ENTROPY

STARSHIP REPAIR MANUAL

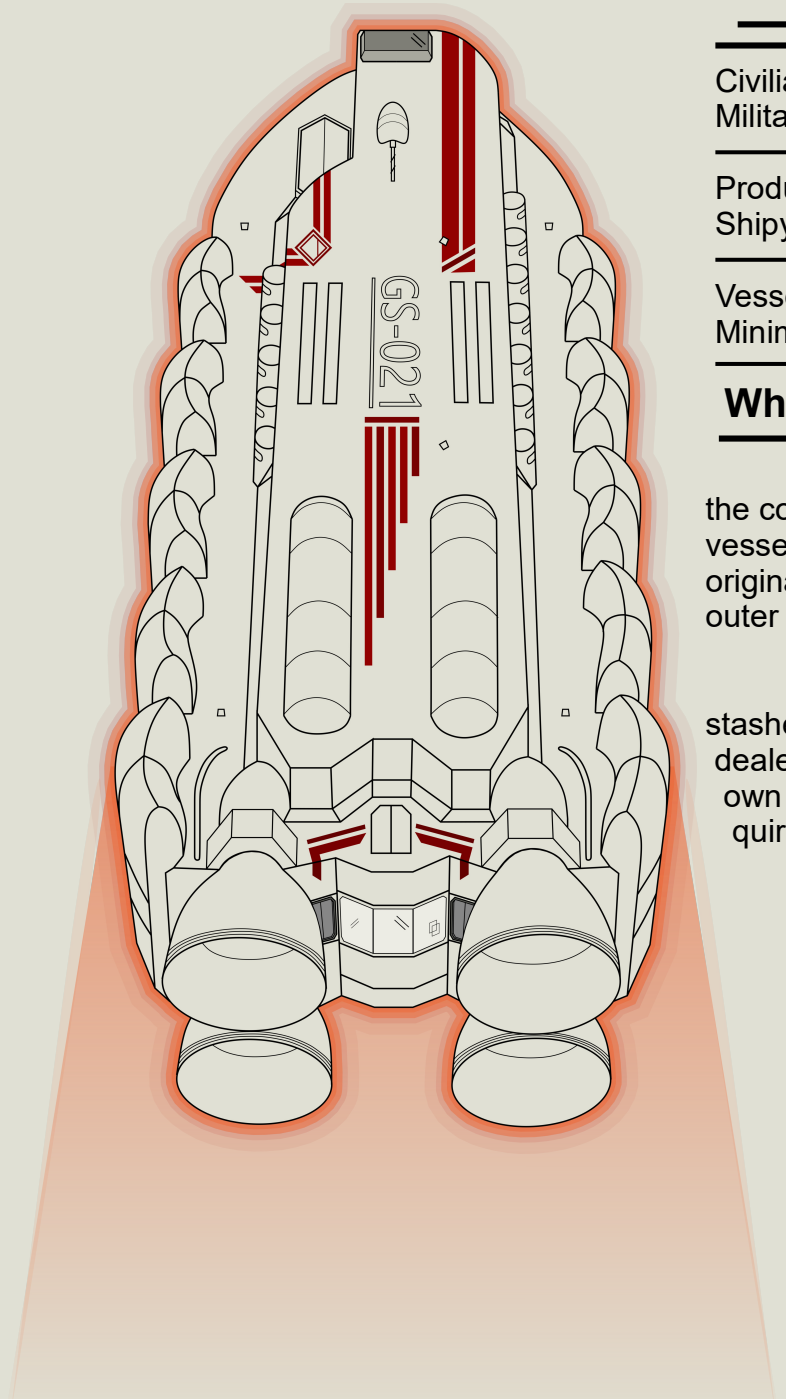
FRIGATE - GYPSY

INTRODUCTION

The Gypsy class starship was first designed and built well over a thousand years ago along the rim of Solomani space. Although far outclassed by other vessels of its era technologically, the Gypsy class did maintain an advantage through its ease of manufacture. Being assembled almost entirely from pre-stellar components, this vessel can be built in just about any rundown shipyard or drydock. It would not be uncommon to see a few of the non-critical components being made from sheet metal or even wood.

