were established on planetary moons and proved to be successful, but in the Asteroid Belt this process met with considerably less success. It was very impractical to set up a habitat on each asteroid that was to be mined. Mobile mining colonies were experimented with, but they turned out to be too difficult to move and employ.

An idea that was put into practice was to transport smaller asteroids to refining space stations. This practice ended with the Dawson Station Tragedy. An asteroid was being towed to the Dawson Mining Station, but the pilot of the tug miscalculated the approach. The asteroid slowly tumbled out of control, colliding with the immobile space station's powerplant. The collision caused a chain reaction that spread throughout the station, destroying almost all of it. This ranks as one of the most tragic and spectacular disasters in the history of space mining.

In the aftermath of the destruction of Dawson, a new type of ship was launched, the Rock Mosquito-class vessel. The Rock Mosquito was designed and built by Simoneda Montfort, the somewhat eccentric CEO of Serendipity Resources. The large ship was designed to land on an asteroid, mine out the valuables and refine them. A Magnetic Linear Accelerator located on top of the ship would fire the refined ores back to the company's headquarters. Drilling equipment was mounted perpendicular to the hull of the ship and carried internally. The ship was innovative and yet surrounded by controversy. The most notorious incident occurred when Montfort, a Mercurian, contracted the building of the ship to an Earth Orbital shipyard, suddenly backing out of a deal that she had made with a Venusian ship builder. Her reasoning was that she did not want her "babies built by godless, money grubbing savages." The ship's reputation suffered again when Montfort was committed to a mental health care facility after suffering a nervous breakdown. Regardless of the mental state of her designer, the Rock Mosquito survived and became the standard mining ship of the age, although it garnered a reputation for being the ugliest space vessel ever designed by the human race.

The Tibernian-class was built upon the lessons learned from the Rock Mosquito-class. The primary drilling equipment was moved from belly to the bow, the habitat ring moved from the top of the ship to sit with its axis parallel to the main hull, and faults in the MLA were corrected. The main hull was also toughened up to protect against collisions with escaped rock fragments. The RSS Tibernian heralded in a new generation of dedicated mining vessels. While there are still ships of the Rock Mosquito-class in service, they are slowly being replaced by Tibernian-class vessels.

□MINING OPERATIONS



MINING CORPORATIONS ◇

Mining ships are registered and operated by all Solar nations. Larger corporations normally have a fleet of five to sixteen ships that deliver their mined cargo to client sites designated by the home office. There are some small companies that operate a single vessel or two and often cater to smaller clients.

With the chill in relations between the Solar nations, each planetary government has started to build up fleets of ships and exo-armors to protect and expand their interests. These actions have created a market demand for quality construction materials. Some nations, such as Venus and CEGA, have nationalized large mining companies to ensure a continual supply of needed resources. Large companies will have many mining ships in their fleet that prowl the Asteroid Belt to send their finds back to be further refined.

One such example is the Blackrock Resources Corporation registered on CEGA Earth, which operates one of the largest fleets (consisting of 19 vessels). BRC, whose board of directors is partly composed of CEGA government officials, has the primary responsibility of supplying the CEGA Navy with materials for ship construction. Another example is Cosmo Engineering and Mining Ltd, a privately owned corporation that operates fifteen vessels. Cosmo is under contract to supply the Jovian Confederation and her allies.

Aggressively competing against the larger corporations are a host of smaller companies. These companies are usually centered around a single mining ship. Some of the more enterprising will form alliances with others in the mining business. Such alliances are not only for mutual protection of the business but also allow for the sharing of common resources, such as sales staff. Not restricted to any one Solar nation, these independents will sell to anyone who will meet their price, both legal and illegal. One such company is Three-Core Resources, a conglomerate composed of three separate companies, each owning a single mining ship.

CREW COMMENTS ◇

"The Yukon is a small operation, relatively speaking, and that has presented us with some challenges. We have to watch our expenditures and income very carefully. The Yukon herself is our biggest expense. Suffice it to say that without her we have no business. We can't waste time in space dock, as that keeps us out of the Belt and our source of revenue, so we try to take as much as we can with us when we head out and ship the rest in once we are on site.

"Mining ships require a lot of fuel, needed to get us out here with plenty to burn for maneuvering. We also try to keep up to date with the latest mining gear, which can be quite expensive. We recently re-tooled our borers with more efficient drill heads and that cost us plenty. We try to rely on courier transports for additional materials while we are in the field, using the just-in-time materials model. We can't afford to have too much of our funds tied up in physical stock materials, so we figure out what we'll need, when we'll need it and when to order it. It takes some time to get this organized and we have experienced some significant downtime due to miscalculations.

"There are other concerns besides equipment. Our greatest and most problematic resource is our employees. Happy workers are willing to put in that extra effort to benefit the ship. We have had some labor problems in the past but nothing quite like the big labor strike that almost ruined the RSS Harrison Stamper had last year. We have been very careful to prevent that from happening here but sometimes it is unavoidable. A labor disruption can be fatal to a company our size but we cannot kowtow to every demand. We're also concerned with external threats to our ship. We do have some exo-armors to bolster the point defense systems. No, I cannot tell you what make and model for obvious security reasons. Companies like BMC and Cosmo have better defenses but that is because they have the backing of CEGA and the J-Confed.

"The Yukon helped to form Three-Core along with the RSS Klondike and the RSS Samuel Steele. Through Three-Core we can offer a wider variety of materials and services. The Klondike, for example, has the best sales force for pushing molybdenum in the Inner System. The combined income from the three ships allows us to cover for downturns in demand and gives us that much more of a presence in the processed minerals market. Of course we have no problem selling to anyone but we try to avoid those of questionable morals."

— Soracia Eboshi-Dumas, Vice-President Operations, RSS Yukon

"So back to the tactical scenario that I presented at the beginning of this lecture, that of a terrorist cell planting a nuclear device in the cargo pod on a mining ship. The pod is then fired to its destination by the MLA where it detonates once near the target, causing obvious harm. What we should be concerning ourselves with is what can we do to prevent this from happening?"

— Lyman Sweetzer, Terrorism Expert, Guest Speaker, SolaPol Anti-Terrorism Forum

▼ TIBERNIAN-CLASS MINING SHIP

▼ OVERALL PRODUCTION DATA

THREAT VALUE:	100,000
OFFENSIVE:	13,000
DEFENSIVE:	3900
MISC:	280,000
COST:	75,000,000 credits
PRODUCTION TYPE:	Early Production (effective)
INDV. LEMON DICE:	2

▼ SECTIONS

1 x Main Hull
2 x Drive Section
2 x Habitat Module
1 x MLA Transport Module

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	3 (0.3 g)	6 (0.6 g)	-5

DEPLOYMENT RANGE:	5000 hrs	Fusion/electric
REACTION MASS:	5000 BP (equivalent)	Hydrogen

▼ OFFE. & DEF. SYSTEMS

1 x Point Defense System (main hull)

▶ MAIN HULL

COST:	5,027,000 credits
CREW:	230
ACTIONS:	10
HULL SIZE:	52
DEFAULT SIZE:	26
STACKING SIZE:	52
INDV. LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	75/150/225
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT:	5000 hrs
SENSORS:	0/24 km
COMMUNICATIONS:	-1/20 km
FIRE CONTROL:	0

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as Level 1 pilot	Life Support	-	Full, 300 people
Backup Systems:	-	Comm, Fire, Life Support, Sensors	Ram Plate	-	Halve damage in FF collisions
Cargo Bay	-	20,000 m³, auxiliary craft	Sick Bay	-	Three surgical theaters
Computer	-	CRE +0, KNO +3, PP4	4 x Tool Arm	15	Docking grasper, can't punch
Ejection System	-	Escape pods, 70 people	1 x Tool Arm	20	Coring shaft, can't punch
HEP: All	-	Sealed hull	Satellite Uplink	-	1000 x Comm range
HEP: Radiation	4	Screen	Large Sensor Profile	5	Easier to spot
Laboratory: Earth Sciences	2	Mineral analysis lab			
Laboratory	0	Metallurgy (Smelter)			

▼ WEAPONS

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS (ranged)	T	x10	1	+1	6	Inf.	AM, HEAT	15	7400	N/A
	PDS (shield)	FF	x16	M	0	0	Inf	Def, E-Shield, HEAT	3	32	N/A

▶ HABITAT MODULE

COST:	11,000,000 credits
CREW:	12
ACTIONS:	5
HULL SIZE:	22
DEFAULT SIZE:	22
STACKING DICE:	22
INDV. LEMON DICE:	2

ARMOR:	50/100/150
MOVEMENT:	Towed by Drive Sections
DEPLOYMENT:	5000 hrs
SENSORS:	-3/2 km
COMMUNICATIONS:	-3/10 km
FIRE CONTROL:	-3

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Support unaffected by "Aux" hit	Passenger Accomodations		5,000 m³
Ejection System	-	Escape pods, 150 people	Sick Bay	-	Five surgical theaters
HEP: All		Sealed hull	Reinforced Crew Compartment	-	Absorbs first "Crew" hit
HEP Radiation	4	Screen			
Laboratory: Cooking	0	Galley			
Life Support	-	Full, 150 people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ 2 X DRIVE SECTION

COST:	13,000,000 credits
CREW:	14
ACTIONS:	5
HULL SIZE:	29
DEFAULT SIZE:	29
STACKING DICE:	29
INDV. LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	50/100/150

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	14 (1.4 g)	28 (2.8 g)	-8

DEPLOYMENT:	5000 km/25,000 BP
SENSORS:	-3/2 km
COMMUNICATIONS:	-3/10 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Systems	-	Comm, FireCon, Life Supp., Sens.	Reinforced Crew Compartment	-	Absorbs first "Crew" hit
Ejection System	-	Escape pods, 20 places			
HEP: All	-	Sealed hull			
HEP: Radiation	4	Screen			
Life Support	-	Full, 20 people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▶ MLA TRANSPORT MODULE

COST:	3,800,000 credits
CREW:	7
ACTIONS:	4
HULL SIZE:	17
DEFAULT SIZE:	16
STACKING DICE:	17
INVD. LEMON DICE:	2

ARMOR:	50/100/150
MOVEMENT:	Towed by Drive Sections
DEPLOYMENT RANGE:	2500 hrs
SENSORS:	-1/2 km
COMMUNICATIONS:	-3/5 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Cargo Bay	-	90,000 m³	Life Support	-	Full, 10 people
HEP: All	-	Sealed hull	Annoyance	-	Instruments blink out for a
HEP: Radiation	4	Screen			few seconds during MLA firing
2 x Catapult	5	(750/mass) m/s² acceleration			
Ejection System	-	Escape pods, three people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▲ EMPTY

COST:	-
CREW:	-
ACTIONS:	-
HULL SIZE:	-
DEFAULT SIZE:	-
STACKING SIZE:	-
INDV. LEMON DICE:	-

ARMOR:	-
LIGHT/HEAVY/OVERKILL:	-
MOVEMENT DATA:	-
DEPLOYMENT RANGE:	-
SENSORS:	-
COMMUNICATIONS:	-
FIRE CONTROL:	-

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT

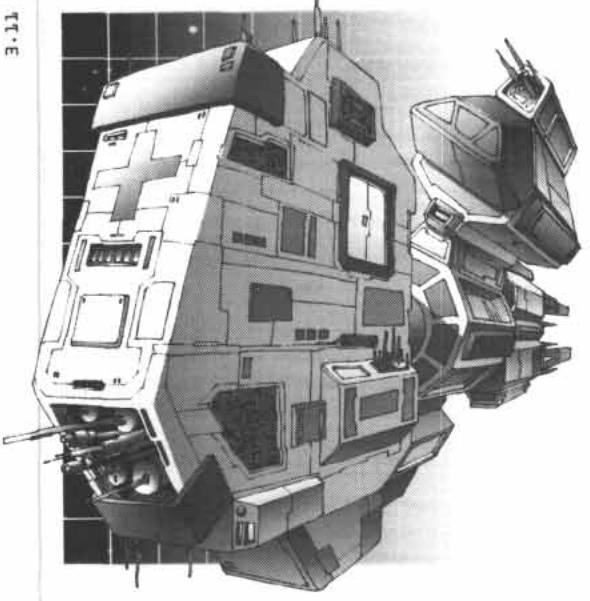
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▼ NOTES

JOVIAN CHRONICLES

▶ GENEVA-CLASS HOSPITAL SHIP



Name:	Geneva
Origin:	Orbitals (L-5)
Manufacturer:	Symphony Station Drydocks (refit)
Type:	Medical Ship
Control System:	Bridge
Length:	320 m
Width:	70 m
Empty Weight:	7200 tons
Loaded Weight:	12,000 tons
Main Drive:	2 x 500 MW
Secondary Powerplant:	7000 kW
Main Thrusters:	4 x 1,000,000 kg
Apogee Motors:	25
Acceleration:	0.6 g
Onboard Sensors:	Fire Control Radar, Infrared/Ultraviolet, Lidar, Magnetometer, Microwaves, Motion Detector, Radcounter, Search Radar, Telescope
Fixed Armament:	None
Additional Armament:	Auxiliary Craft
Defense Systems:	Mag Screen, PDS
Equipment:	Escape Pods, Satellite Uplink, Vehicle Bay

◇ OVERVIEW

The Geneva-class hospital ships are the backbone of the Solar Cross' mission to render medical care to the citizens of the Solar System. The most common large vessel assigned to the Solar Cross, they cruise the usual commercial shipping lanes, looking for those in need of aid. Not as sleek and attractive as more recently constructed hulls, the Genevas are still among the most beloved sights of ships' crews everywhere because of their mission of mercy.

The Geneva-class is a refit of the old Venice-class transport, an Orbital-produced cargo hauler that was unable to compete with the Mercurian Merchant Guild's vessels and practices. Converted to its present-day configuration at the Symphony Station Drydocks in CEGA controlled Orbital space, the Geneva's refit consists of three important changes. First, Symphony adds a large gravity wheel and habitat component. Second, they dramatically expand the hanger bay to accommodate all of the daughter craft. Finally, they replace the drives to give the Genevas more acceleration when thrusting to get to a disaster scene quickly.

◇ CAPABILITIES

Each Geneva is extremely large. The most notable feature is the gravity wheel, in which operations can be performed and patients can recover without muscular atrophy, just like on a planet or station. The two habitats contain living quarters for patients, medical personnel and the operational crew of the vessel. The main body of the ship houses a large hangar for the many small craft that are used to board and repair ships in distress, as well as to ferry patients back and forth between ships. The Geneva truly lives up to its billing as a hospital in space.

One habitat holds the main medical facilities. There are several standard medical labs, which are used for examination purposes and to treat most common problems. The medlabs are not capable of hosting the most complicated surgeries, however, so those are performed in the fully equipped operating room. There several medics and doctors can collaborate on working on one patient. This is the one room between settlements where, for example, a surgeon can perform heart surgery. Most of the rest of the space is devoted to rooms where patients can recover. Each room can house up to four people in cramped quarters, but when the patient load is light the patients are spread out among the rooms for their own privacy. The medical personnel can get away for a few moments in a small break room, and ambulatory patients can meet and socialize in a commons area.

The other habitat houses living quarters for both the medical and operational portions of the crew. Despite getting to live under gravity when the wheel is turning, the Geneva-class is not a luxury liner. Doctors and the high-ranking ship's officers get their own rooms; everyone else must share quarters. Meals are served quickly in the main hull and in the habitat at a more leisurely pace. Nurses serve the patients in their recovery rooms in the medical habitat, but the food is still prepared in the crew quarters to avoid duplicating kitchen equipment.

DAUGHTERCRAFT ◇

One of the most exciting aspects of working on a Geneva-class is the piloting of the various daughter craft that are stored in the large hangars of the vessel. A common complement of craft is five search-and-rescue exo-suits, two transport shuttles, one pursuit shuttle, and numerous M-Bots and Space Repair Units. Genevas also have lifeboats situated about the main hull and the two habitats. The medical personnel realize they will have little time to move the patients into the lifeboats if the ship has to be abandoned quickly.

The search-and-rescue exo-suits are described on page 63. Generally, on a Geneva the pilots are ex-military types (most commonly from the CEGA Navy) who know how to handle themselves, their equipment, and their charges in dangerous situations. The exo-suited personnel often travel out on a shuttle to conserve their suits' resources, and once at the target bring people out to the shuttle from a disintegrating wreck. The exo-suits are never armed; in fact, the only weapons onboard a Solar Cross ship are in a small arms locker near the bridge. Only the executive officer and captain have the codes for the locker.

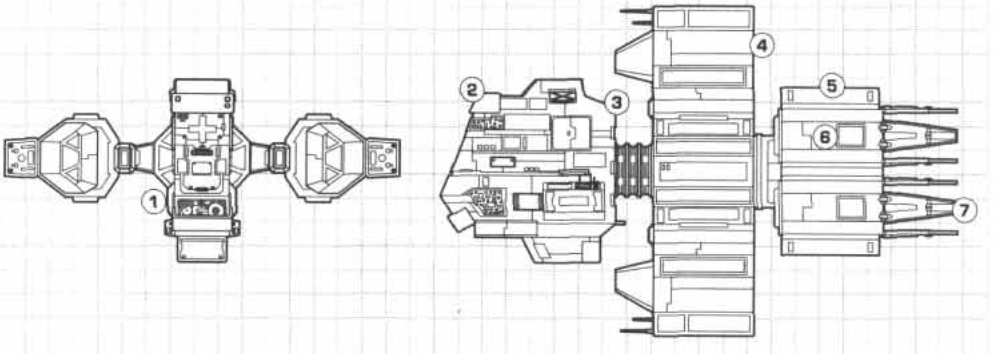
The pursuit shuttle is intended for relatively short-range emergency response. It is often difficult to change the trajectory of a lumbering Geneva immediately, so the shuttle is there to get to a situation quickly. It has a large fuel store to feed its powerful engines. In more normal situations the two regular shuttles are used to ferry personnel and equipment between the mother ship and the vessel or outpost requesting aid.

THE SOLAR CROSS ◇

The Solar Cross (SC) itself is charged with patrolling the system and giving emergency aid to those who request. An interplanetary group aligned only with the United Space Nations (USN), the Solar Cross' charter says it must give aid to ships from any of the settlements. Emergency assistance is certainly the most glamorous role for ships like the Geneva-class. Space is a dangerous place and many things can go wrong. Every traveler feels a little safer knowing that if something were to happen the Solar Cross is there as a safety net. In addition to the high-profile rescues, the Solar Cross provides more routine medical assistance in open space. Few commercial operations can afford a fully trained doctor for every ship, so when a serious medical problem arises often only the medical staff of a Solar Cross ship are available to treat the problem. The scariest job the SC faces is dealing with outbreaks of infectious disease in the confined areas of a ship or station. Only a ship with proper isolation facilities can risk giving assistance during a disease outbreak.

The Solar Cross is an outgrowth of the old Earth-based Red Cross, an association that was founded in 1863 to give aid to wounded soldiers in Europe. The Red Cross later expanded its operations to other regions and to calamities other than war. The symbol of the Red Cross became recognizable all over the world as a mark that meant aid was at hand.

SHIP SCHEMATICS ◫



▸ LEGEND

1 Low-grade Sensor and Communication Equipment
2 Forward PDS Array
3 Hangar Bay
4 Habitat
5 Reaction Mass Tanks
6 Drive Module
7 Drive Fins

[THE SOLAR CROSS, CONTINUED]

The descent of Earth into chaos during the late 21st century spelled the end for the Red Cross. The growing levels of violence and environmental destruction far outstripped the Red Cross' resources. Maintaining funding and personnel for an international charitable organization was a low priority when whole countries were imploding. The Orbital settlements also found themselves cut off from the home planet and the emergency services run by nation states. The colonies got together and increased funding for an existing rescue service for locally operating shuttles.

As the Orbitals became more independent and travel throughout the system became more frequent, the shuttle rescue service was complimented with long distance ships capable of interplanetary journeys. The first vessels of what became the Solar Cross were nothing more than small boats for traveling doctors.

As an outgrowth of the process that created the USN, treaties were signed that formalized the name and structure of the Solar Cross. Funding was secured from each of the major settlements and new contributions of ships and equipment allowed the SC to become very ambitious in its scope. As a nod to the old Red Cross, the newly established Solar Cross was given the wartime role of inspecting and helping the wounded and prisoners of war.

◇ THE SOLAR CROSS TODAY

The current Solar Cross takes its dual role of providing medical care and promoting human rights very seriously. However, the lack of major wars (outside of the planet Earth, which is not in the SC's purview) means that almost all of the Solar Cross' budget is devoted to its role as a transportable care provider. The Solar Cross is headquartered on Pyrea Station in the Orbitals and it has smaller administrative offices in ports throughout the system. These serve mainly to push the paperwork any large organization produces.

The Solar Cross has a large budget, but much of the assistance from the settlement governments comes in the form of useful goods instead of hard credits. This allows the governments to put surplus equipment to good use and to steer monies to local contractors. For example, the Venusians produce excellent surgical and diagnostic equipment, while both CEGA and Mercury can provide large hulls such as the Earth-made Geneva-class. The SC is not in a position to argue and is grateful for all of the contributions. Most of the circuits traveled by the large hospital ships pass through traditional shipping lanes in the Inner System. The traffic between Mercury, Venus, Earth and Mars is almost more than the SC can deal with. The SC also patrols the most heavily traveled routes to Olympus from the Inner System, although these vary greatly with planetary orbital alignments and stretch the SC's limited resources quite thin, so coverage is sparse. The great distances involved prevent the Solar Cross from effectively patrolling the Hanson Circuit.

◇ SOLAR CROSS PERSONNEL

While the settlements keep the Solar Cross supplied with enough equipment to do its job, the same cannot be said of their provision of personnel. In fact none of the governments force people to sign on with the SC and the organization has to recruit employees directly. As a charitable organization, it cannot provide luxurious pay — certainly not to the standards medical personnel receive on most planetary settlements. This sad truth means the SC is forced to rely on the desire of its recruits to help others in the worst of need. Not surprisingly this philosophy is worth less to most people than a high salary, and the SC is chronically understaffed.

Solar Cross employees who serve onboard ships are divided into two categories: operational and medical. The operations people are the same as the crew that would be found on almost any other ship, except that life for them in the SC can be a lot more exciting sometimes. Each ship is controlled by a captain who has an executive officer and other bridge personnel serving under him. The captain is the final authority on where the ship goes and what it does. The medical personnel often want to take daring risks, and it is the captain's job to slow them down and proceed calmly. The captain is not a dictator, however; like anyone else, his actions are routinely monitored by administrative personnel at SC headquarters.

Other operations personnel include the technicians who maintain and repair not just the hospital ships themselves but also damaged ships the SC comes across in the course of its operations. Some technicians are capable of operating the daughter craft the large vessels carry, but specialists in emergency rescue pilot most of these craft. These hotshot pilots must be able to work in dangerous conditions and still keep their cool. Many of them come from the CEGA Navy.

The medical personnel are the key components that make a Solar Cross ship unique. Most personnel are fully trained medics, capable of both stabilizing a patient in an emergency and treating many routine problems on their own. Due to the shortage of personnel, people who have taken only a short course in nursing must often fill some roles. Except in the most dire of cases, these employees are kept tending to patients' needs onboard the hospital ship and are not sent on off-ship rescue missions.

Finally, there are a handful of doctors on each ship. More than anyone else, the doctors have given up a life of plenty for the excitement of medicine on the frontier. Their role on the hospital ship is mainly to perform the difficult surgeries and diagnoses in which the medics are not trained for. SC doctors are among the few people not located on a large settlement that are fully trained in the more obscure aspects of medicine. The medics are capable of doing a lot, but when a space-going patient needs heart bypass surgery right away, a Solar Cross doctor is his best bet.

MEDICINE IN SPACE ◇

The Solar Cross cannot pick the maladies it will treat; in space, the SC is often the only recourse available. The most common experience for the SC is handling serious cases of influenza, broken bones and other problems that are common on large settlements as well. While large commercial and military vessels have onboard medics to deal with these problems, smaller operations and nomad families often are not trained to deal with them. A Geneva will not expend a lot of fuel to get to a ship where someone has a broken arm, but the SC personnel are happy to treat these cases as part of the regular sequence of linkups each ship is scheduled for during its patrols.

More serious are the dangers of living in space. Radiation is present throughout the system, and anyone left unprotected will get sick rapidly. Someone quickly treated by medical personnel can have their pains eased, but only a long-term course of treatment at the facilities of a large settlement can really repair the serious low-level damage done by radiation. See the Jovian Chronicles Companion, pp. 82-83, for more information. Like radiation, burns are a big problem in space as ship engines use lots of volatiles and even the Sun's rays can burn unprotected skin. These patients are treated in special rooms in the main hull of the ship, which is always under free fall, except when the ship is thrusting or maneuvering. Light straps can keep the patient suspended in the middle of the room, which prevents the healing skin from contacting anything that would cause pain to the patient or interrupt the healing process. When the ship is accelerating, burn victims are safely treated in water tanks.

Communicable disease is the greatest fear of any space vessel. Those suffering from virulent outbreaks are hustled off shuttles by spacesuited personnel into quarantine areas next to the hangars. These rooms have high quality air filters. Medical personnel can enter the secured rooms only after donning protective gear. The holding rooms have beds, restrooms, and entertainment facilities. Individual sufferers can be given protective gear themselves to move them up to the medical habitat, where more effective treatment can be given, but this can only be done for a few people at a time.

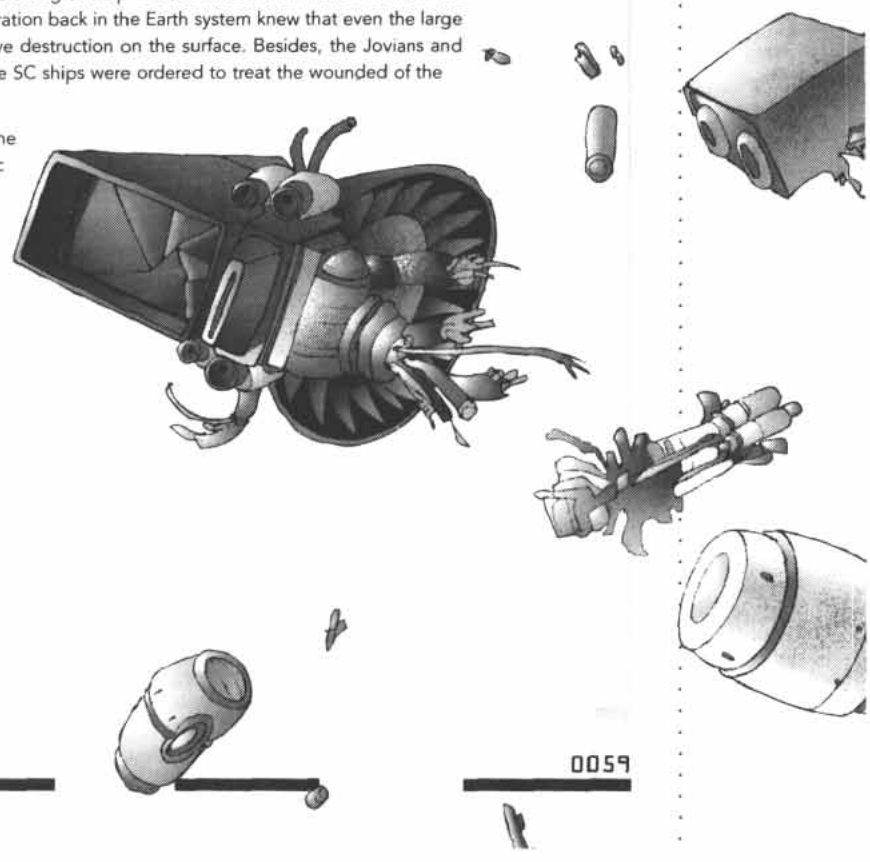
RECENT EVENTS ◇

The recent escalation of tensions between CEGA and the Jovian Confederation has forced the Solar Cross to confront difficult questions that spring from the violent confrontations of the superpowers. Should the SC accommodate military orders to leave an area where the SC might be needed? Should the SC respond to the aftermath of space battles, and if so how does it decide which of the many wounded from both sides to start treating first? Finally, can the organization prevent the conflict from causing dissension and disloyalty among its multinational personnel?

These questions became more than theoretical during the Battle of Kurtzenheim (see Chaos Principle). After the battle, both the Jovian and CEGA fleets were decimated in orbit around Mars, but more importantly the capital city of the Martian Federation was destroyed and the six million people living in and around it were devastated. Such a tragedy had never occurred outside of the confines of the planet Earth.

The Solar Cross had ships in the area who responded, and facilities in orbit around Mars to support them. Many SC personnel did not want to aid the ships of the warring superpowers, preferring to help out the innocent civilians below on the surface who were dying in massive numbers. But the SC administration back in the Earth system knew that even the large Geneva-classes would be but a drop in the bucket of the massive destruction on the surface. Besides, the Jovians and CEGA were both big contributors to the Solar Cross' budget. The SC ships were ordered to treat the wounded of the militaries.

This decision angered both of the Martian nations, as well as the dedicated personnel who had joined the Solar Cross for idealistic reasons. While the CEGA Navy and JAF are licking their wounds before the next round, the SC is scrambling to find replacements for both the funding that used to be supplied by Mars and the personnel who are resigning in protest. The Solar Cross is going to have to wait and see where it fits into this new regime of open conflict.



▼ GENEVA-CLASS HOSPITAL SHIP

▼ OVERALL PRODUCTION DATA

THREAT VALUE:	59,000
OFFENSIVE:	2600
DEFENSIVE:	2900
MISCELLANEOUS:	172,000
COST:	118,000,000 credits
PRODUCTION TYPE:	Limited
INDIVIDUAL LEMON DICE:	2

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	3 (0.3 g)	6 (0.6 g)	-6

Deployment Range:	5000 hrs	Fusion/electric
Reaction Mass:	4000 BP (equivalent)	Hydrogen

▼ SECTIONS

1 x Main Hull
1 x Hospital Habitat
1 x Crew Habitat
4 x Drive Section

▼ OFFE. & DEF. SYSTEMS

1 x Point Defense System (main hull)

▶ MAIN HULL

COST:	19,000,000 credits
CREW:	12
ACTIONS:	5
HULL SIZE:	42
DEFAULT SIZE:	21
STACKING SIZE:	42
INDV. LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	70/140/210
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	5000 hrs
SENSORS:	0/2 km
COMMUNICATIONS:	0/10 km
FIRE CONTROL:	-1

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	Sick Bay	-	Eight burn wards
Backup Systems	-	Comm, Fire Con, Life Supp, Sens	Brittle Armor	-	Loses twice Armor per hit
Cargo Bay	-	20,000 m³, hangar bay			
Computer	2	CRE 0, KNO 0, PP 2			
Ejection System	-	*Escape pods, 128 persons*			
HEP Radiation	4	Screen			
HEP Vacuum	-	Space protection			
Life Support	-	Full, 128 people			
Satellite Uplink	-	1000 x Comm range			

▼ WEAPONS

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS (ranged)	T	x8	1	0	6	Inf.	AM, HEAT	8	2900	N/A
	PDS (shield)	FF	x16	M	0	0	Inf.	Def, E-Shield, HEAT	3	48	N/A

▶ HOSPITAL HABITAT

COST:	23,000,000 credits
CREW:	3
ACTIONS:	3
HULL SIZE:	35
DEFAULT SIZE:	23
STACKING SIZE:	35
INDV. LEMON DICE:	2

ARMOR	
LIGHT/HEAVY/OVERKILL:	35/70/105
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	5,000 hrs
SENSORS:	-5/1 km
COMMUNICATIONS:	-3/5 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Support unaffected by "Aux" hits	Passenger Accommodations	-	2,000 m³
Ejection System	-	Escape pods, 128 persons	Sick Bay	-	20 surgical theaters
HEP: Radiation	4	Screen			
HEP: Vacuum	-	Space protection			
Laboratory: Medicine	2	Medical equipment			
Life Support	-	Full, 128 people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ 4 X DRIVE SECTION

COST:	14,000,000 credits
CREW:	3
ACTIONS:	3
HULL SIZE:	30
DEFAULT SIZE:	19
STACKING SIZE:	30
INDV. LEMON DICE:	2

ARMOR:			
LIGHT/HEAVY/OVERKILL:			30/60/90
MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	7 (0.7 g)	14 (1.4 g)	-6
DEPLOYMENT RANGE:	5,000 hrs		Fusion/electric
REACTION MASS:	10,000 BP		Hydrogen
SENSORS:			-5/1 km
COMMUNICATIONS: -3/5 km			FIRE CONTROL: -5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Support unaffected by "Aux" hits			
Ejection System	-	Escape pods, four people			
HEP: Radiation	4	Screen			
HEP: Vacuum	-	Space protection			
Life Support	-	Full, four people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▶ CREW HABITAT

COST:	20,000,000 credits
CREW:	3
ACTIONS:	3
HULL SIZE:	35
DEFAULT SIZE:	22
STACKING SIZE:	35
INDV. LEMON DICE:	2

ARMOR	
LIGHT/HEAVY/OVERKILL:	35/70/105
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	5,000 hrs
SENSORS:	-5/1 km
COMMUNICATIONS:	-3/5 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Supp. unaffected by "Aux" hit	Life Support	-	Full, 128 people
Ejection System	-	Escape pods, 128 persons	Passenger Accommodations	-	5,000 m^3
HEP Radiation	4	Screen			
HEP Vacuum	-	Space protection			
Laboratory: Cooking	2	Kitchen			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ EMPTY

COST:	-
CREW:	-
ACTIONS:	-
HULL SIZE:	-
DEFAULT SIZE:	-
STACKING SIZE:	-
INDV. LEMON DICE:	-

ARMOR:	-
LIGHT/HEAVY/OVERKILL:	-
MOVEMENT DATA:	-
DEPLOYMENT RANGE:	-
SENSORS:	-
COMMUNICATIONS:	-
FIRE CONTROL:	-

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▼ NOTES

JOVIAN CHRONICLES

▶UMI-OU DEEP-WATER EXO-SUIT

In many ways, the waters from which nearly all known life emerged remain to this day the last great frontier for human exploration. The Umi-Ou deep-water exo-suit is one of the more versatile tools for the study of Earth's oceans. Second Eden Technologies of Japan designed the Umi-Ou to operate in some of the deepest parts of those waters, using a super-oxygenated fluid to provide oxygen to the operator while keeping the suit — and the operator — protected against compression. This fluid is difficult to breathe, however, and it takes several runs in a training system before most divers get comfortable with it.

The exo-suit comes equipped with a pair of tri-axial underwater propulsion units that allow it to move around with relative ease. The diver can also use the suit's legs to move about on the ocean floor. A pair of waldo-controlled manipulator arms can grasp and use a wide variety of tools and equipment designed for the Umi-Ou's many different missions. The Umi-Ou sports a full range of specialized underwater sensors, including active sonar, a magnetometer, and an electrical field sensor similar to that of a shark. The complex and specialized nature of these instruments requires additional training for the operator, although a spot light is mounted on the helmet to provide illumination for more mundane visual sensors.

The Umi-Ou can perform a wide range of tasks, from the study of deep water life and underwater vulcanism, to the emplacement and maintenance of seismic stations that aid in the predictions of earthquakes. It is often used for underwater salvage operations and mineral wealth exploration, as well. Recently, Umi-Ous have explored Europa's ocean, and Second Eden Technologies is in the process of adapting the design for use deep in the atmospheres of the gas giant planets.

▼VEHICLE DATA

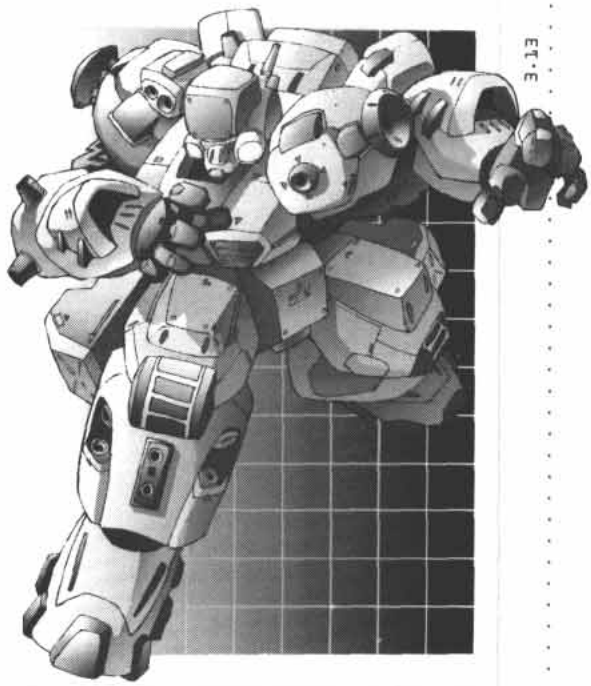
Threat Value:							163 (135,000 credits)
Crew:							1 (2 Actions)
Size:							3 (500 kg)
Armor:							10/20/30
▼MOVEMENT DATA							
Movement Mode	Combat Speed	Top Speed					Maneuver
Submarine	2 (12 kph)	4 (24 kph)					-1
Walker	0.5 (3 kph)	1 (6 kph)					-2
Deployment Rage:							50 km
Reaction Mass:							-
▼ELECTRONICS DATA							
Sensors:							+0/1 km
Communications:							+0/20 km
Fire Control:							-2
▼PERKS & FLAWS DATA							
Name			Rating				Game Effect
Aquatic Sensors			-				Usable only underwater
Life Support			-				Limited, one person
HEP: Extreme Pressure			-				Can operate at great depths
2 x Manipulator Arms			3				Can punch
Reinforced Crew Compartment			-				*Ignore first "Crew" hit*
Searchlight			-				Fixed forward, 50 meters
Annoyance			-				Oxygen system uncomfortable and hard to get used to
Annoyance			-				Minimum Skill required to operate sensors: Electronic Warfare 2
Decreased Maneuverability			1				Walker
▼OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
None							

OM-27X TENSHI SAR EXO-SUIT ◄

Advertised by Orbital Mechanics as the most advanced civilian exo-suit in the Solar System, the Tenshi exo-suit is designed to allow its wearer to carry out emergency operations under a variety of hostile environmental conditions. Exo-suits are a great boon to search and rescue activities, allowing a single person to do what would previously have required a team of skilled personnel with specialized equipment. These missions include conducting searches, controlling fires, clearing rubble and prying open the frames of crushed vehicles.

The Tenshi's advanced life support system protects the wearer from a variety of environmental hazards. A small thruster pack allows the exo-suit to operate in open space as well as engage in power assisted jumps under gravity. The arms are equipped with a built-in laser cutter and a fire extinguisher system, the latter of which can also be connected to external tanks for extended operations, and a pair of smaller remote manipulators with precise tactile feedback that extend from under the wrists. The Tenshi's onboard computer system contains instructions for medical procedures and other technical data relevant to current operations.

The Tenshi exo-suit is Orbital Mechanics' premier product and is in use by civilian authorities throughout the Solar System. White Tenshis with the yellow and red insignia of the Solar Cross are a frequent sight during relief operations, often being used for non-SAR tasks such as constructing shelters. Most militaries prefer to use their own exo-suit designs for search and rescue purposes, although a few maintain small units of Tenshis.

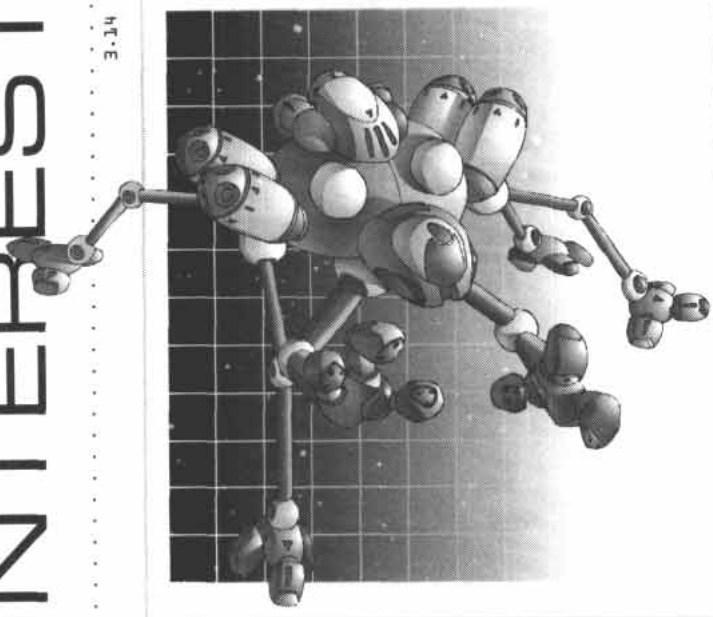


3.13

VEHICLE DATA ▼

Threat Value:								360 (420,000 credits)
Crew:	1 (2 Actions)		**Size:**					3 (400 kg)
Armor:								5/10/15
▼ MOVEMENT DATA								
Movement Mode	**Combat Speed**		**Top Speed**					**Maneuver**
Walker	3 (18 kph)		6 (36 kph)					0
Space	2 (0.2 g)		4 (0.4 g)					-1
Deployment Range:								100 km
Reaction Mass:								200 BPs
▼ ELECTRONICS DATA								
Sensors:								+1/3 km
Communications:								0/20 km
Fire Control:								-1
▼ PERKS & FLAWS DATA								
Name			**Rating**					**Game Effect**
Cargo Bay			-					0.1 m³, emergency supplies
Computer			2					CRE -2, KNO 0, PP 2
Fire Resistant			-					Halve fire intensity
Haywire Resistant			-					Reduces effects of Haywire weapons
Hostile Environment Protection			-					Radiation (R3), Vacuum
Life Support			-					Limited, one person
Loudspeakers			-					Siren, public address system
2 x Manipulator Arm			3					Hands, can punch
2 x Manipulator Arm			1					Fine manipulators, cannot punch
Searchlight			-					Fixed forward, 50 meters
Decreased Maneuver			1					Space
Large Sensor Profile			1					Easier to spot, reflective covering
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA								
Qty	**Name**	**Fire Arc**	**DM**	**BR**	**Acc**	**ROF**	**Ammo**	**Special**
1	Laser Cutter	F	x2	Melee	+1	0	Inf.	AP, HEAT
1	Fire Extinguisher	F	x8	Melee	+1	0	LU3	Fire Fighting, Def.

▶OM-20D KANI SAR DRONE



Orbital Mechanics, Inc. designed the Kani drone to work in conjunction with the Tenshi exo-suit in search and rescue operations. Nicknamed "St. Bernards" by rescue workers, Kani drones allow search teams to cover wider areas and enter places too dangerous for humans. Although too expensive to qualify as 'disposable,' it is tough enough to survive conditions that would kill a human and is cheaper than risking a life.

The Kani has a laser cutter and fire extinguisher systems built in its arms. Its equipped with four legs for stable movement over difficult terrain, with thrusters providing mobility in space as well as jump capability. The main sensor cluster is mounted on an extendable boom to allow vision over obstacles and in confined spaces. The drone's computer system contains a database of emergency and first aid procedures and is capable of providing basic aid to victims without operator intervention.

The Kani provides emergency workers with additional pairs of hands and eyes during emergency operations. A number of drones acting autonomously can follow a search pattern and alert an operator if they find anything, at which point they can be tele-operated for finer control. Remotely operated Kanis are usually controlled from a base station but in the field they can be controlled by a Tenshi exo-suit, utilizing the suit's linear frame as a tele-operation system. Authorized personnel can also give autonomous drones simple verbal instructions.

▼VEHICLE DATA

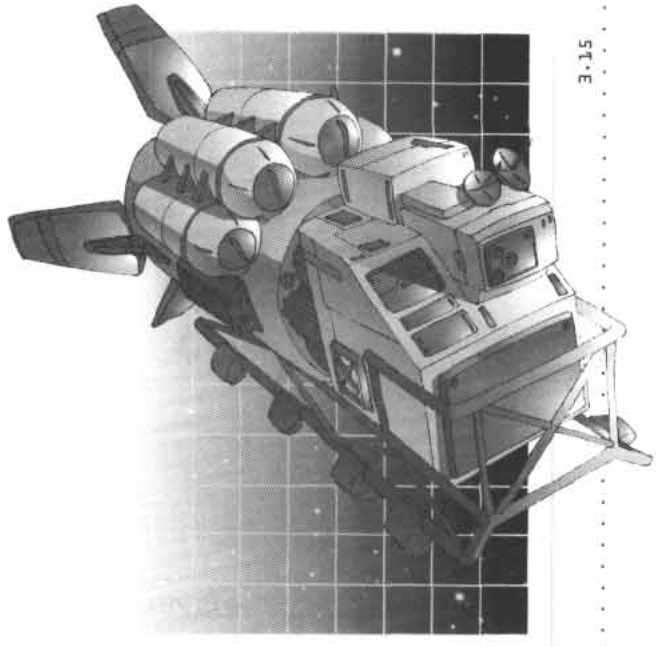
Threat Value:								140 (175,000 credits)
Crew:								N/A
Size:								2 (200 kg)
Armor:								5/10/15
▼MOVEMENT DATA								
Movement Mode			Combat Speed		Top Speed			Maneuver
Walker			2 (12 kph)		4 (24 kph)			0
Space			2 (0.2 g)		4 (0.4 g)			0
Deployment Range:								150 km
Reaction Mass:								200 BPs
▼ELECTRONICS DATA								
Sensors:								+1/3 km
Communications:								0/20 km
Fire Control:								-1
▼PERKS & FLAWS DATA								
Name					Rating			Game Effect
Autopilot					-			Acts as level 1 pilot
Computer					2			CRE -2, KNO 0, PP 2
Fire Resistant					-			Halve fire intensity
Haywire Resistant					-			Reduces effects of Haywire weapons
Hostile Environment Protection					-			Radiation (4), Vacuum
Loudspeakers					-			Siren, public address system
2 x Manipulator Arm					2			Hands, can punch
Searchlight					-			Fixed forward, 50 meters
Tool Arm					1			Sensor boom
Brittle Armor					-			Lose twice as many Armor points per hit
Exposed Movement Systems					-			Movement hits are one step worse
Fragile Chassis					-			+1 to rolls on Structure damage table
Large Sensor Profile					1			Easier to spot, reflective covering
▼OFFENSIVE & DEFENSIVE SYSTEM DATA								
Qty	Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
1	Laser Cutter	F	x2	Melee	+1	0	Inf.	AP, HEAT
1	Fire Extinguisher	F	x8	Melee	+1	0	LU3	Fire Fighting, Def.

LEVIATHAN-CLASS SPACE TUG ◄

Tugs are used for a variety of tasks, from towing damaged spaceships to shipyards to maneuvering colony cylinder components into position for construction to herding asteroids to mining facilities and out of shipping lanes. An exercise in brute strength, the Leviathan consists of little more than a massive plasma combustion chamber drive with a small bridge and crew compartment tacked on almost as an afterthought. Protruding from the front and underside are the support struts used to attach to the objects being towed. Several hours of work are required to ensure that towed objects are properly secured and will not break free under acceleration.

While a single tug is sufficient to move most spaceships and the like, for truly massive objects such as asteroids it is often necessary for several tugs to act in concert. This requires close coordination so that all the tugs thrust in the right direction at precisely the right time, otherwise incorrect trajectories or damage to the tugs and towed object can result.

Leviathans are not designed for long operations and usually operate from fixed bases. There is no provision for artificial gravity and the quarters for the sixteen crewmembers are cramped and spartan. For long distances, the preferred method is for a tug to accelerate the object to as high a velocity as possible and then disengage. Freed of the excess mass, the tug can return to base on a modest amount of reaction mass or rendezvous with a tanker to refuel. When the object reaches its destination, months or even years later, another tug will match vectors and bring it to a halt.

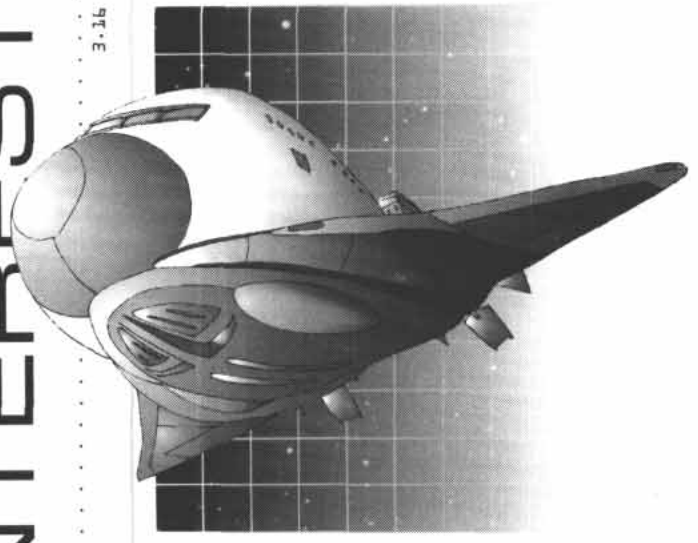


3.15

VEHICLE DATA ▼

Threat Value:								88,000 (44,000,000 credits)
Crew:								8 (5 Actions)
Size:								82 (15,150 tons)
Armor:								50/100/150
▼ MOVEMENT DATA								
Movement Mode			**Combat Speed**		**Top Speed**			**Maneuver**
Space			18 (1.8 g)		35 (3.5 g)			-6
Deployment Range:								2000 hrs
Reaction Mass:								50,000 BPs
▼ ELECTRONICS DATA								
Sensors:								-2/4 km
Communications:								-2/20 km
Fire Control:								-1
▼ PERKS & FLAWS DATA								
Name				**Rating**				**Game Effect**
Autopilot				-				Acts as level 1 pilot
Backup Systems				-				Comm, Fire Con, Life Supp., Sensors
Cargo Bay				-				80 m³, 1 x M-Pod
Cargo Bay				-				125 m³
Computer				4				CRE -2, KNO 0, PP4
Ejection System				-				Escape pods, 20 places
Hostile Environment Protection				-				Radiation (4), Vacuum
Life Support				-				Full, 20 people
Passenger Accommodations				-				400 m³
Reinforced Crew Compartment				-				Absorbs first "Crew" hit
Rugged Movement Systems				2				Absorbs first two "Movement" hits
Satellite Uplink				-				1000 x Comm range
Large Sensor Profile				5				Easier to spot
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA								
Qty	**Name**	**Fire Arc**	**DM**	**BR**	**Acc**	**ROF**	**Ammo**	**Special**
1	PDS (ranged)	T	x8	1	+1	6	Inf.	AM, HEAT
	PDS (shield)	FF	x20	Melee	+1	4	Inf.	Def, E-Shield, HEAT

▶ L200 HERMES SPACEPLANE



Name:	L200 Hermes
Origin:	Central Earth Government & Administration
Manufacturer:	Yevgeny-Reichard
Type:	Transorbital Lifter
Role:	Passenger Transport
Control System:	Cockpit
Height:	40.5 m
Width:	35 m (with wings extended)
Empty Weight:	70.1 tons
Loaded Weight:	103.6 tons
Powerplant:	20 MW
Main Drive:	2 x 107,500 kg
Apogee Motors:	10
Flight Speed:	2400 kph
Acceleration:	*3.0 g*
Onboard Sensors:	All-Weather Radar, Instrument Landing System, Lidar, Radcounter, Telescope
Defensive Systems:	Mag Screen
Equipment:	Reentry System

◇ OVERVIEW

While spaceships of all varieties ply space between the planets, most of them never reach the surface of the planets themselves. Capable of traversing billions of kilometers of open space, spaceships are generally ill suited to the rigors of operating in a gravity well or atmosphere and in the first and last leg of a journey from planet to planet, other means are usually necessary. Space elevators are efficient, but they are slow and only operate between fixed points. For speed and versatility, transorbital lifters are required. Capable of taking off anywhere on land, flying out of the gravity well and returning, transorbital lifters are the most common method of traveling from planetary surface to orbit and beyond.

◇ CAPABILITIES

The Hermes uses a variant of the plasma combustion chamber used in most spacecraft. In addition to using onboard reaction mass, air can be drawn in through intakes, superheated by the fusion reactor and then expelled to produce thrust. This allows effectively unlimited range within an atmosphere as long as the fusion reactor is running. Once out of the atmosphere, the intakes are closed off and the drive uses hydrogen reaction mass as normal. In addition to its transorbital capacity, the Hermes can also be used for suborbital flights, allowing it to reach any point of the globe in a matter of hours.

Inside an atmosphere the Hermes operates much like a normal aircraft. Its wings are a variable geometry design allowing them to be swept back at high speeds to reduce drag and create a small profile during atmospheric reentry or to be extended at low speeds for greater lift and stability. In addition, vectored-thrust nozzles allow increased maneuverability at low speeds and the ability to conduct vertical take offs and landings. Combined with the fact that the drive system is quieter than normal aircraft turbine engines, the Hermes can easily operate out of urban areas.

The Hermes has a flight crew of four: a pilot, co-pilot, electronics operator/navigator and an engineer. The passenger section is staffed by a number of stewards that varies depending on the number of first class passengers carried. The lower deck has space for 65 m^3 of cargo and is fully pressurized.

◇ SERVICE RECORD

Transorbital lifters can be found in use on all the inner planets. Most are locally built variants of licensed Earth models with modifications to account for local gravity and atmospheric conditions, although Venus does produce a few of its own designs. The Hermes is a member of a family of transorbital lifter designs, including a pure cargo model, a military version with rugged components and a point defense system, and a variety of larger models with up to twice the passenger capacity. Smaller models are not viable, due to the increased costs involved with smaller fusion reactors.

Transorbital lifters are short-ranged craft, generally flying no further than the distance from Earth to its Lagrange points. Militaries that require planetary landing capability generally carry lifters aboard other spaceships. However, after the fall of the Martian elevator, demand for lift capacity on Mars was so great that several Hermes in Earth orbit were fitted with external reaction mass tanks and flown directly to Mars to take part in emergency relief operations. The commercial flight crews that made this unique journey wear special mission badges on their uniforms and are awarded a great deal of respect by their fellow crews.

CREW COMMENTS ◇

"This badge? Oh, well I guess it means less here than on Mars so I'll tell you. I got that for flying a Hermes from Earth to Mars when the Elevator crashed. What? You don't believe me? It was all over the news at the time. Since you're so uninformed I'll give you little history lesson.

"Me and my crew had just finished a run up to L4 when we heard the news. We were all pretty shocked, as you might imagine, but not as shocked when we got told that our leave was cancelled and we were leaving for Mars immediately. We thought it was crazy, but obviously our boss didn't because by the time we got back to the plane it was already being fitted with these enormous fuel tanks. We were given a course and off we went. It took us almost four weeks to get there.

"By the time we arrived the immediate emergency was over but there was still a lot of work to be done. There were a lot of refugees without proper shelter or medical support and the 'Vator crash had left a lot of severe weather systems in its wake as well. As soon as we arrived, we spent a week straight ferrying inspection teams and disaster relief from the poles and orbit to the affected areas before we got a break.

"I'll tell you what, the L200 is a tough old bird. We were landing on any convenient flat surface in atmospheric conditions the plane was never designed for, while sucking a lot of dust and other debris into the combustion chamber, and it never complained once. And that was with a full load, too. Anyway, even after things settled down we still had more work than we could handle, since all the normal traffic that would have gone by the 'Vator was just piling up. We were getting serious overtime pay, let me tell you.

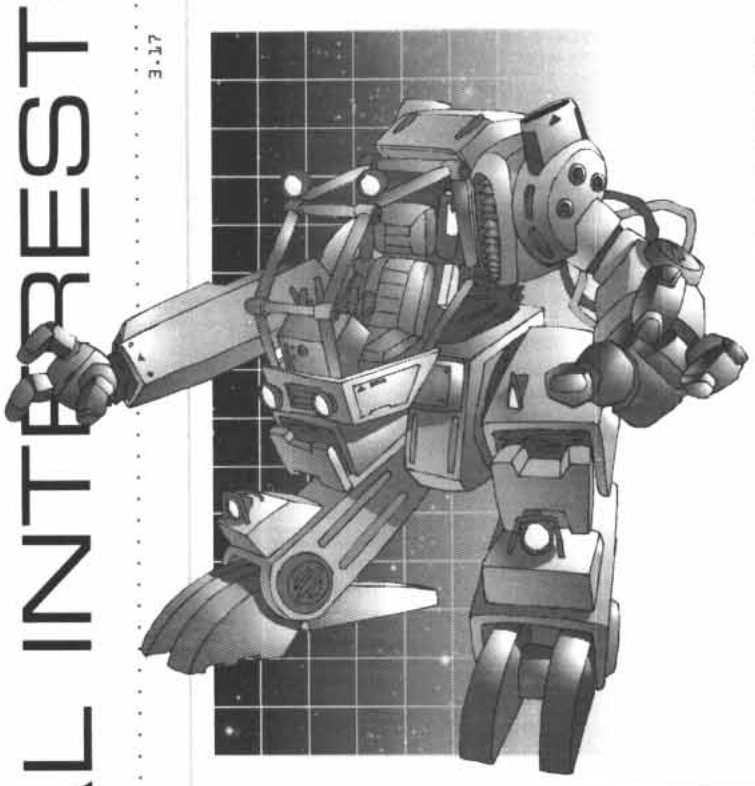
"I've been there ever since. Hmm? I'm just back here for a holiday. With the respect and pay I get on Mars you'll never catch me doing the Earth-L4 run again."

— Captain Roger Briggs, Gryphon Station transit lounge

VEHICLE DATA ▼

Threat Value:							3000 (1,500,000 credits)
Crew:							4 (4 Actions)
Size:							14 (70.1 tons)
Armor:							14/28/42
▼ MOVEMENT DATA							
Movement Mode		**Combat Speed**		**Top Speed**			**Maneuver**
Space		15 (1.5 g)		30 (3.0 g)			-2
Flight		40 (1200 kph)		40 (2400 kph)			-2 (Stall 0 km/h)
Ground (Taxying)		0 (0 kph)		0 (0 kph)			-4
Deployment Range:							500 hrs
Reaction Mass:							500 BPs
▼ ELECTRONICS DATA							
Sensors:							-1/4 km
Communications:							-1/20 km
Fire Control:							-5
▼ PERKS & FLAWS DATA							
Name				**Rating**			**Game Effect**
Autopilot				-			Acts as level 1 pilot
Backup Life Support				-			Life Support unaffected by "Aux" hits
Cargo Bay				-			65 m³
High Towing Capacity				-			Double towing
Hostile Environment Protection				-			Radiation (3), Vacuum
Life Support				-			Limited, 220 people
Passenger Seating				-			210 passengers
Reentry System				-			Permanent feature
Stratospheric Flight				-			Fly above 12 km altitude
Decreased Maneuver				2			Ground
Large Sensor Profile				2			Easier to spot
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty	**Name**	**Fire Arc**	**DM**	**BR**	**Acc**	**ROF**	**Ammo**	**Special**
None								
▼ NOTES								
Loaded weight (32.5 tons cargo) movement ratings: Flight unchanged, Space 2.0 g								
Hermes L200C: Cargo Bay 450 m³, no Passenger Seating, Triple Towing Capacity								
Hermes L200M: FC -1, replace Backup Life Support with Backup Systems, PDS as per Leviathan-Class Tug, p. 65.								

▶ CARGO HANDLER



A familiar sight at docking facilities throughout the Solar System, cargo handling exo-suits are used by civilians and militaries alike to speed up the movement of cargo. The suit's hands are equipped with clamps for attachment to standard cargo modules, but they are agile enough to handle cargo of almost any shape. The suit can maneuver easily in confined spaces, making it much more versatile than a forklift. While the suit does not include life support for the operator, it is vacuum rated and can be operated in space, provided the operator wears a spacesuit. An optional thruster pack is available to allow movement in open space between ships and cargo terminals. Using an exo-suit to carry cargo without damaging it or overbalancing requires a certain degree of skill, especially in low or zero gravity conditions, where a container's weight may be minimal but its inertia is not. Most port facilities require cargo handlers to have proper certification before operating an exo-suit, but these are sometimes overlooked at smaller facilities, leading merchant spaceship crews to fear for the safety of their cargo and their profit margins even after they have arrived at their destination.

In addition to piloted operation the suit is equipped with a simple computer system for automated control. This allows for tele-operation of the suit in hostile environments or while handling hazardous materials. The suit can also run completely autonomously, directed by onboard programming. The suit's lidar system allows it to navigate around obstacles and can be used to read shipping bar codes on cargo containers. Several suits can be coordinated by radio from a central computer, making completely automated shipping and warehousing systems possible. At large commercial depots a ship can dock and have its cargo holds emptied and then refilled with outbound cargo without a single human in sight.

◻ VEHICLE DATA

Threat Value:								38 (19,000 credits)
Crew:								1 (2 Actions)
Size:								3 (800 kg)
Armor:								4/8/12
▼ MOVEMENT DATA								
Movement Mode	Combat Speed	Top Speed						Maneuver
Walker	1 (6 kph)	2 (12 kph)						-1
Deployment Range:								100 km
Reaction Mass:								-
▼ ELECTRONICS DATA								
Sensors:								-2/0.5 km
Communications:								-2/5 km
Fire Control:								-5
▼ PERKS & FLAWS DATA								
Name				Rating				Game Effect
Autopilot				-				Acts as level 1 pilot
Computer				1				CRE -3, KNO -3, PP 1
High Towing Capacity				-				Double towing
HEP: Vacuum				-				Space protection
2 x Manipulator Arm				3				Hands, can punch
Searchlight				1				Fixed forward, 50 meters
Exposed Auxiliary Systems				-				"Auxiliary" hits are one step higher
Exposed Crew Compartment				-				"Crew" hits are one step higher
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA								
Qty Name	Fire Arc	DM	BR	Acc	ROF	Ammo		Special
None								
▼ NOTES								
Optional thruster pack gives Space movement with 1 MP thrust, 2 MP overthrust and 100 BP of reaction mass. Threat Value: 39								

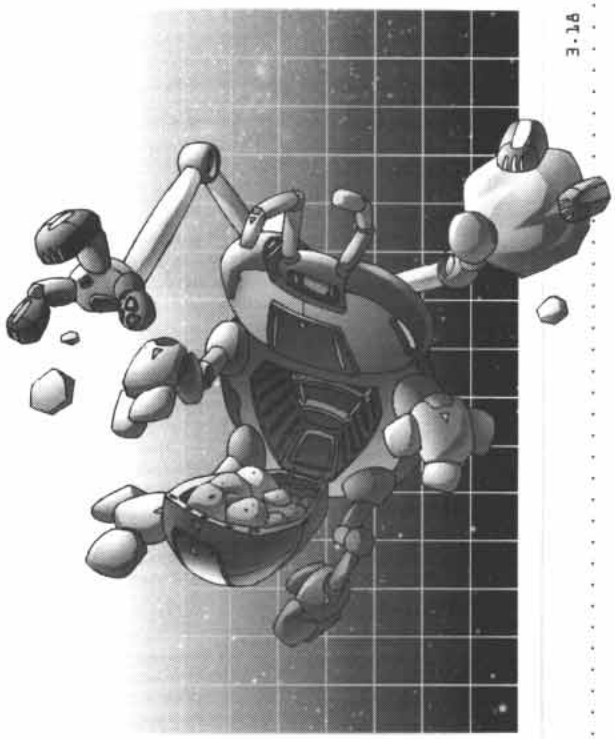
DIGGING BOT (D-BOT)

D-bot is the nickname for the Digging Bot, an automated machine that is designed for mining and excavation. Like its cousins the M-bot and the SRU, it performs tasks either too dangerous or too costly to assign to humans. Miners frequently deploy whole platoons of D-bots in the Belt, sending the machines out across whole asteroids for the second-stage surveying and prospecting that follows an initial orbital survey.

The design is similar to an arachnid with a squat body, almost resembling that of a scorpion or a spider, although it has only four legs. The hemispherical abdomen houses automated laboratory equipment and a small cargo storage cell for ore samples and other materials. Equipped with two tool arms and a pair of manipulators, the D-bot can be outfitted with a multitude of attachments depending on the task assigned. Everything from laser cutters to Geiger counters can be attached, allowing the robot to excavate and investigate its target. In addition, there is a pair of small maneuvering thrusters along the thorax of the machine. These thrusters allow the D-bot to maneuver through space using short bursts of thrust.

The artificial intelligence of these robots is very low, giving D-bots only the capacity to perform simple mining operations. Still, the units can be easily reprogrammed and retooled to enhance their 'personality' and abilities. Belt miners will often retool D-bots for everything from hull repairs to minor medical operations, saving on the cost of separate M-bots and SRUs.

Interestingly, the effects of space and isolation can break down the barriers toward companionship between man and machine. The tavern stories aboard Belt supply depots regarding the bond between miners and their D-bot "dogs" are plentiful. The June 2212 issue of *Interplanetary Geographic* features an in-depth article on the subject.

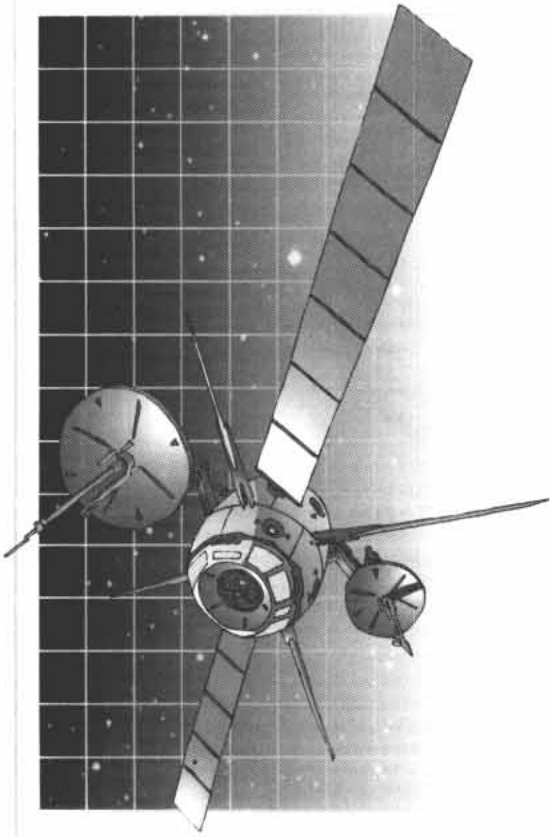


3.18

VEHICLE DATA

Threat Value:								29 (680,000 credits)
Crew:								0 (1 Action)
Size:								3 (1 ton)
Armor:								3/6/9
▼ MOVEMENT DATA								
Movement Mode		Combat Speed		Top Speed				Maneuver
Ground		0 (2 kph)		1 (4 kph)				+1
Space		2 (0.2 g)		4 (0.4 g)				0
Deployment Range:								150 hrs
Reaction Mass:								200 BP
▼ ELECTRONICS DATA								
Sensors:								-1/2 km
Communications:								-1/10 km
Fire Control:								-2
▼ PERKS & FLAWS DATA								
Name				Rating				Game Effect
Autopilot				-				Acts as level 1 pilot
Cargo Bay				-				0.05m³; ore sample storage
Computer				2				CRE -2, KNO -3, PP 2
Hostile Environment Protection				-				Extreme Heat, Extreme Cold, Radiation (3), Vacuum
Laboratory: Earth Sciences				1				Ore extraction and analysis equipment
Mining Equipment				-				Light duty
2 x Manipulator Arm				2				Graspers and mining cutters, can punch
2 x Tool Arm				1				Sensor and laser torch tools, cannot punch
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA								
Qty	Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
2	Laser Torch	F	x1	M	0	0	50	HEAT

▶ NEOSTAR II COMM SATELLITE



In an age of information, one of the most important components of a society's infrastructure is its large-scale communications network. A cornerstone of that network is the communications satellite. From the modest global comm satellites that serve most planet-bound nations to the giant relay stations that link the Jovian Confederation's Vanguard Mountain, Olympus and Newhome states, these workhorses continue to perform the same basic function they have been performing for 250 years: they receive data from one location and retransmit it to another.

All communications satellites have two main components. They have a communications and signal processing system that includes an antenna or array of antennas. This system also includes a powerful computer dedicated to processing and managing the petabytes of data per day and the hundreds of channels the satellite serves. The other main component is the orbital maintenance system, which includes the satellite's guidestar navigation system and its propulsion unit. Most satellites use small hydrazine thrusters; Mercurian and Venusian satellites use solar sails for the task.

Planetary communications satellites operate in one of three classes of orbit: Low Earth orbits (LEOs) are less than 1500 km above the planet's surface. Medium Earth orbits (MEOs) are typically about 10,000 km up. The third class, geostationary (GEO), varies according to the length of the planet's day. LEO and MEO satellites typically operate in clusters or "constellations" of a few dozen to a hundred relatively small satellites. GEO satellites, on the other hand, operate alone.

IXT Telecommunications' NeoStar II family of communications satellites serves the Mars Free Republic. The NeoStar II model is a typical geostationary satellite, operating on an orbit with a period of 24 hours and 37 minutes at an altitude of 20,000 km. Each of the six NeoStar II satellites in service has a projected lifespan of 20 years, needing to perform orbital maintenance maneuvers only once every 30 days.

VEHICLE DATA

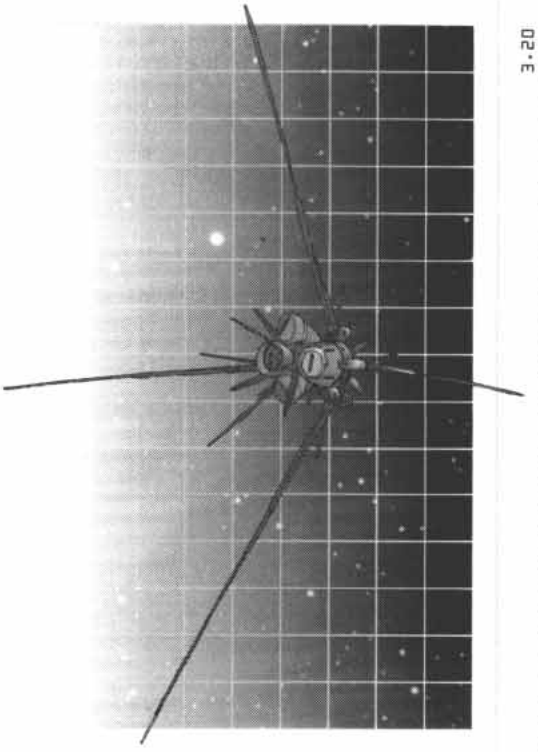
Threat Value:							530 (5,300,000 credits)
Crew:							0 (1 action)
Size:							4 (2000 kg)
Armor:							5/10/15
▼ MOVEMENT DATA							
Movement Mode	Combat Speed	Top Speed	Maneuver				
Space	0.2 MP (0.02 g)	0.4 MP (0.04 g)	-10				
Deployment Rage:							1800 hrs
Reaction Mass:							50 BP
▼ ELECTRONICS DATA							
Sensors:							-2/2 km
Communications:							+1/10 km
Fire Control:							-5
▼ PERKS & FLAWS DATA							
Name			Rating				Game Effect
Backup Communications			-				Absorbs first "Communications" hit
Computer			4				CRE -2, KNO +1, PP 4, hardwired Communication
Computer			2				CRE -1, KNO -1, PP 2
HEP: Vacuum			-				Space protection
Satellite Uplink			-				1000 x Communications range
Exposed Auxiliary Systems			-				"Auxiliary" hits are one step higher
Fragile Chassis			-				"Structure" hits are one step higher
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
None							

THOTH SPACE PROBE

The first space explorers were not people; they were robotic space probes. Fragile, computer-controlled packages of instruments visited every major point of interest in the Solar System long before human beings made the trip. They ranged from small devices designed to collide deliberately with their target destinations and send back a few thousand bytes of information, up to comparatively gargantuan jacks-of-all-trades that visited several targets before proceeding on to their interstellar burial grounds. Space probes are still widely used in the 23rd Century. In addition to their roles in such organizations as the IGS, probes come in handy for militaries, the Solar Police and even the Solar Cross.

The Thoth is a typical fly-by probe, designed to travel near and past its target rather than to land or take up permanent orbit. It consists of a small main body that houses its computer and electronic systems, a power supply, and a three-axis flywheel assembly that provides orientation control. A propellant tank and thruster assembly allows the Thoth some amount of velocity control, although a booster rocket or a ship's catapult launch system provides its initial velocity.

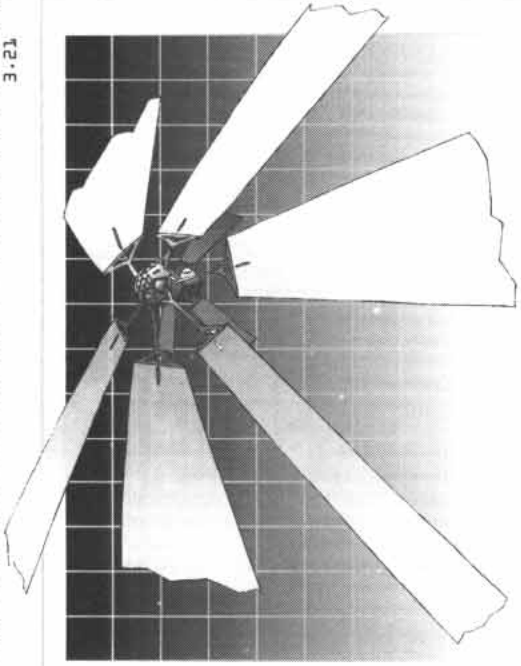
An assortment of sensor booms and communication antennas jut from the otherwise sleek body; all were designed for easy adjustment and modification in a relatively short amount of time to suit the probe's particular mission. Thoth probes generally have one primary sensor type for their mission, whether it's an optical sensor for mapping, an IR sensor for scanning a drifting hulk for signs of life, or a long magnetometer boom for exploring a planet's magnetic field. Several secondary sensor packages round out the complement, however, making the Thoth relatively versatile under most configurations.



VEHICLE DATA

Threat Value:							190 (190,000 credits)
Crew:							0 (1 Action)
Size:							6 (5 tons)
Armor:							5/10/15
▼ MOVEMENT DATA							
Movement Mode	**Combat Speed**	**Top Speed**					**Maneuver**
Space	0.2 (0.02 g)	0.4 (0.04 g)					-2
Deployment Rage:							250 hrs
Reaction Mass:							50 BP
▼ ELECTRONICS DATA							
Sensors:							+1/4 km
Communications:							-2/10 km
Fire Control:							-5
▼ PERKS & FLAWS DATA							
Name		**Rating**					**Game Effect**
Autopilot		-					Acts as Level 1 Pilot
Backup Communications		-					Absorbs first "Communications" hit
Computer		2					CRE -1, KNO -1, PP 2
Easy to Modify: Auxiliary Systems		-					+2 to repair and modify
Hostile Environment Protection		-					Radiation (4), Vacuum
Satellite Uplink		-					1000 x Communications Range
4 x Tool Arm		1					Sensor booms, cannot punch
Exposed Auxiliary Systems		-					"Auxiliary" hits are one step higher
Exposed Movement Systems		-					"Movement" hits are one step higher
Fragile Chassis		-					"Structure" hits are one step higher
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA							
Qty	**Name**	**Fire Arc**	**DM**	**BR**	**Acc**	**ROF**	**Ammo**	**Special**
None								

▶ LIONFISH SOLAR SAIL YACHT



Solar sails are not limited to commercial shipping interests and satellite stationkeeping. Several cruise lines maintain one or two luxury solar sail cruisers to cater to the wealthy; such cruisers only carry around 20 passengers and are extremely expensive. Solar sail racing yachts are also not unheard of: the Clarke Cup, an endurance Earth-Lagrange Point solar sail tour, has been held every five years since 2050. The exotic nature of solar sail craft appeals to the private sector as well; more than one corporate executive or independently wealthy eccentric owns a private solar sail yacht. Regardless of their use, small-scale solar sail craft generally have a limited range due to the small amount of acceleration provided by the Sun. They typically operate within the Earth orbital system only.

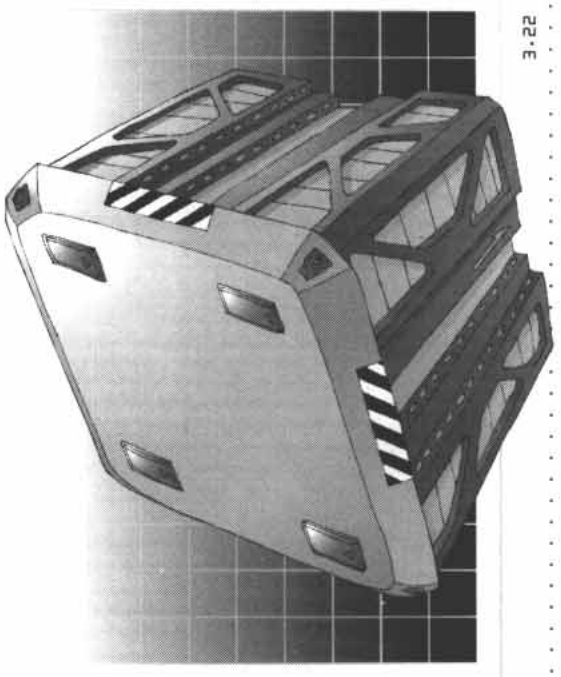
The Lionfish solar sail yacht is a common private yacht design. Produced by the L4-based Dynasty Shipyards, the Lionfish requires a crew of six to operate. The crew comprises a captain (usually the owner), a navigator, and four sailors who tend the sails and perform general maintenance around the ship. The Lionfish also features space for two passengers.

The yacht's sail lends the Lionfish its name. Splayed out almost horizontally from the forward part of the hull, two of the main sail assemblies resemble the fish's ornate fins. A third, identical main sail assembly juts out from the bottom of the hull. Three secondary sails augment the main sails. The yacht's sails are known as *square sails*, even though they are not actually square. The designation is an historical one and means that the sails are made rigid by a superstructure, rather than by spinning them.

◫ VEHICLE DATA

Threat Value:								3400 (10,000,000 credits)
Crew:								6 (4 Actions)
Size:								10 (22 tons)
Armor:								12/24/36
▼ MOVEMENT DATA								
Movement Mode		Combat Speed		Top Speed				Maneuver
Solar Sail (see page 29)		varies		varies				-7
Deployment Rage:								1800 hrs
Reaction Mass:								-
▼ ELECTRONICS DATA								
Sensors:								-2/2 km
Communications:								-1/20 km
Fire Control:								-2
▼ PERKS & FLAWS DATA								
Name				Rating				Game Effect
Autopilot				-				Acts as level 1 pilot
Backup Systems				-				Comm, FireCon, Life Support, Sensors
Cargo Bay				-				200 m³, EVA bay, spare sail material
Computer				2				CRE -1, KNO -1, PP 2
Ejection System				-				Escape pods, eight places
Hostile Environment Protection				-				Radiation (3), Vacuum
Life Support				-				Full, eight people
No Fuel Required				-				Solar sail, power cannot be cut off
Passenger Accommodations				-				500 m³
Reinforced Crew Compartment				-				Absorbs first "Crew" hit
Satellite Uplink				-				1000 x Comm range
Large Sensor Profile				5				Easier to spot, large sail cannot be hidden
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA								
Qty	Name	Fire Arc	DM	BR	Acc	ROF	Ammo	Special
1	PDS (ranged)	T	x3	1	0	0	Inf.	AM, HEAT
	PDS (shield)	FF	x6	M	0	0	Inf.	Def, E-Shield, HEAT

SHUSS SERIES-D LIFEBOAT ◀



3.22

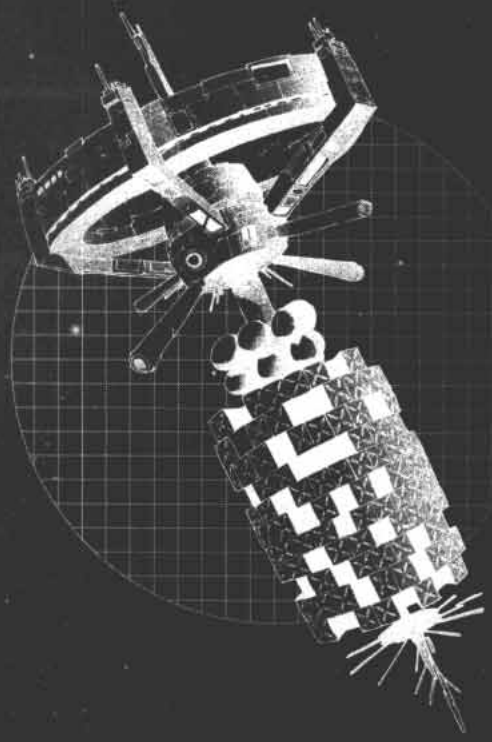
An evolution from the common escape pod, the lifeboat is designed to allow large numbers of people to escape an endangered vessel. While escape pods are certainly less expensive and easier to place about a ship's hull, the lifeboat offers many advantages over the simple pod. Its primary advantage is that the lifeboat is a fully independent vessel with its own long term life support and recycling systems. While an escape pod's life support might last a few days, people can survive in a lifeboat for up to two months.

The lifeboat is also far more mobile than the escape pod, having its own small engines to maneuver itself away from any debris or doomed vessel. It also is equipped with a re-entry system and parachutes should a low orbital evacuation become necessary. The lifeboat is even capable of docking with most escape pods, allowing other survivors to escape into its more comfortable safety. Lifeboats also have emergency equipment aboard, including emergency space suits, a field medical kit, full mechanical and electronic toolkits, and a pair of Hercules worksuits should the lifeboat need external repairs.

Despite all this, however, the lifeboat shares one feature with its lesser escape vessels: cramped conditions. With all the extra systems aboard, a lifeboat has little room to spare for luxuries or cargo. Survivors aboard a lifeboat can expect little more than a comfortable seat (in which they must sleep, eat, and spend most of their waking hours), recycled food bars and whatever entertainment they themselves can provide. A sole concession to dignity is made in the lifeboat's lavatory, which is small but private.

VEHICLE DATA

Threat Value:			1600 (940,000 credits)
Crew:			1 (2 actions)
Size:			10 (23 tons)
Armor:			15/30/45
▼ MOVEMENT DATA			
Movement Mode	**Combat Speed**	**Top Speed**	**Maneuver**
Space	2 (0.2 g)	4 (0.4 g)	-5
Deployment Range:			1500 hrs
Reaction Mass:			200 BPs
▼ ELECTRONICS DATA			
Sensors:			+0/2 km
Communications:			+1/20 km
Fire Control:			-5
▼ PERKS & FLAWS DATA			
Name		**Rating**	**Game Effect**
Airdroppable		-	Has parachutes
Backup Life Support		-	Life Support not affected by "Auxiliary" hits
Cargo Bay		-	8 m³, emergency equipment
Computer		1	KNO 0, CRE 0, PP 1
HEP: Radiation		5	Screen
HEP: Vacuum		-	Space protection
HEP: Extreme Heat		-	Reentry insulation
Life Support		-	Full, 40 people
Passenger Accomodations		-	9 m³
Passenger Seating		-	40 passengers
Reentry System		-	Single use
Reinforced Crew Compartment		-	Absorbs first "Crew" hit
▼ OFFENSIVE AND DEFENSIVE SYSTEMS DATA			
None			



CHAPTER FOUR:

LIVING SPACE

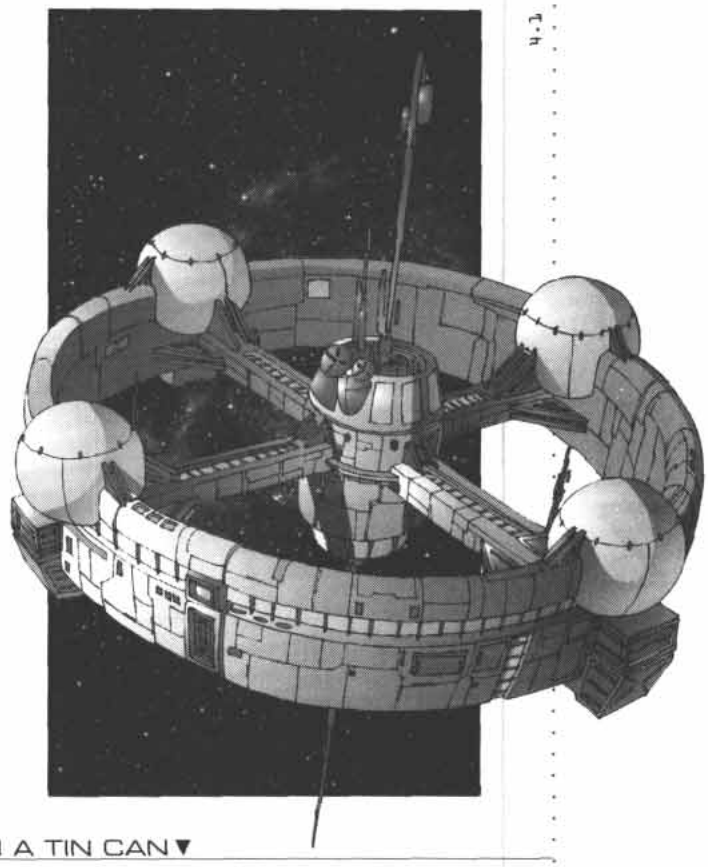
ON THE FRONTIER ◄

4.1

While the vast majority of the human population in space is concentrated aboard colony cylinders and planetary settlements, there are still a large number of people who spend their lives in smaller, less impressive facilities. Small stations and outposts can be found throughout the solar system, performing tasks too lengthy or specific for an actual space vessel, but too unimportant to justify the resources of an entire colony cylinder.

Such facilities offer many advantages. They are inexpensive to build when compared to a space ship or colony cylinder, but can often be moved when necessary. Moving a colony cylinder is of course possible, but time consuming, dangerous and demanding in the extreme. Most colonies are moved once — when they are placed in their final position. Space stations, on the other hand, are moved whenever necessary, and can often be broken down for even easier transport. Space stations also offer more space and better living conditions than the best space ship, including near-Earth gravity and actual large open spaces. They also support industries that a more mobile facility could not — especially where recreation and shopping are concerned. Consequently, space stations and outposts become the commercial and community centers for the community that lives and works nearby.

Architecturally speaking, most space stations are can be modified almost at will. With a lengthened hub and the addition of second and third (or more) wheels, a space station can be as big or as small as desired, and even expanded after initial construction if desired — something that the average colony cylinder cannot accomplish. Designed more like a modular space ship than a colony, most stations can easily seal off damaged sections, or remove sections and have them replaced with new, better, or different sections as required. The only thing that space stations truly lack is a functioning biosphere, so they must manage the environment as carefully as any space ship.



AT HOME IN A TIN CAN ▼

4.1.1

Space stations are a versatile tool for Gamemasters. While not as large or impressive as colony cylinders, they are big enough to be interesting while small enough to be realistically managed as the basis for a campaign. They are the small towns of space, and thus perfectly suited for the less ambitious game. Not only will they have most of what the Players will need or want in the way of goods, they are large enough to have plenty of room for adventure aboard the station — an important consideration if the Player Characters lack a space vessel of their own! There are enough people aboard that it will be impossible for the Players to know everyone, while small enough for the Gamemaster to offer a reasonable number of developed NPCs for the Players to interact with. Best of all, with traffic coming in and out of any given station, the adventures can come to them rather than vice versa.

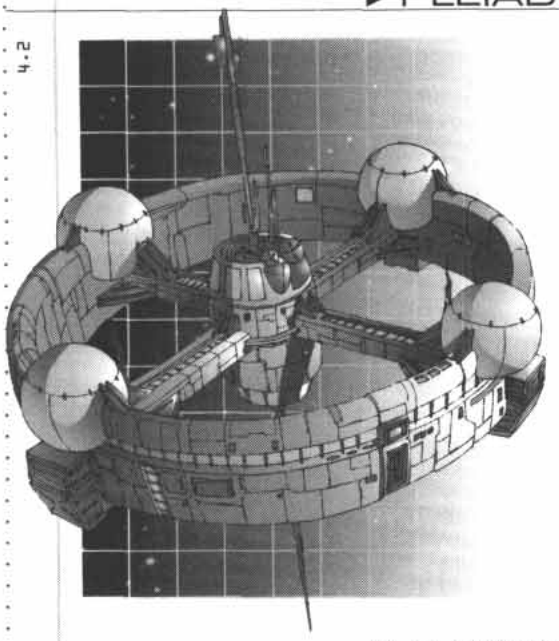
Given the size of a station, the Player Characters could fill most of the important roles aboard a space station. With a command staff of less than a dozen being typical for most stations, PCs will have an important role in the administration of any station. They could also take the role of the station's police or security force, giving them more opportunity for action and more access to heavier weapons like exo-suits or the odd exo-armor. Or the station could simply operate as the home base for a more mobile group of Players such as mercenaries or research scientists, giving them a place to rest and repair between adventures.

DARK SIDE OF THE MOON ▼

4.1.2

Space stations also offer their advantages to the villains of space. Small space stations have been the bases of operations for pirates, smugglers, and more than one illegal research facility. Most militaries also employ covert space stations to monitor for threats or to carry out dangerous or secretive work. Isolated, easy to hide and easy to erase, most edict-violating activities take place on space stations. It would be terrible if the latest bio-warfare agent escaped onto a planet's surface, but if the containment on a space station failed, it would be easy to dump the whole station into Jupiter's atmosphere or onto some barren, lifeless moon. Similarly, the latest exo-armor research is likely to take place far away from prying eyes, and what better place than a hidden station in the Belt?

▶ PLEIADES RESEARCH STATION



Name:	Pleiades
Origin:	Jovian Gas Mining Corporation
Manufacturer:	Various
Type:	Space Station
Control System:	Command Tower w/ Astronomical Display
Diameter:	470 m
Height:	200 m
Empty Weight:	6000 tons
Loaded Weight:	7600 tons
Main Powerplant:	10 MW
Secondary Powerplant:	1670 kW
Main Thrusters:	4 x 40,000 kg
Apogee Motors:	60
Acceleration:	0.03 g
Onboard Sensors:	ECCM, Infrared/ultraviolet, Lidar, Low-Light, Magnetometer, Radcounter, Search Radar, Wide Band Radar, Telescope
Fixed Armament:	None
Additional Armament:	None
Defensive Systems:	Mag Screen, PDS
Equipment:	Comm. Array, Escape Pods, Satellite Uplink

◇ OVERVIEW

Designed similarly to the Ironwheel Station built in 2038, the Pleiades-class research station fulfills an important role for exploration and space engineering. The Jovian Gas Mining Corporation (JGM) built the first of these stations in the late 2039 to expand gas mining research and exploitation from Jupiter's atmosphere. In the years following, many Pleiades stations were later converted into permanent gas mining platforms to save on costs for building separate platforms.

Now, in the 23rd century, the Pleiades Research station keeps being adapted to new functions as its use spreads out into the outer reaches of the Solar System. Many continue to be converted into mining platforms by JGM and the Titanian Hydrocarbon Corporation (THC) alike. Other scientific sectors, however, namely material science and astrophysics, have begun to find uses for this modular and efficient design.

◇ CAPABILITIES

The original Pleiades design was strictly intended for gas mining research, yet the modularity of the station's components made it a prime candidate for multiple roles. The station, like many from the early years in space station design, is a traditional wheel design, housing crew quarters, laboratories and other facilities. The common configuration currently being manufactured can include a number of these wheel modules attached along a central hub that serves as both a docking facility and zero-gravity storage. Smaller than most permanent stations, the Pleiades is not designed for long term occupancy as are other stations such as the Valhalla. The wheel's corridors are cramped and often the space necessary to maintain the crew's comfort is used by equipment for material processing, testing and storage.

A unique feature of the Pleiades station is the extendable buoys. These are laboratory and sensor modules that can be extended out from the central axis. They use skyhook technology to allow researchers the ability to extend these modules into a planet's upper atmosphere. These modules offer unique opportunities for any research discipline requiring isolated, sustainable environments.

◇ SERVICE RECORD

Introduced by JGM in 2039, the Pleiades research stations have had a long and notable history. Many stations can still be found orbiting around Jupiter or Saturn, yet the modern gas miner might not recognize the station's original frame beneath the extensive modifications and additions performed over the years. JGM has plans to construct three Pleiades stations in orbit around Uranus by 2215. Non-profit organizations and small for-profit corporations own or lease older model Pleiades stations to serve in other research roles besides atmospheric chemical exploitation. These operations include astronomy, materials sciences and atmospheric weather monitoring. The IGS, for example, is currently seeking funding to deploy an old Pleiades around Neptune to continue research conducted by teleoperated atmospheric probe in 2212.

There are also a few Pleiades that serve as Jovian floater observation posts for IGS xenobiologists. The extendable buoys have offered scientists unprecedented opportunity to observe these mysterious creatures more closely, recording their behavior and environment. Under the direction of the USN, the Jovian Navy heavily protects these stations.

IN SEARCH OF . . . ◇

Since the dawn of human exploration, two forces have driven humans along the path of discovery: the thirst for knowledge and the hunger for profit. The need to understand the Universe and utilize its resources is integral to human nature. Both of these human drives still fuel the exploration and exploitation of space's resources today.

The typical tour of duty aboard a Pleiades lasts between 12 and 18 months. This does not include transit time to and from the remote locations of these stations, and often these transit periods can be as long as the time spent aboard the Pleiades stations. Transports sometimes miss their rendezvous, creating still longer tours. These conditions can be grueling and lonely over time. Deep space astronomical stations are also subject to these sometimes demoralizing conditions, yet the prospect of new insight into the secrets of the Universe is often enough to keep the scientists focused on their research. Aboard Pleiades stations in the Inner System, which are used primarily for planetary and materials science, these tours are less demanding. For personnel aboard these stations, shore leave is often granted to visit loved ones and friends.

HAZARDOUS DUTY ◇

Life aboard a largely undefended civilian space station in the remotest corners of the Solar System is not without risk. Pirates pose some threat, although the basic research conducted by these stations is rarely worth a pirate's time and resources. Most pirate raids are usually directed towards capturing life support equipment and supplies. Military privateers often engage in exactly the same sort of activity in times of war or heightened political tension. A third element poses a certain amount of risk to researchers aboard Pleiades stations: the SolaPol Edicts Enforcement Bureau. The remote and unobtrusive nature of these stations puts them near the top of EEB lists of what it considers "installations at high risk of committing Edicts violations." Fortunately the Solar Courts keep the Men in Black in check for the most part, but unjust harassment is still a very real threat to legal research.

These stations have little to no defense against these activities. Most stations' command crew are equipped with hand weapons for defense against boarding parties, but the majority of the crew and staff is untrained in combat - especially in military and paramilitary tactics.

CREW COMMENTS ◇

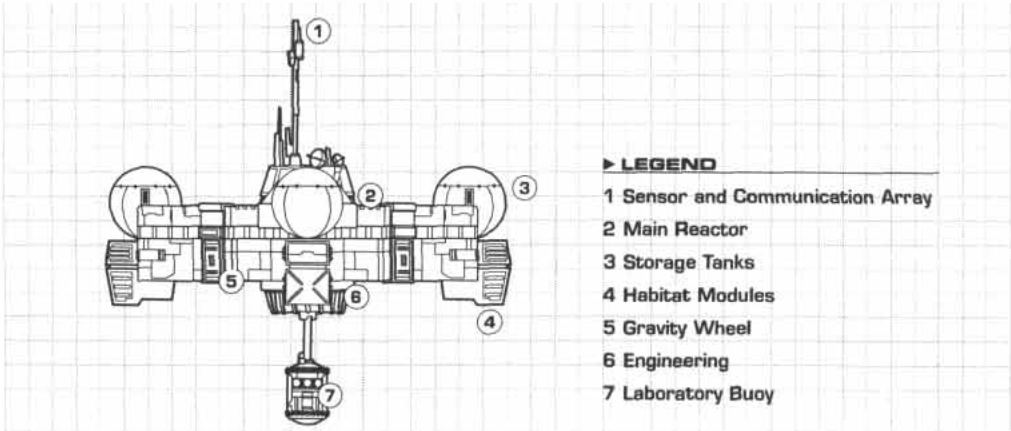
"I am the chief engineer aboard the 'Atropos' research station. My duties as chief are pretty simple: my team and I maintain the various station systems. It can be a dangerous job, but the systems onboard are well engineered. Even the main reactors are capable of running almost continuously for over 36 months with only minor maintenance checks. Only one is needed for powering the entire station, but having two eases the load on the primary reactor and provides excellent power coverage during peak times. We're fortunate to be on assignment over Saturn; life support and reactor power are supplied through ice mining. Other stations that I've served on have ice shipped in regularly since they were stationed in the Inner System.

"We've been anchored in orbit over Saturn for about 12 months now, so most of the tasks have been routine checks and ice runs. A simple cable runner allows transit up and down the buoy's tether. In addition to the engineering maintenance teams, it handles the transit of gas samples and the other engineering specialists.

"An old university buddy of mine asked how I could stand being away from civilization for such a long time. I just shrugged. I think it's the most exciting job on the station. That's why I keep declining reassignment."

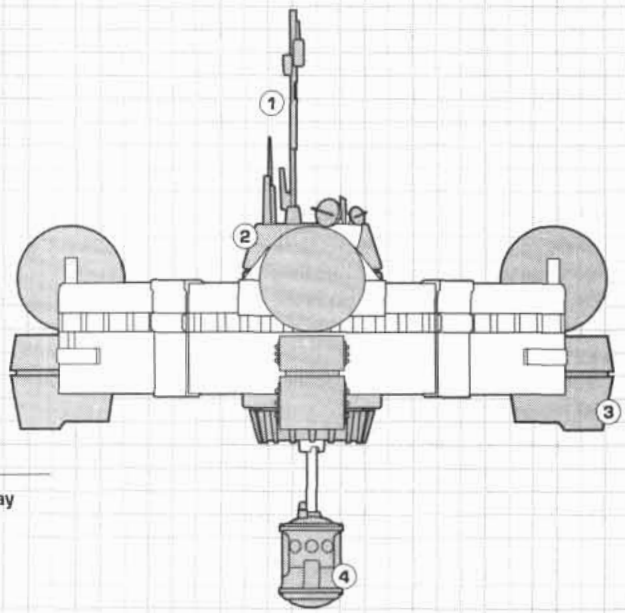
— Chief Engineer Daryl Brooks, THC-012 Station "Atropos"

STATION SCHEMATICS ◫



◇ STATION SCHEMATICS

The station is designed around a wheel configuration to provide artificial gravity. Habitat modules connect via four hub spokes to form contiguous habitats. Ships can dock, refuel and conduct repairs along the central hub. The communications tower is similar to the one used aboard the Valhalla-class station and is capable of transmitting and receiving signals over the vast distances of the Outer System.

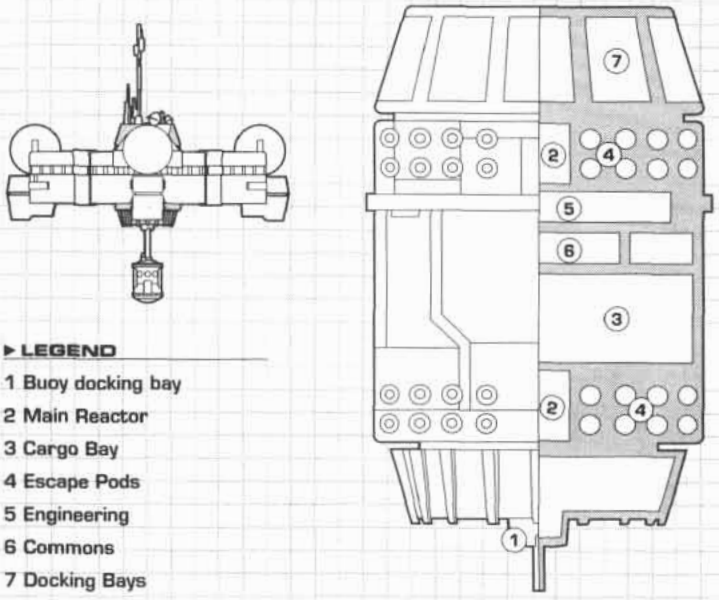


▸ LEGEND

1 Communications Array
2 Central Hub
3 Habitat Modules
4 Laboratory Buoy

◇ CENTRAL HUB SCHEMATICS

The central hub of the station serves as the engineering nerve center of the station. Two main reactors, each capable of maintaining station power, are situated at either end. Centralized storage is provided in the largest cargo bay on the station. Exo-suits, retooling equipment and other supplies are all stored here. The modularized design allows for the attachment of additional hub segments, facilitating additional wheel configurations.

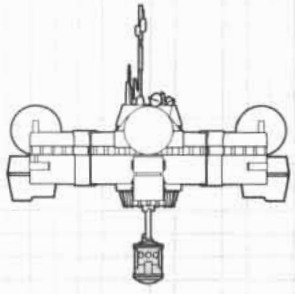


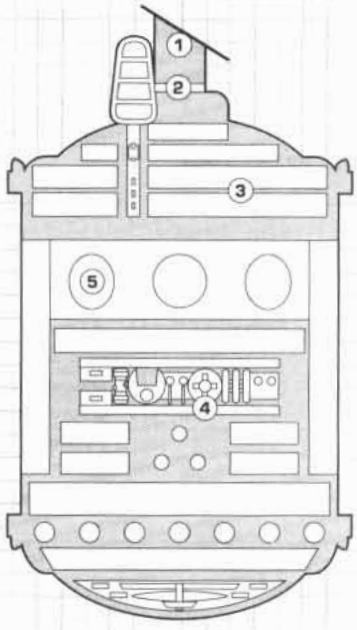
▸ LEGEND

1 Buoy docking bay
2 Main Reactor
3 Cargo Bay
4 Escape Pods
5 Engineering
6 Commons
7 Docking Bays

LABORATORY BUOY SCHEMATICS ◇

The station's buoys are perhaps the most distinctive feature of a Pleiades station. Excluding the space required for the cabling support frames and cable runner airdock, the buoys are empty shells configured with whatever sensor and laboratory equipment is necessary. A small hold is typically set up for two to three short-term inhabitants.



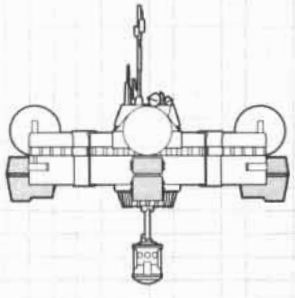


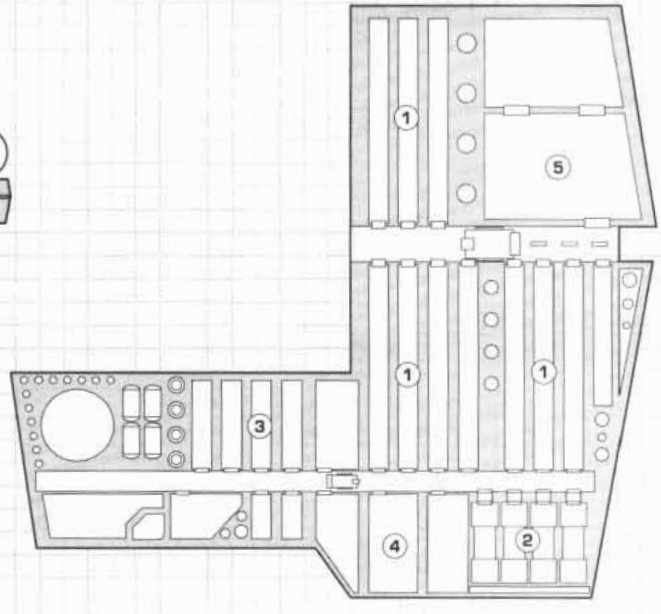
▸ LEGEND

1 Support Cable
2 Cable Runner Airdock
3 Passenger Hold and Laboratories
4 Sensors and Equipment
5 Life Support

HABITAT RING MODULE SCHEMATICS ◇

The habitat modules are the primary life support areas of the station. Simulated gravity and larger common areas distinguish this environment from the others. Most laboratory work is performed in these sections and they house many of the processing facilities as well. Maintenance bays used for drones and engineering exo-suits can also be found along the outer rim of the habitat section.





▸ LEGEND

1 Crew Cabins
2 Escape Pods
3 Common areas
4 Laboratories and Processing Equipment
5 Maintenance Bays

▼ PLEIADES RESEARCH STATION

▼ OVERALL PRODUCTION DATA

THREAT VALUE:	200,000
OFFENSIVE:	15,000
DEFENSIVE:	4200
MISC:	580,000
COST:	200,000,000 credits
PRODUCTION TYPE:	*Early (effective)*
INDV. LEMON DICE:	2

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	0.2 (0.02 g)	0.3 (0.03 g)	-10

REACTION MASS:	5000 hrs	Fusion/electric
DEPLOYMENT RANGE:	300 BP (equivalent)	Hydrogen

▼ SECTIONS

1 x Main Hull
1 x Communications Array
4 x Spoke Section
4 x Habitat Module
2 x Extendable Buoy Module

▼ OFFE. & DEF. SYSTEMS

2 x Point Defense System (main hub)

▶ MAIN HUB

COST:	15,000,000 credits
CREW:	10
ACTIONS:	5
HULL SIZE:	28
DEFAULT SIZE:	24
STACKING SIZE:	28
INDV. LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	50/100/150
MOVEMENT DATA:	Towed by Spoke Sections
DEPLOYMENT RANGE:	5000 hrs
SENSORS:	0/4 km
COMM.:	0/10 km
FIRE CONTROL:	0

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Airlift Winch	10	Buoy Cable Winch	Sick Bay	2	Two surgical theaters
Cargo Bay	-	125,000 m^3	2 x Tool Arm	10	Docking arms, cannot punch
Computer	6	*CRE 0, KNO 0, PP 6*	Annoyance	-	Cramped crew compartments
Ejection System	5	Escape pods, 50 people	Backup Systems	-	Comm,FireCon,LifeSup.,Sens.
HEP: Radiation	5	Screen			
HEP: Vacuum	-	Space protection			
Life Support	-	Full, 50 people			
Passenger Accom.	-	100 m^3, quarantine space			
Reinforced Crew Comp.	-	Absorbs first "Crew" hit			

▼ WEAPONS

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
2	PDS	T	x6	1	0	6	Inf	AM, HEAT			

▶ COMM ARRAY

COST:	4,300,000 credits
CREW:	3
ACTIONS:	3
HULL SIZE:	16
DEFAULT SIZE:	16
STACKING DICE:	16
INDV. LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	30/60/90
MOVEMENT DATA:	Towed by Spoke Sections
DEPLOYMENT RANGE:	1000 hrs
SENSORS:	0/4 km
COMM.:	0/10 km
FIRE CONTROL:	0

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Communications	-	Absorbs first "Comm" hit	Satellite Uplink	-	1000 x Comm Range
Backup Systems	-	Comm, Fire Con, Life Sup., Sens.	Annoyance	-	Cramped crew compartments
ECCM	6	Def. Elect. Warfare Equipment	Exposed Auxiliary Systems	-	"AUX" hits one step higher
HEP: Radiation	5	Screen	Ejection System	5	Escape pods, four people
HEP: Vacuum	-	*Space protection*			
Life Support	-	Full, four people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	Comm Laser	T	x5	10	0	0	Inf.	AD1, HEAT	10	5100	N/A

▶ 4 X SPOKE SECTION

COST:	4,500,000 credits
CREW:	5
ACTIONS:	4
HULL SIZE:	20
DEFAULT SIZE:	16
STACKING SIZE:	20
INDV. LEMON DICE:	2

ARMOR:			50/100/150
MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	1 (0.1 g)	2 (0.2 g)	-10
DEPLOYMENT RANGE:		5000 hrs	Fusion/electric
REACTION MASS:		2000 BP	Hydrogen
COMMUNICATIONS:	-3/5 km	SENSORS:	-5/1 km
FIRE CONTROL:			-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	Passenger Accom	-	50 m³, quarantine space.
Cargo Bay	-	5000 m³	Ejection System	-	Escape pods, ten places
HEP: Radiation	5	Screen	Annoyance	-	Cramped crew compartments
HEP: Vacuum	-	Space protection	Hazardous Fuel Storage	-	+2 on Ammo/Fuel hits
Life Support	-	Full, ten people			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ 4 X HABITAT MODULE

COST:	40,000,000 credits
CREW:	3
ACTIONS:	3
HULL SIZE:	34
DEFAULT SIZE:	34
STACKING DICE:	34
INDV. LEMON DICE:	2

ARMOR:	
LIGHT/HEAVY/OVERKILL:	50/100/150
MOVEMENT DATA:	Towed by Spoke Sections
DEPLOYMENT RANGE:	5000 hrs
SENSORS:	-5/1 km
COMMMUNICATIONS:	-3/5 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Supp. unaffected by "Aux" hits	Life Support	-	Full, 100 people
Computer	4	CRE 0, KNO 0, PP 4	Passenger Accommodations	-	5000 m³
Ejection System	-	Escape pods, 100 people	Reinforced Crew Comp.	-	Absorbs first "Crew" hit
HEP	-	Radiation (5), Vacuum	Sick Bay	4	Four surgical theaters
4 x Laboratory	1	Various	Annoyance	-	Tight crew area

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ 2 X EXTENDABLE BUOY

COST:	1,400,000 credits
CREW:	2
ACTIONS:	3
HULL SIZE:	11
DEFAULT SIZE:	11
STACKING SIZE:	11
INDV. LEMON DICE:	2

ARMOR:			25/50/75
MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	2 (0.2 g)	4 (0.4 g)	-10
DEPLOYMENT RANGE:		1000 hrs	Fusion/electric
REACTION MASS:		100 BP	Hydrogen
COMMUNICATIONS:	0/10 km	SENSORS:	0/4 km
FIRE CONTROL:			-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Airlift Ready	-	Reinforcement for cable suspension	Ejection System	-	Escape pods, 100 people
Autopilot	-	Acts as level 1 pilot	HEP	-	Radiation (5), Vacuum
Cargo Bay	-	50 m³	Laboratories	1	Various
Computer	2	CRE 0, KNO 0, PP 2	Life Support	-	Limited, four people

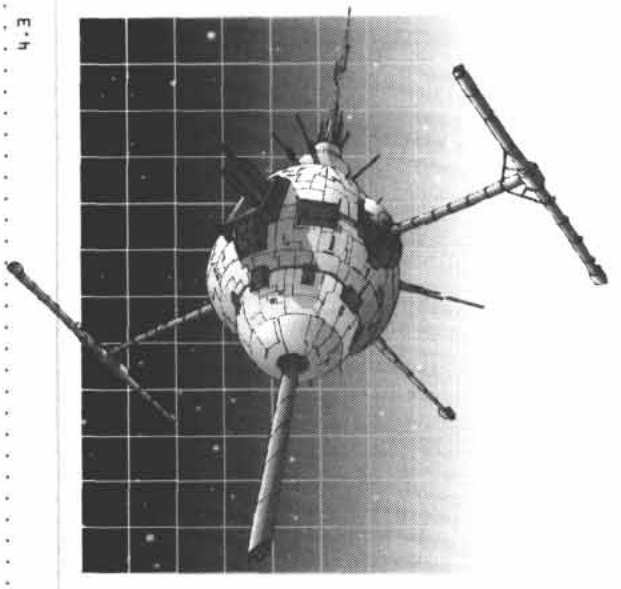
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▼ NOTES

JOVIAN CHRONICLES

▶ SKYHOOK ORBITAL FACILITY



Name:	Frank Lloyd Wright-class Skyhook Orbital Facility
Origin:	Waldsen-Nishiyama Collective Technologies (Venus and Earth)
Manufacturer:	L5 Shipyards
Type:	Non-Rotating Skyhook
Control System:	Orbital Command Bridge
Width:	250 m
Length:	35,000 km
Empty Weight:	1,800,000 tons
Loaded Weight:	2,400,000 tons
Main Power:	4x 1.2 GW
Secondary Power:	Orbital Electro-Magnetic Induction and Solar Array
Main Drive:	8 x 2500 kg
Apogee Motors:	200
Passengers Moved:	1000 per trip, 20,000 per day
Cargo Tonnage:	150 tons per trip, 3000 per day
Fixed Armament:	None
Additional Armament:	None
Defensive Systems:	Mag Screen, PDS
Equipment:	Satellite Communications Arrays, Escape Pods, Teleoptics Systems, Shuttle Boom Recovery and Launch System, Orbital Induction System

◇ OVERVIEW

Although there were many skyhooks around Earth before the Fall, most were destroyed or were converted for other uses during the Long Winter. When Waldsen-Nishiyama Collective Technologies finished reorganizing after contact with Earth was reestablished, its administrators realized that too many expenses were being generated in moving cargo up and down Earth's gravity well. The obvious fix was an orbital elevator, but the initial cost was deemed too extravagant; the final compromise was the replacement of Earth's old skyhook array.

Designed with modern technology from schematics for the old orbital tethers, the new skyhook, like its predecessors, allowed atmospheric craft to dock at the lower extremity (the Skyport). Cargo and passengers moved up the gravity well via huge elevators, either stopping at a transfer station (the TranStay) in low Earth orbit or simply flying off the end of the tether toward other destinations in the Earth subsystem. In 2196, W-NCT shopped this design around to many shipyards around Earth and finally licensed construction rights to the L5 Shipyards Corporation. The Frank Lloyd Wright Orbital Facility began accepting limited loads in 2199, and reached full operational status a year later. By 2211, there were six Wright-class skyhooks orbiting Earth.

◇ CAPABILITIES

The Wright-class facilities allow for reduced-cost orbital insertion of both people and cargo. With up to ten cars on the "Stalk" at a time, each making the 1600-km one-way trip between the TranStay and Skyport in only five hours, the Wright can move up to 20,000 people and 3000 tons of cargo in a single day. Each elevator car is 20 meters tall, 15 meters deep and 15 meters wide. Half of those on the Stalk are usually for cargo and the other half are for passengers, although the mix can be varied according to need.

During emergencies, the elevator cars have their own life support systems as well as the ability to disconnect from the cables and thrust (using emergency booster packs) up or down the elevator shaft. If a car becomes jammed or wedged into the shaft, regularly spaced escape hatches allow passengers quick egress. Under normal operation, the entire length of the skyhook can be charged, allowing it to draw power from Earth's magnetic field and adjust its orbital velocity.

◇ SERVICE RECORD

Only W-NCT cargo and personnel were permitted to use the skyhook for the first six months of its operation. This allowed the shuttle landing procedure and equipment to be completely redesigned with minimal casualties. There have been only a few cases of an elevator car stopping between stations. While most of these incidents were caused by relatively harmless pranksters or occasional flexing of the skyhook itself, some twenty percent of the elevator stoppages were the result of attempted terrorist acts or unexplained orders from CEGA or SolaPol authorities.

There has never been a structural failure of a Wright-class skyhook, a characteristic for which both W-NCT and L5 Shipyards claim credit. This success has prompted the governments of both Venus and Mars to investigate the possibility of using Wright components in their own skyhook projects.

CREW COMMENTS ◇

"Have you ever seen a skyhook from the ground? You know, from way down mudside? You ought to. It's a hell of a sight to see. No, seeing a vid isn't the same thing, and don't let anyone tell you it is. There's something about looking up and // knowing// there's this huge thing just hanging over your head that a vid can't give you.

"Describe it? Well, it looks like a flaming 30,000-km long orbital tether flying over your head. In other words, there's nothing else like it. You can even see it during the day, glowing white. When it's right overhead, you can see a wave of fire and heat in front of it, as it bulldogs through Earth's mag field. Seeing that gave me a whole new perspective on my job.

"Being a hangar butler is still pretty dull work after a while, though, new perspective or no. That new air bypass system does make bringing shuttles in and out of the Skyport easier than toasting marshmallows on Mercury, but it leaves that much less for me to get excited over. Guys like me were needed when landing and launching from a skyhook was risky business. I got to save a lot of lives, and clean up a bunch of messes. Now, pilots are getting more cautious, and this new system means I might well be out of a job soon.

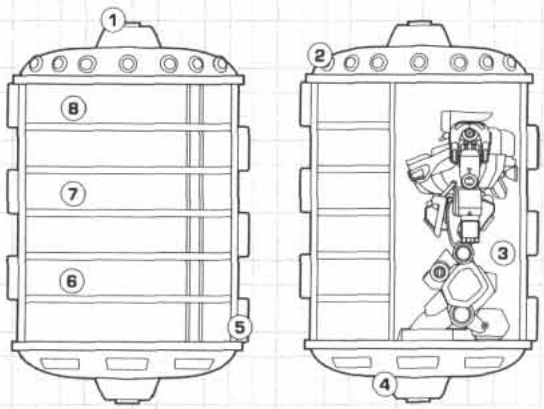
"How does it work? Hmph. No talent needed at all. The air bypass system makes sure the incoming and outgoing air are adjusted at the same time. Once the shuttle bay is completely sealed, the computers pump in some air, unload the shuttle, load it up again, suck out the air, and then let the shuttle out. It's kind of like the catapult equipment you find on fighters. The fishing pole - that's a recovery and deployment boom - sticks out, and the pilot moves the shuttle up and connects. It's easier than moving up a line in a registration office. I used to manage airspace. Now my job is to say 'welcome' a lot."

— Skyport Deck Officer Gilus O'Grady, Rundetaarn Skyhook Orbital Facility

ELEVATOR CARS SCHEMATICS ◫

▸LEGEND

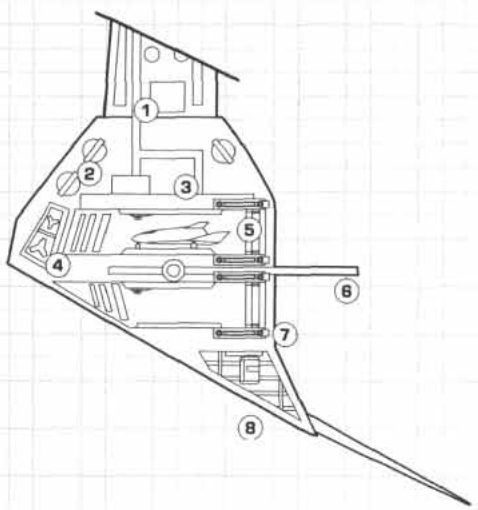
1 Elevator Mechanisms
2 Thruster Array
3 Cargo Bay
4 Support Systems
5 Airlock
6 Third-Class Passenger Cabin
7 Second-Class Passenger Cabin
8 First-Class Passenger Cabin



SKYPORT SCHEMATICS ◫

▸LEGEND

1 Access to Elevators
2 Life Support Systems
3 Common Areas
4 Processing Equipment
5 Hangar Bay
6 Control Surfaces
7 Docking Arms (retracted)
8 Communication Array



◇PHYSICS OF A SKYHOOK

A Wright-class Skyhook is not anchored to the ground, nor is it in geosynchronous orbit. Its balance point is 25,000 kilometers above Earth's surface, resulting in a structure that circles Earth every 18 hours. The resulting atmospheric interactions make for a spectacular sight for ground viewers. Just after sunset, the skyhook looks like a glowing neon string that is brighter than the moon. The visual impressiveness of the skyhook increases with the angle (relative to a position directly above the observer) at which it is viewed, until it travels within twenty degrees of the horizon. There, atmospheric hazing and distortion reduce visibility, and the skyhook becomes dark and blurry as it vanishes over the horizon.

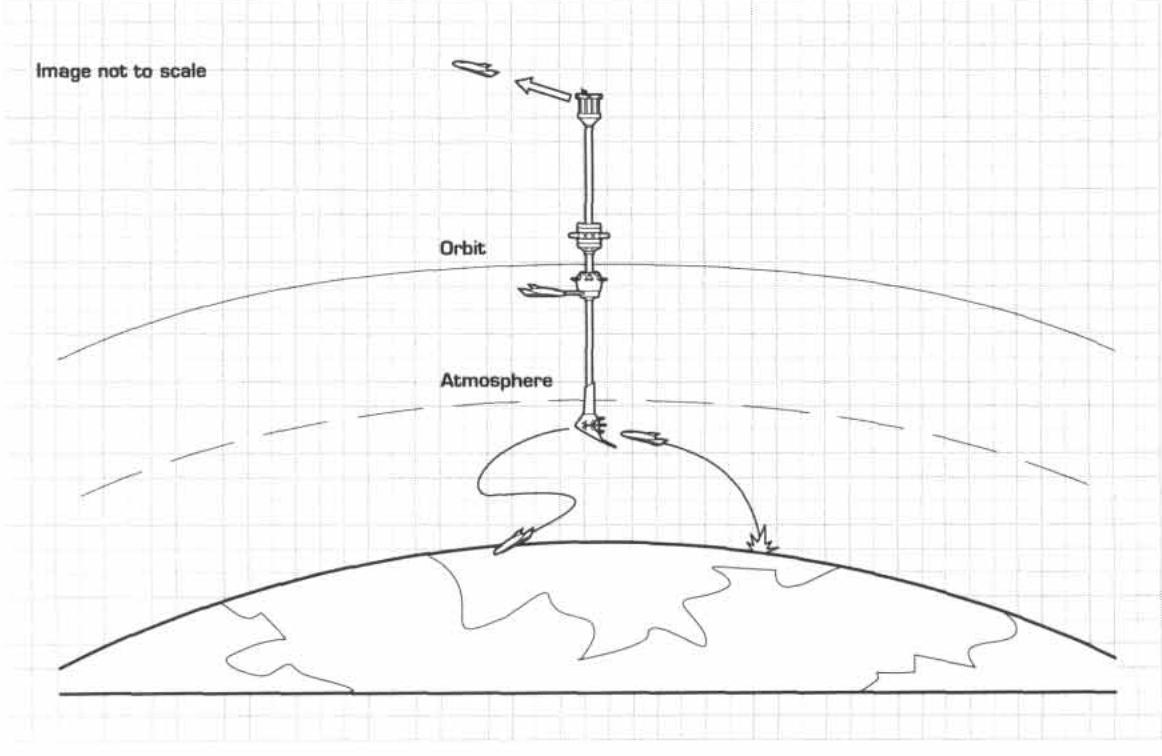
The skyhook gets part of its power from onboard reactors, but these power sources are supplemented by two additional systems. The first consists of solar cells coating the last 10,000 km of the skyhook. It was decidedly cheaper to coat the outside of the shaft than to make solar panels that would rotate and follow the sun. The other power generation system makes use of a process known as orbital induction. This process generates large amounts of current by producing a magnetic field that interacts with the Earth's own field, allowing the station to trade orbital altitude for power.

The skyhook makes adjustments to its orbit by using a combination of standard plasma engines and orbital boosting. Orbital boosting is essentially the reverse of orbital induction, and allows the skyhook to use an artificially generated electric field to gain altitude. An unfortunate side effect of using orbital boosting/induction is the large amount of electromagnetic interference these processes create; the field can distort or even block signals from low-orbit satellites and aerospace craft.

◫STRAND CORE

1	Support Strands
2	Main Elevator Shaft #1
3	Main Elevator Shaft #2
4	Emergency access tubes
5	Atmosphere Conduit
6	Power Conduit
7	Skin with Orbital Boosting/Induction Grid
8	Additional Foam Shielding
9	Skin with Solar Cell Matrix
10	Cooling Conduits

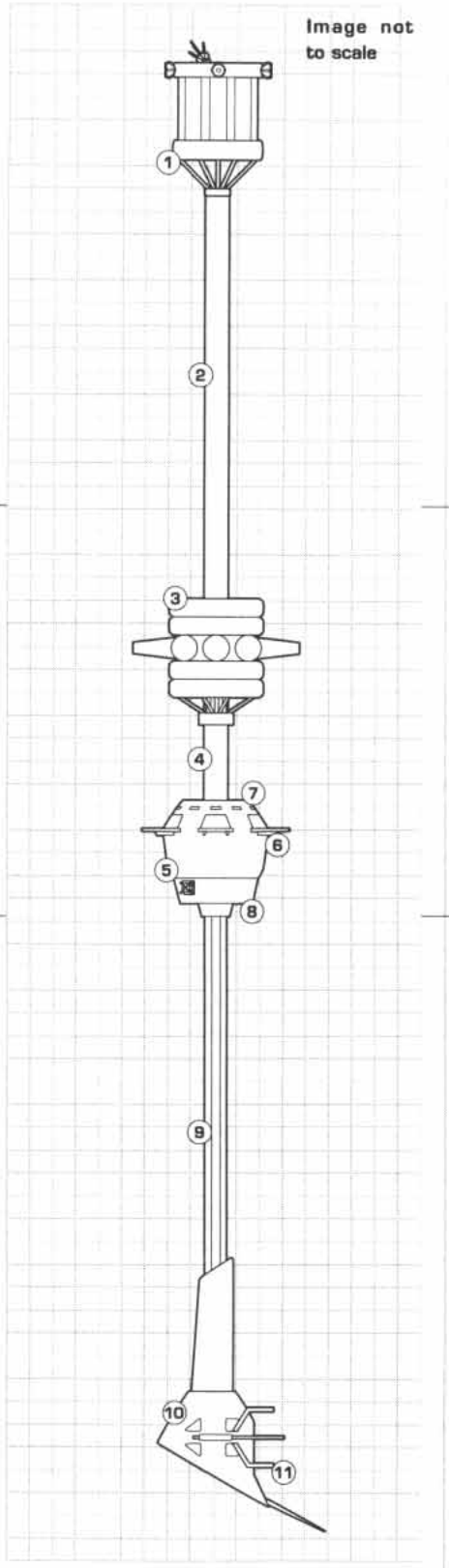
◫SKYHOOK DIAGRAM



CONSTRUCTION ◇

A Wright-class skyhook's main support element is made up of 698 precisely engineered strands. Each strand is composed of interconnected buckytubes. Under observation and advisement from the Edicts Enforcement Bureau, W-NCT uses nanomachines in large tanks of carbon fluid to weave these high-strength carbon filaments together. The filaments are pulled from this 'noodle soup' as they are finished, and then carefully integrated with millions of other fibers to create one of the skyhook's 698 strands.

Each completed strand is 35,000 kilometers long. It is carefully interwoven with its siblings and wrapped over two of the skyhook's junction points (i.e. the various structures that cap and interrupt the skyhook's length). The resulting segmented shaft is both extraordinarily resistant to damage and surprisingly flexible; the Wright's design allows up to five degrees of flex for every 100 kilometers of shaft length before it can no longer pass the elevator cars correctly. The entire shaft can flex another degree or so, without permanently damaging the skyhook, and the individual strands can flex even further.



LEGEND

1	Orport (35,000 km)
2	Elevator Shaft, Power Cluster to Orport (25,000 to 35,000 km)
3	Power Cluster (25,000 km)
4	Elevator Shaft, TranStay to Power Cluster (1,600 to 25,000 km)
5	TranStay (1,600 km)
6	Hangar Bay
7	Orbital Communications Array
8	Atmospheric Communications Array
9	Elevator Shaft, Skyport to TranStay (40 to 1,600 km)
10	Skyport (40 km)
11	Recovery and Deployment Boom
12	Skyhook Shuttle (not shown)

ATMOSPHERIC SKYHOOKS ◇

Earth, Venus and Jupiter all use skyhooks for various purposes. Jovian skyhooks are invariably gas mining structures whose Skyports are unmanned atmosphere scoops. The Jovian skyhooks are infamous throughout the Solar System for their sheer number; over 20,000 mining skyhooks dot Jupiter's upper atmosphere. Some Venusian skyhooks are similar in purpose to the Wright class, but the vast majority (some 3000 installations) is dedicated to the massive effort to terraform Venus. Despite the vast changes already made to Venus' atmosphere, observers have noted that the construction pace of terraforming skyhooks around Venus has increased, rather than lessened, over the past few years.

The Martian Federation has taken a serious look into the Wright-class skyhook, while the Martian Free Republic has talked to several Jovian skyhook manufacturers. Skyhooks in Mars orbit could be used to help maintain the vast soletta arrays that continue the Martian terraforming efforts, as well as promoting trade and tourism. However, the Martian Federation, still suspicious of the Free Republic and wary of any further projects on the scale of its ill-fated orbital elevator, seems to be delaying the spending of any resources on a skyhook. However, should a Jovian-built Free Republic skyhook prove profitable, it is highly doubtful that the Federation's collective pride will permit the renting of skyhook facilities from the Republic; the result would likely be a matching array of Federation-owned skyhooks.

▼ ORBITAL SKYHOOK

▼ OVERALL PRODUCTION DATA

THREAT VALUE:	240,000
OFFENSIVE:	1300
DEFENSIVE:	4700
MISC:	720,000
COST:	22,000,000,000 credits
PRODUCTION TYPE:	Early (effective)
INDV. LEMON DICE:	2

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	0.02 (0.002 g)	0.05 (0.005 g)	-10

REACTION MASS:	500 hrs	Fusion/electric
DEPLOYMENT RANGE:	500 BP (equivalent)	Hydrogen

▼ SECTIONS

1 x Skyport Facilities
1 x Transfer Station ("TranStay")
1 x Orport Facility
1 x Power Cluster
20 x Skyhook Cars
1 x Stalk (500 Structure Points/km; 35,000 km long)

▼ OFF. & DEF. SYSTEMS

2 x PDS (TranStay and Orport)
1 x Orbital Boosting/Induction System (Power Cluster)

▶ SKYPORT

COST:	33,000,000 credits
CREW:	20
ACTIONS:	6
HULL SIZE:	32
DEFAULT SIZE:	32
STACKING SIZE:	32
INDV. LEMON DICE:	2

ARMOR:			
LIGHT/HEAVY/OVERKILL:			16/32/48
MOVEMENT MODE	**COMBAT SPEED**	**TOP SPEED**	**MANEUVER**
Flight	83 (2500 kph)	167 (5000 kph)	-10 (Stall 77)
DEPLOYMENT RANGE:		500 hours	Fusion/electric
REACTION MASS:		0 BP	N/A
COMMUNICATIONS:	0/20 km	**FIRE CONTROL:**	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	Laboratory: First Aid	0	Fine dining
Backup Life Support	-	Life Supp. unaffected by "Aux" hit	Laboratory: Business	0	Fine dining
Cargo Bay	-	14,000 m³, skyhook car service facility	Life Support	5	Full, 1000 people
4 x Cargo Bay	-	1400 m³, skyhook car docking bays	Passenger Accommodations	-	8000 m³
4 x Cargo Bay	-	1000 m³, shuttle docking bays	Stratospheric Flight	8	Can reach stratosphere
Computer	4	CRE 0, KNO 0, PP 4	4 x Tool Arm	21	Shuttle arms, cannot punch
HEP: Extreme Cold	-	Heaters and low temp lubricants	Large Sensor Profile	5	Easier to spot
HEP: Radiation	2	Screen			
Laboratory: Cooking	1	Fine dining			

▶ TRANSTAY

COST:	120,000,000 credits
CREW:	20
ACTIONS:	6
HULL SIZE:	49
DEFAULT SIZE:	49
STACKING SIZE:	49
INDV. LEMON DICE:	2

ARMOR:			25/50/75
MOVEMENT MODE	**COMBAT SPEED**	**TOP SPEED**	**MANEUVER**
Flight	0.1 (0.01 g)	0.2 (0.02 g)	-10
DEPLOYMENT RANGE:		500 hours	Fusion/electric
REACTION MASS:		100 BP	Hydrogen
COMMUNICATIONS:	0/20 km	**SENSORS:**	0/4 km
FIRE CONTROL:	-3		

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	Computer	4	CRE 0, KNO 0, PP 4
Backup Communications	-	Absorbs first "Comm" hit	Ejection System	-	Escape pods, 5000 places
Backup Life Support	-	Life Supp. unaffected by "Aux" hit	HEP	-	Radiation (3), Vacuum
Cargo Bay	-	14,000 m³, skyhook car service	Laboratories	-	Cooking (1), First Aid (0)
4 x Cargo Bay	-	1400 m³, skyhook car docking bays	5 x Laboratories	-	5 x Business (0)
6 x Cargo Bay	-	1800 m³, large transfer bay	Large Sensor Profile	5	Easier to spot
12 x Cargo Bay	-	900 m³, small transfer bay	Life Support	5	Full, 5000 people
6 x Catapult	2	(300/mass) m/s²	Passenger Accommodations	-	40,000 m³

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS	T	x3	1	0	0	Inf	AM, HEAT	7	760	N/A

▶ ORPORT

COST:	1,900,000 credits
CREW:	0
ACTIONS:	0
HULL SIZE:	24
DEFAULT SIZE:	12
STACKING SIZE:	24
INDV. LEMON DICE:	2

ARMOR:			20/40/80
MOVEMENT MODE	**COMBAT SPEED**	**TOP SPEED**	**MANEUVER**
Flight	0.1 (0.01 g)	0.2 (0.02 g)	-10
DEPLOYMENT RANGE:		500 hours	Fusion/electric
REACTION MASS:		100 BP	Hydrogen
COMMUNICATIONS:	0/20 km	**SENSORS:**	0/4 km
FIRE CONTROL:			-3

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	HEP: Vacuum	-	Space protection
Backup Communications	-	Absorbs first "Comm" hit	Life Support	-	Limited, four people
2 x Catapult	16	(2400/mass) m/s²	Satellite Uplink	-	1000 x Comm range
Computer	4	CRE 0, KNO 0, PP 4	Large Sensor Profile	2	Easier to spot
HEP: Radiation	3	Screen			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS	T	x3	1	0	0	Inf	AM, HEAT	7	760	N/A

▶ POWER CLUSTER

COST:	23,000,000 credits
CREW:	16
ACTIONS:	6
HULL SIZE:	40
DEFAULT SIZE:	28
STACKING SIZE:	50
INDV. LEMON DICE:	2

ARMOR:			30/60/90
MOVEMENT MODE	**COMBAT SPEED**	**TOP SPEED**	**MANEUVER**
Flight	20 (2.0 g)	40 (4.0 g)	-10
DEPLOYMENT RANGE:		500 hours	Fusion/electric
REACTION MASS:		2000 BP	Hydrogen
COMMUNICATIONS:	-2/10 km	**SENSORS:**	-2/2 km
FIRE CONTROL:			-3

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Ammo/Fuel Containment	-	Absorbs first "Ammo/Fuel" hit	High Towing Capacity	-	Double towing
4x Cargo Bay	-	8000 m³, reaction mass tanks	HEP	-	Radiation (4), Vacuum
2 x Computer	-	CRE 0, KNO 0, PP 4	Life Support	-	Full, 20 people
Ejection System	-	Escape pods, 20 places	Annoyance	-	See Notes below
Emergency Power Surge	10	Temporary boost in performance	Large Sensor Profile	3	Easier to spot
Haywire Resistant	-	Reduces effects of Haywire weap.	Sensor Dependent	-	Must use Sensors

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	Orbital Boosting/Induction System	T	x40	Melee	-5	0	Inf.	AE4, Haywire, PH25, Redundent	10	1716	N/A

▶ SKYHOOK CAR

COST:	7,100,000 credits
CREW:	20
ACTIONS:	6
HULL SIZE:	20
DEFAULT SIZE:	19
STACKING SIZE:	20
INDV. LEMON DICE:	2

ARMOR:			20/40/60
MOVEMENT MODE	**COMBAT SPEED**	**TOP SPEED**	**MANEUVER**
Rail	27 (160 kph)	53 (320 kph)	-5
DEPLOYMENT RANGE:		500 hours	Fusion/electric
REACTION MASS:		500 BP	Hydrogen
COMMUNICATIONS:	-3/1 km	**SENSORS:**	-3/1 km
FIRE CONTROL:			-5

▼ PERKS AND FLAWS

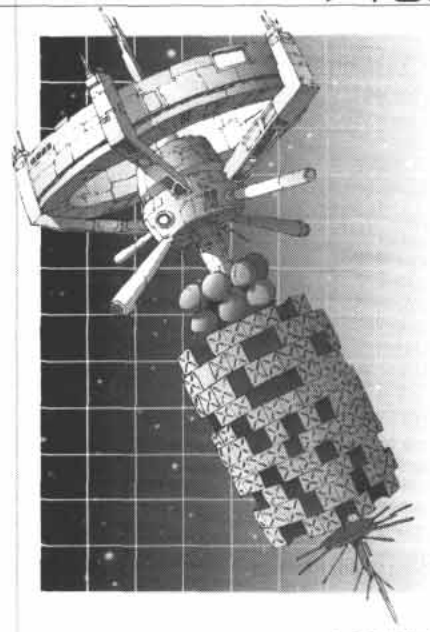
NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	Life Support	-	Full, 1000 people
Backup Life Support	-	Life Supp. unaffected by "Aux" hits	Passenger Accommodations	-	6000 m³
Computer	4	KNO 0, CRE 0, PP 4	Large Sensor Profile	1	Easier to spot
HEP	-	Radiation (4), Vacuum	Sensor Dependent	-	Must use Sensors
Laboratories	-	Cooking (0), First Aid (0)			

NOTE: Cargo version removes Labs and replace Passenger Accommodations with Cargo Bay of same volume. TV: 2100 (2,100,000 credits)

▼ NOTES

Power Cluster Annoyances: Cannot use EPS for extra actions; Command Room is very cramped (-1 for all BLD over 0)/Orbital Boosting/Induction manuevers prevent Electronics-related tasks, except for communications with other sections of the Skyhook.

▶ YGGDRASIL-CLASS SPACE STATION



Name:	Yggdrasil
Origin:	Mercurian Merchant Guild
Manufacturer:	Hermes Industrial Alliance
Type:	Supply Depot/Trading Outpost
Control Systems:	Central Administrative Hub
Diameter:	600 m
Height:	150 m
Empty Weight:	6550 tons
Loaded Weight:	Varies
Main Powerplant:	4 x 0.5 GW
Secondary Powerplant:	4 x 100 MW
Main Thrusters:	12 x 45,000 kg
Apogee Motors:	150+
Acceleration:	0.001 g
Onboard Sensors:	Infrared/Ultraviolet, Magnetometer, Microwave, Motion Detectors, Radcounter, Search Radar, Wide-Band Radar, Telescope
Fixed Armament:	None
Additional Armament:	Auxiliary Craft
Defensive Systems:	ECCM, Mag Screen, PDS
Equipment:	Comm Array, Escape Pod, Cargo Handling Manipulators

◇ OVERVIEW

The terms supply depot and trading outpost describe specific varieties of a broader class of 23rd-century space station that is designed primarily to store goods. They are, in essence, space-borne warehouses. Supply depots are generally owned or leased by a single commercial or political entity for its exclusive use. Trading outposts, however, are generally owned by one entity that rents out space to other, smaller entities.

These space-borne warehouses generally take one of two forms: in the Belt, these stations are typically built into small asteroids, like many installations in the Belt. In the rest of the Solar System, warehouse stations are large, freestanding structures that mostly orbit planets and stable Lagrange points. A few supply depots orbit the Sun directly, however, and some even employ massive solar sails for the maintenance of non-Keplerian orbits.

The Yggdrasil-class space station is arguably the most common commercial space warehouse in the Solar System. Most Yggdrasils are owned and operated by members of the Mercurian Merchant Guild, although private, non-Guild corporations and settlement governments own a few.

◇ CAPABILITIES

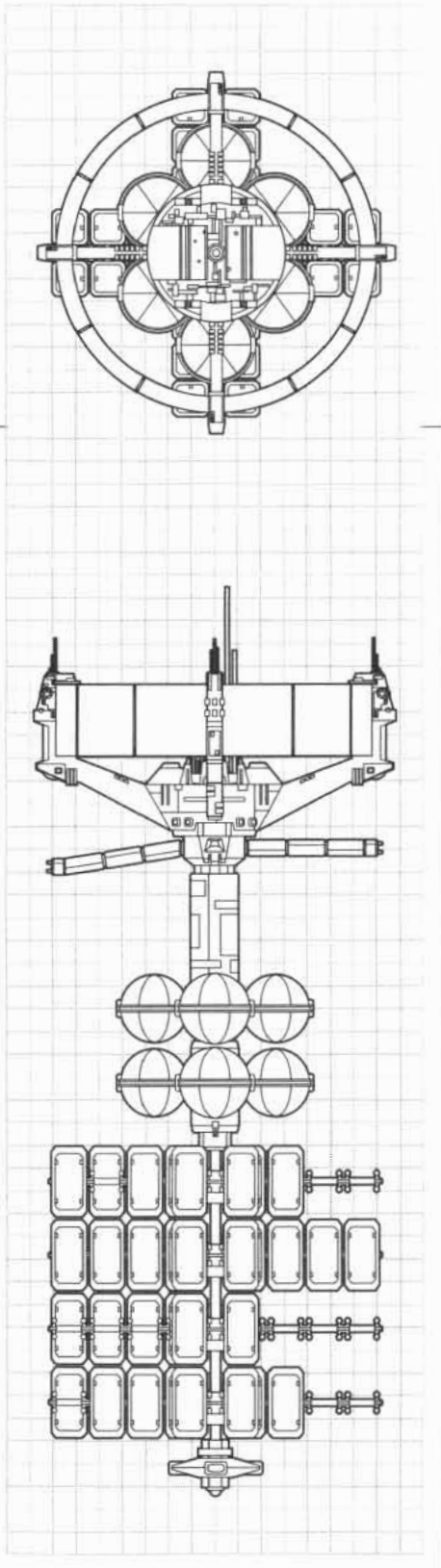
The Yggdrasil space stations are built along the same general design as the Valhalla, Gladsheim and other mid-sized space stations. A wheel-shaped habitat section spins slowly around a central hub, providing artificial gravity for its occupants. The habitat ring of the Yggdrasil is smaller than that of its kin, however, because the station is not designed for permanent residency. The modular sections of the ring include secure storage facilities, short-term housing for dockworkers and administrative staff, medical facilities, and business offices. The latter facilities are themselves highly modular and provide on-site management solutions for the many businesses that rent space from the station owner. Of course, entertainment microdistricts inevitably find their way aboard the stations; these facilities range from gaming halls and pubs on up to somewhat shadier establishments.

The main hub of the Yggdrasil station includes zero-gee secure storage as well as hangars for the station's support craft and docking facilities for visiting ships. It also provides access to the station's general storage facilities. The central pressurized shaft of the hub terminates at a large superstructure to which are mounted numerous liquid and gas storage tanks. Beyond the tanks is the structure that gives the station its name: a network of dozens of narrow, interlocking shafts stretches into space, a vast array of branches to which thousands of standard cargo modules are attached, awaiting transport to their final destinations. In some cases, the network extends for more than ten kilometers and consists of hundreds of individual branches. The storage branches are analogous to the cargo spines of the Seraph and Ophan barges and the cargo trees of the Ebiiru transports; the Yggdrasil's storage branches, however, have their own independent point defense systems, since they can extend so far away from the main station and its protection.

SERVICE RECORD ◇

Orbital storage facilities have existed since the human race first started seriously exploiting the resources of space. Their numbers reached a local peak during the construction of the Venusian colonies, during which time raw materials and pre-fabricated modules were kept bundled together in orbit around the planet. The formation of the Mercurian Merchant Guild saw a sharp increase in the number of such facilities throughout the entire inhabited Solar System.

The first Yggdrasil was constructed in orbit around the Earth's Moon in 2169, replacing an older Schwarzwald-class station that was becoming a liability to the Lunar colonies below. In modern times, there are a half-dozen Yggdrasil stations in orbit around each of Venus, Earth, the Earth's Moon, and Mars. A few Yggdrasils exist at Earth's L4 and L5 points, and there are even one or two as far out as Vanguard Mountain, Newhome and Olympus.



CREW COMMENTS ◇

"Man! You'd think being chief of security aboard what amounts to a glorified warehouse in space would be a cakewalk, wouldn't you? I mean, it's not like these Yggs are residential stations or colony cylinders, for crying out loud. Compared to, say, a civvie Valhalla, these things are practically deserted. Well, that right there is the problem: Somewhere, deep in the sulfurous bowels of the Guild Bureaucratic Monster, there's a bean-counter who decided to assign security staff to Yggdrasils based on their population. Never mind that these bloody stations house goods and not people. Makes my job a friggin' nightmare.

"First up, let's take a look at the briar patch — that's what we call that tangled snarl of a structure that the rest of the station calls a tree. Once you've had to patrol that mess, you begin to understand why most of the personal lockers in the security wing of nearly every Ygg look like they're been punched — repeatedly — by their owners. The patch makes up the bulk of a Ygg's general store. It's totally exposed to space — and to pirates, vandals, looters, taggers, punks and my personal favorite, drugged-up thrill seekers taking their crappy, jury-rigged space buggies into the grid for yucks. It's bad enough when there's nothing but the grid's branches, but when you add a few thousand twenties — that's what the dockers call those standard 20 by 10 by 10 cargo modules — well, I'd almost rather be fighting in the jungles of Earth right around the beginning of the Fall. My biggest fear is that my suit's IFF transponder's gonna croak and one of the point defense systems'll take me out. It'd be just like the control grid to do that, too, to ignore every two-bit bandit that sneaks on in but to nail the security detail right between the shoulder blades.

"Inside the Ygg ain't much better — we have nice, secure storage vaults, but staffing those means fewer of my crew can patrol the briar patch or the corridors. Yeah, we have to patrol inside, too. You'd think we wouldn't have to, since they're mostly small, rented-out business offices. Trouble is, we've got the nightclubs. I don't know who agreed to that, but they've got a punch in the nose coming to them, I can tell you that much. At first, the clubs were just small drinking establishments and gaming lounges — let the salarymen knock back a bottle of sake or what have you, give the dockers a place to relax between shifts. Then they started getting bigger, and suddenly we have this burgeoning entertainment industry right here in our calm, quiet warehouse! We've got full-blown nightclubs now in some Yggs, with dancing, drinking and a host of vices. There's even a half-dozen strip joints in one Ygg, and get this: right here in Willow Station, we've got an honest-to-god brothel.

"How the hell am I supposed to do my bloody job when we've got a brothel in the station?"

— Security Chief Jayce Bayer, Willow Station, Earth's L4 Point

▼ YGGDRASIL-CLASS SPACE STATION

▼ OVERALL PRODUCTION DATA

THREAT VALUE:	118,500+
OFFENSIVE:	4800+
DEFENSIVE:	2020+
MISC:	410,000+
COST:	79,000,000+ credits
PRODUCTION TYPE:	Early (Effective)
INDV. LEMON DICE:	2

▼ SECTIONS

1 x Main Hub
12 x Habitat Section
Various Storage Branches
Various Liquid/Gas Storage Tanks
Various Cargo Containers

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space:	0.01 (0.001 g)	0.02 (0.002 g)	-8

REACTION MASS:	10 BP (equivalent)	Light Gases
DEPLOYMENT RANGE:	5000 hrs	Electric

▼ OFFE. & DEF. SYSTEMS

1 x Point Defense System (main hub)
Various Point Defense Systems (storage branches)

▶ MAIN HUB

COST:	21,000,000 credits
CREW:	30
ACTIONS:	6
HULL SIZE:	35
DEFAULT SIZE:	28
STACKING SIZE:	35
INDV. LEMON DICE:	2

ARMOR:			50/100/150
Movement Mode	Combat Speed	Top Speed	Maneuver
Space:	5 (0.5 g)	10 (1 g)	-8
Deployment Range:		5000 hrs	Fusion/electric
Reaction Mass:		5000 BP	Light gases
Sensors:	0/10 km	Comm.:	+1/50 km
Fire Control:			-2

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Autopilot	-	Acts as level 1 pilot	HEP: Vacuum	-	Space protection
Backup Systems	-	Comm, Fire Con, Life Supp., Sens.	Life Support	-	Full, 100 people
Cargo Bay	-	10,000 m^3, support craft hangar	Passenger Accommodations	-	5000 m^3
Computer	3	CRE 0, KNO 0, PP6	Reinforced Crew Compartment	2	Absorbs first "Crew" hit
ECCM	5	Defensive electronics	Satellite Uplink	-	1000 x Communication Range
Ejection System	-	Escape pods, 100 places	3 x Tool Arm	10	Docking arms, cannot punch
HEP: Radiation	4	Screen	Exposed Auxiliary Systems	-	"AUX" hits one step higher

▼ WEAPONS

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	Communications Laser	Turret	x5	10	0	0	Inf.	AD1, HEAT	10	5100	N/A
1	PDS (ranged)	Turret	x8	1	0	0	Inf.	AM, HEAT	8	2900	N/A
	(shield)	Turret	x16	M	0	0	Inf.	Def, E-Shield, HEAT	3	48	N/A

▶ OPERATIONS FACILITY

Cost:	4,850,000 credits
Crew:	4
Actions:	4
Hull Size:	25
Default Size:	21
Stacking Size:	25
Indv. Lemon Dice:	3

Armor:	
Light/Heavy/Overkill:	25/50/75
Movement Data:	Towed by Drive Section
Deployment Range:	1500 hrs
Sensors:	-3/1 km
Communications:	-3/5 km
Fire Control:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Supp. not affected by "Aux." hits	Laboratory: Varies	0	Entertainment industry
Cargo Bay	-	7500 m^3, secure storage	Life Support	-	Full, 100 people
Ejection System	-	Escape pods, 100 places	Passenger Accommodations	-	5000 m^3
HEP: Radiation	4	Screen	Reinforced Crew Compartment	2	Absorbs first "Crew" hit
HEP: Vacuum	-	Space protection	Sick Bay	8	Eight surgical theaters
Laboratory: Cooking	0	Galley			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ STORAGE BRANCH

Cost:	2,100,000 credits
Crew:	2
Actions:	3
HULL SIZE:	20
DEFAULT SIZE:	13
STACKING SIZE:	20
Indv. Lemon dice:	3

ARMOR:	
LIGHT/HEAVY/OVERKILL:	20/40/60
MOVEMENT DATA:	Towed by Drive Section
DEPLOYMENT RANGE:	1000 hrs
SENSORS:	-1/1 km
COMM.:	-3/5 km
FIRE CONTROL:	-2

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Cargo Bay	-	1000 m^3, EVA Bay	Life Support	-	Full, four people
Ejection System	-	Escape pods, four places	8 x Tool Arm	20	Cargo handling arms, can't punch
HEP: Radiation	4	Screen			
HEP: Vacuum	-	Space protection			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS (ranged)	Turret	x3	1	0	0	Inf.	AM, HEAT	7	760	N/A
	(shield)	Turret	x10	M	0	0	Inf.	Def, E-Shield, HEAT	3	19	N/A

▶ LIQUID/GAS STORAGE TANK

COST:	1,200,000 credits
CREW:	0
ACTIONS:	0
HULL SIZE:	26
DEFAULT SIZE:	13
STACKING SIZE:	26
INDV. LEMON DICE:	3

ARMOR:	
LIGHT/HEAVY/OVERKILL:	50/100/150
Movement Data:	Towed by Drive Section
Deployment Range:	1000 hrs
Sensors:	N/A
Communications:	N/A
Fire Control:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Cargo Bay	-	500,000 m^3			
HEP: Vacuum	-	Space protection			
No Communications	-	Cannot communicate			
No Sensors	-	Cannot perform active scans			

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ CARGO CONTAINER

COST:	130,000 credits
CREW:	0
ACTIONS:	0
HULL SIZE:	6
DEFAULT SIZE:	6
STACKING DICE:	6
INDV. LEMON DICE:	3

ARMOR:	
LIGHT/HEAVY/OVERKILL:	10/20/30
MOVEMENT DATA:	Towed by Drive Section
DEPLOYMENT RANGE:	1000 hrs
SENSORS:	N/A
COMM.:	N/A
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Cargo Bay	-	2000 m^3, 20 x 10 x 10 meters	No Communications	-	Cannot communicate
HEP: Extreme Heat	-	Extra radiators	No Sensors	-	Cannot perform active scans
HEP: Radiation	4	Screen			
HEP: Vacuum	-	Space protection			

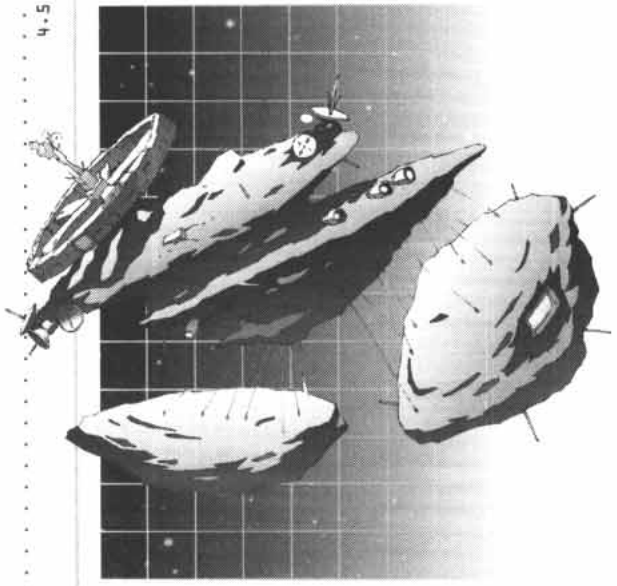
▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▼ NOTES

JOVIAN CHRONICLES

▶NOMAD COLONY



Name:	Seldridge Station
Origin:	Nomad
Manufacturer:	Seldridge Clan
Type:	Mobile Colony Asteroid
Control System:	Command Center
Diameter:	500 m
Length:	980 m
Empty Weight:	21,000 tons plus 200,000,000-ton Seldridge Rock asteroid
Loaded Weight:	250,000,000 tons
Main Powerplant:	30 MW
Secondary Powerplant:	5000 kW
Main Drive:	3 x 20,000,000 kg
Apogee Motors:	600
Acceleration:	0.0003 g while attached to Seldridge Rock
Onboard Sensors:	Fire Control Radar, Infrared/Ultraviolet, Lidar, Magnetometer, Radcounter, Telescope
Fixed Armament:	None
Additional Armament:	None
Defense Systems:	Mag Screen, PDS
Equipment:	Docking Arms, Satellite Uplink, Escape Pods, Solar Collectors, Mining Gear, Refining Equipment

◇OVERVIEW

Nomad colonies combine spartan functionality with the artistic sense of a packrat. Each colony seems almost cobbled together from whatever raw materials could be gathered in the area, whatever materials and components were cheap to ship in, and whatever components seemed critical at the time. Colonies start out using an asteroid as the foundation for construction. The asteroid also provides some collateral to trade for those items that cannot be mined out of the base rock. Structures are added on as needed. The primary source of income for Nomad colonies is mining. Mined materials are used in the upkeep and construction of the colony. Cash minerals are usually shipped and sold to one of the larger mass-driver equipped facilities within the Belt. Most base asteroids are rocky, and the clans usually mine metallic asteroids. In rare cases, however, colonies are built into comets.

◇CAPABILITIES

There tend to be few design similarities between colonies, but most share some common components. An operations center, a gravity wheel and a mining/smelting facility are standard. The smelting facility may not be as efficient as those found on dedicated mining ships, but it is capable enough of refining mined ore into a more usable form. Thrusters are sometimes added to allow a colony to be moved. Moving an entire colony is an option only for the smaller stations; those built into large asteroids are more permanent settlements. Changing an asteroid colony's orbit is no small feat. Not only are there fuel and maneuvering concerns but the engineers have to consider also the stress put on the superstructure of the colony by the thrusters. For these reasons, mobile colony asteroids only change orbit when the mining asteroid is "spent."

Most colonies in the Asteroid Belt serve as habitats and homesteads for Belt miners. However, there are some clans that have found it profitable to provide more specialized services. Trading post colonies, commonly called zocalos, are examples of such stations. These colonies place a greater emphasis on inter-clan relationships than the standard mining homesteads do. Zocalo colonies have many more docking spars than normal to handle greater ship traffic, and their meeting and entertainment facilities are above average. Zocalos take great pride in their services and derive as much revenue from them as other colonies do from mining. Salvage ships often frequent the zocalos, offering everything from the towing of a damaged ship to the buying and selling of salvage found inside the Belt.

Other colonies operate as relay stations for communications within the Belt. While Nomads tend to shy away from outside contact, they do like to know what is going on within their region.

◇SERVICE RECORD

Seldridge Station is a typical Nomad colony. It is home to some 70 members of the Seldrige clan, many of whom have been "adopted" from the outside world. Seldridge Station is anchored to a 500-meter diameter rocky asteroid called Seldridge Rock, and has been a part of the extended Nomad family for over 75 years. The clan is currently in the process of extracting ore from a small iron-rich asteroid affectionately called "Sparky."

SMALL WORLDS ▼

The following text describes the notable structures in the diagram at the bottom of the page.

1) Gravity Wheel: This provides simulated gravity for the inhabitants' continued health. The living quarters are located here, as are the command and control facilities.

2) Docking Spars: These long slips provide easy docking for space vessels.

3) Hydroponics: All food is grown in caverns or domes located near the gravity wheel.

4) Asteroid Anchors: These are thick metal structures that hold a captured asteroid close to the colony for easy mining.

5) Mining Lift: This is an elevator used to transfer personnel, equipment and supplies to a newly captured asteroid. Mined raw material is brought back by tram.

6) Materials Storage: The refined material is held in storage outside until used or sold by the colony.

7) Hazardous Materials Storage: Explosive or other such hazardous materials are stored in smaller areas. These are located closer to the surface, behind blast doors that vent explosions into space rather than back into the colony. A disaster in one store area should not affect the others.

8) Smelter: Many colonies build a solar-powered furnace to smelt mined rock. The reflector is often much larger than the colony itself and floats in space nearby.

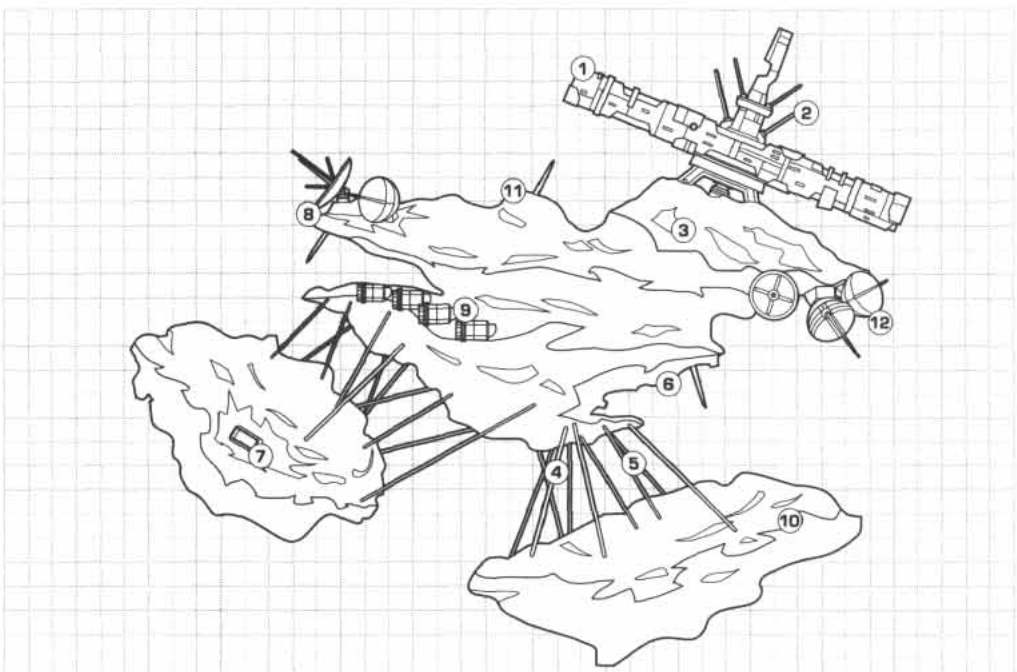
9) Maneuver Thrusters: These give some mobility to the colony, a typically Nomad trait. They are often covered by layers of protective rock, with only the exhaust protruding.

10) Mining Slag: The waste material from the refining process is stored on the surface so as not to clutter the interior. It is often used as patching material for the asteroid, radiation shielding or simply as reaction mass.

11) The Heap: The Heap is where broken down equipment is taken apart and recycled.

12) Communications Antenna: The comm array provides multi-band communication with ships and other colonies.

COLONY DIAGRAM



ASTEROID CLASSIFICATION

Asteroids are classified according to their mineral content. C-Type asteroids (Carbonaceous) are composed mainly of organic matter, water-soluble salts and clay minerals. S-Type asteroids (Stony) provide much of the building material used for construction and are composed of silicates of iron and other metals. Sometimes, a colony will come across a comet, which is composed mostly of ice.

◇ COLONIAL LIVING

Whether they are related or not, all families living within a Nomad colony consider themselves to be part of a larger family, their individual identities melting into the collective that is the colony clan. An individual colonist's safety and well being greatly depends on the other Nomads that he lives with, so internal conflicts are few, and those that endanger the colony and the lives within are dealt with very quickly.

There is always work to be done, either mining asteroids or repairing the machinery running the colony, and there is little time to waste on needless disputes. However living in close quarters for a long period of time does result in interpersonal tensions and the occasional fight. The leadership council appoints persons to act in the capacity of a Sheriff to keep the peace between clan members and settle such incidents.

Nomad colonies generally get along well with each other. In the middle of an asteroid cluster, your neighbours are your first line of support outside of the home colony. Calls for assistance are answered as quickly as possible, with the realization that how you respond to others is how they will respond to you. Nomads who ignore an emergency call for help are ostracized by other members of the Nomad culture.

Of course problems do arise between colonies, mainly dealing with territorial differences, such as movement of the asteroids within the Belt creating problems of ownership. The procedure to claim an asteroid is to 'Tag' it with a marker beacon and if need be to tow it to the claimant colony.

Often times with rich finds, colonies may lay claim to the same asteroid. While violence resulting from such disputes is not unheard of, generally conflicts are resolved peacefully. Life in the Asteroid Belt is precarious enough with a clan's own people trying to survive, that to enter into violence with another clan is a waste of extremely valuable time and resources. There is a body set up to handle these disputes with as little bloodshed as possible, but it can take several weeks before a representative can reach one of the two parties, let alone talk to both.

Assistance from outside the colony is generally days or weeks away, and as a result Nomads have to be as self reliant as possible. If something goes wrong the colony must have some way to correct the problem. Nomads are renowned for their ability to jury-rig equipment using whatever happens to be on hand, a skill well practiced in their homes. Almost everything is recycled and little is considered refuse.

◇ CREW COMMENTS

"For the most part things are quiet out here. There's enough stuff to do on the station that keeps people's minds occupied, and that suits me just fine. Really, we're out here just to carve out a living away from all the political garbage that the Inner Planets love to play with. Some folks here are on the run from something or other and just want to start over again. It doesn't matter why they're out here so long as they work and don't hurt anybody. We work hard to make sure that our families are provided for, and it's not often easy. What we can't mine or scavenge for ourselves we have to trade for. 'An honest day's work' is our motto on Seldridge, and everybody works - not just in one job, either. Everybody is expected to take on multiple duties. Take me for example. I'm the station's Chief Constable, but I also take the occasional shift in the mines and am the Gold Shift safety inspector. One of my deputies is also one of our doctors.

"Now don't get the idea that life on a Nomad station is boring. You try living with the same 70 people for a decade and see how dull your day is. I have to be one part lawyer, one part law enforcer and two parts shrink. Not only do I have to enforce the rules but I have to make sure that everyone gets along. If one situation blows out of control everyone in the clan is put in danger. There's only one of me, and there are my two assistants. We have to take care of 70 or so other people, and we can't be everywhere at once. We've had some nasty fights break out over the years, and they're not pretty. Fortunately, fights like those are as rare as they are ugly. We all have to work together out here, and there's no room for selfishness or hot-doggers.

"Yeah I guess we're pretty serious. I remember seeing one vid comedy from Mercury about a Nomad dance, and it was just a bunch of dour-looking people standing still and doing nothing. Those guys thought it was funny but you have to understand where this comes from. We make sure that everything is measured and rationed out. One error and we might run out of water. We don't waste a thing, and that includes our own body movement. Excessive body movement requires additional resources - oxygen and water - that could be better utilized elsewhere. That's why ships love to hire us on. We do the job in the most efficient manner possible and we do the job better than anyone else. Nobody understands the risks of living in space better than a Belt Nomad. So we may seem dull, but better dull than dead, I always say."

— Mortimer Decatli-Seldridge, Constable, Seldridge Station

"I've done some pretty bad things in the past and I know that there are a few authorities who would love to throw me in the clink if they found me. But I know that I'd just die in prison, so I fled out here the first chance I got. The others in the colony don't know why I'm out here and that's fine by me. I work hard for my new family and I'm going to live right this time. I screwed up my first life in a moment of anger, but my new life here will be better. And out here I might be able to put to rest the voices that haunt me."

— 'Charlene,' Geologist, Seldridge Station

▼ SELDRIDGE STATION COLONY
▼ OVERALL PRODUCTION DATA

THREAT VALUE:	120,000
OFFENSIVE:	660
DEFENSIVE:	3100
MISC:	360,000
COST:	24,000,000 credits
PRODUCTION TYPE:	Scratch-Built
INDV. LEMON DICE:	10

▼ MOVEMENT DATA

MOVEMENT MODE	COMBAT SPEED	TOP SPEED	MANEUVER
Space	0.002 (0.0002g)	0.003 (0.0003g)	-10

REACTION MASS:	5000 hrs	Fusion/electric
DEPLOYMENT RANGE:	4 BP (equivalent)	Light gases

▼ SECTIONS

1 x Operations Facility
1 x Gravity Wheel
1 x Mining Facility
3 x Drive Section
1 x Seldridge Rock (no stats, 200,000,000-ton rocky asteroid)
1 x Mining Asteroid (no stats, 20,000,000-ton iron-rich asteroid)

▼ OFFE. & DEF. SYSTEMS

1 x Point Defense System (operations facility)

▶ GRAVITY WHEEL

COST:	10,000,000 credits
CREW:	8
ACTIONS:	5
HULL SIZE:	19
DEFAULT SIZE:	19
STACKING SIZE:	19
INDV. LEMON DICE:	10

ARMOR:	
LIGHT/HEAVY/OVERKILL:	40/80/120
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	5000 hrs
SENSORS:	-5/1 km
COMM.:	-3/5 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support:	-	(12)	Large Sensor Profile	1	Easier to spot
Ejection system:	-	Escape Pods (8)			
HEP: Radiation	4	Screen			
HEP: Vacuum	-	Space protection			
Laboratory: Cooking	0	Galley			
Life Support:	-	Full, 100 people			
Passenger Accomodations:		10,000 m³			
Sick Bay	2	Two surgical theaters			
Difficult to Modify: Structure	-	-1 to repair and modify			

▼ WEAPONS

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ OPERATIONS FACILITY

COST:	1,600,000 credits
CREW:	5
ACTIONS:	4
HULL SIZE:	20
DEFAULT SIZE:	20
STACKING DICE:	20
INDV. LEMON DICE:	10

ARMOR:	
LIGHT/HEAVY/OVERKILL:	60/120/180
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	5,000 hrs
SENSORS:	0/5 km
COMM.:	0/40 km
FIRE CONTROL:	-2

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Systems	-	Comms, FireCon, Life Supp., Sens.	HEP: Radiation	4	Screen
Cargo Bay	-	30,000 m³	HEP: Vacuum	-	Space protection
Computer	3	CRE 0, KNO 0, PP 3	Satellite Uplink	-	1000 x Comm range
Ejection System	-	Escape pods, 30 places	2 x Tool Arms	7	Docking arms, cannot punch
Laboratory: Earth Sciences	1	Geoscience lab	Difficult to Modify: Structure	1	-1 to repair and modify
Life Support	-	Full, 30 people	Large Sensor Profile	4	Easier to spot

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
1	PDS	T	x7	1	-1	2	Inf.	AM, HEAT	6	1100	N/A

▶ MINING FACILITY

Cost:	850,000 credits
Crew:	10
Actions:	5
HULL SIZE:	16
DEFAULT SIZE:	16
STACKING SIZE:	16
Indv. Lemon dice:	10

ARMOR:	
LIGHT/HEAVY/OVERKILL:	60/120/180
MOVEMENT DATA:	Towed by Drive Sections
DEPLOYMENT RANGE:	5000 hrs
SENSORS:	-5/1 km
COMM.:	-3/5 km
FIRE CONTROL:	-5

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Backup Life Support	-	Life Supp. unaffected by "Aux" hits	Life Support	-	Full
HEP: Radiation	5	Screen	Mining Equipment	-	Heavy duty, non-combat
HEP: Vacuum	-	Space protection	Difficult to Modify: Structure	1	-1 to repair and modify
Laboratory: Earth Sciences	0	Geochemical Analysis lab	Large Sensor Profile	1	Easier to detect

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ 3 X DRIVE SECTION

COST:	6,700,000 credits
CREW:	3
ACTIONS:	3
HULL SIZE:	64
DEFAULT SIZE:	32
STACKING SIZE:	64
INDV. LEMON DICE:	10

ARMOR:			
LIGHT/HEAVY/OVERKILL:			50/100/150
MOVEMENT MODE	**COMBAT SPEED**	**TOP SPEED**	**MANEUVER**
Flight	14 (1.4 g)	28 (2.8 g)	-10
DEPLOYMENT RANGE:		5000 hrs	Fusion/electric
REACTION MASS:		30,000 BP	Light gases
COMMUNICATIONS:	-3/5 km	**SENSORS:**	-5/1 km

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
Ammo/Fuel Containment	-	Absorbs first "Ammo/Fuel" hit	Life Support	-	Full, four people
Backup Life Support	-	Life Supp. unaffected by "Aux" hits	Rugged Movement Systems	-	Absorbs first "Movement" hit
Ejection System	-	Escape pods, four places	Difficult to Modify: Movement	-	-1 to repair and modify

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
-	-	-	-	-	-	-	-	-	-	-	-

▶ EMPTY

COST:	-
CREW:	-
ACTIONS:	-
HULL SIZE:	-
DEFAULT SIZE:	-
STACKING DICE:	-
INDV. LEMON DICE:	-

ARMOR:	
LIGHT/HEAVY/OVERKILL:	-
MOVEMENT DATA:	-
DEPLOYMENT RANGE:	-
SENSORS:	-
COMM.:	-
FIRE CONTROL:	-

▼ PERKS AND FLAWS

NAME	RATING	GAME EFFECT	NAME	RATING	GAME EFFECT
-					

▼ OFFENSIVE & DEFENSIVE SYSTEM DATA

Qty	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC

▼ NOTES

JOVIAN CHRONICLES