The lower technological quality of these vessels has lead to a prejudicial view of them as old junkers. There is not much defense to be had against the accusation of a vessel's age. But under proper leadership, a Gypsy class can punch far above its weight.

By reading this manual, you will gain an understanding of the technical limitations and specifications of the Gypsy class, as well as the methods for proper operation and maintenance of your starship. A vessel schematic has been included in this manual to assist you.



Vessel Registration

Civilian Registration ---------- **Armed Freighter**
Military Registration ---------- **Frigate**

Production Tech Level ---------- **TI-10**
Shipyard Requirements -------- **5,000 Tons, Jump Capable**

Vessel Maximum Occupancy ---------- **24 Crewmen**
Minimum Crew Requirement ---------- **3 Crewmen**

Where can I Obtain a Gypsy Class Starship?

Although it is still completely feasible to commission the construction of a brand new starship, most Gypsy class vessels are well over a hundred years old, and some of the original production run are probably still in service along the outer reaches of civilized space.

As such you can often find an old Gypsy class stashed away at some of the larger pre-owned starship dealers. Mind you, pre-owned starships tend to have their own little quirks, or as we like to call it "character". These quirks can be determined using the following roll table.

Roll once for every 15 years of vessel age up to 8 rolls. (2D6)

2	Infested with Vermin	DM+1 to Repair Time
3	Busted Fuel Tank **	-10% Fuel Capacity
4	Damaged Radio	DM-1 to Electronics(Comms) Checks
5	Contains Old Cargo	Referee's Choice, Option Table on Page – 8
6	Busted Rear Thruster **	-1 to Maximum Thrust
7	Hull Corrosion **	-5% to Current Hull Points
8	Damaged Heat Shield	Atmospheric Re-entry Deals 1D6 Damage
9	Comes with Pet	Referee's choice, Can be no larger than a dog.
10	Damaged Grav Plating	Non-Functional Grav Plating on Deck-3
11	Startup Music	A national anthem of the Referee's choice plays over the ship's intercom upon computer startup for 3 minutes, making communication impossible.
12	Contains Pocket Nuke	Fused to a wall panel inside the barracks. Timer Reads: 00:01

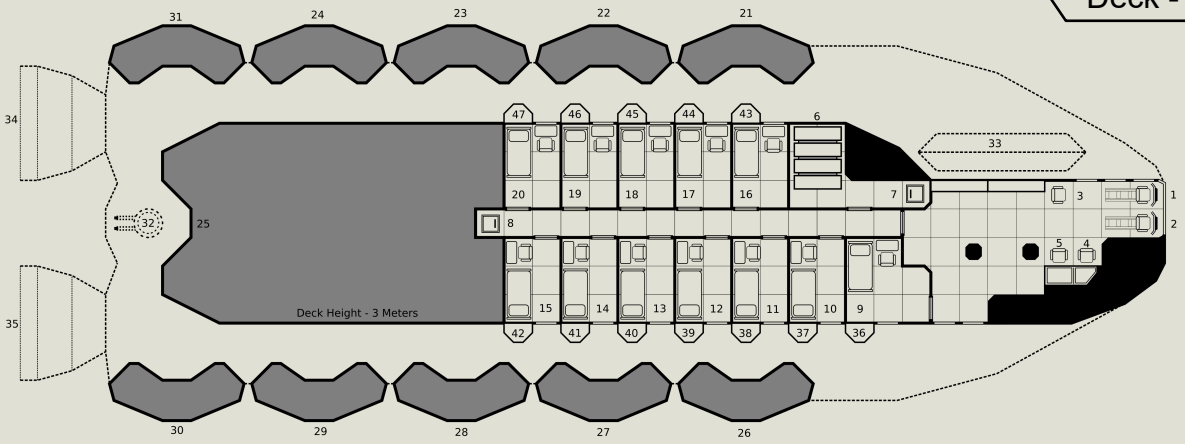
Replaces Default Roll Table for Old Ships. *** Repeatable up to 4 times.*

Gypsy Class Starship – Deck Plan

TL-10

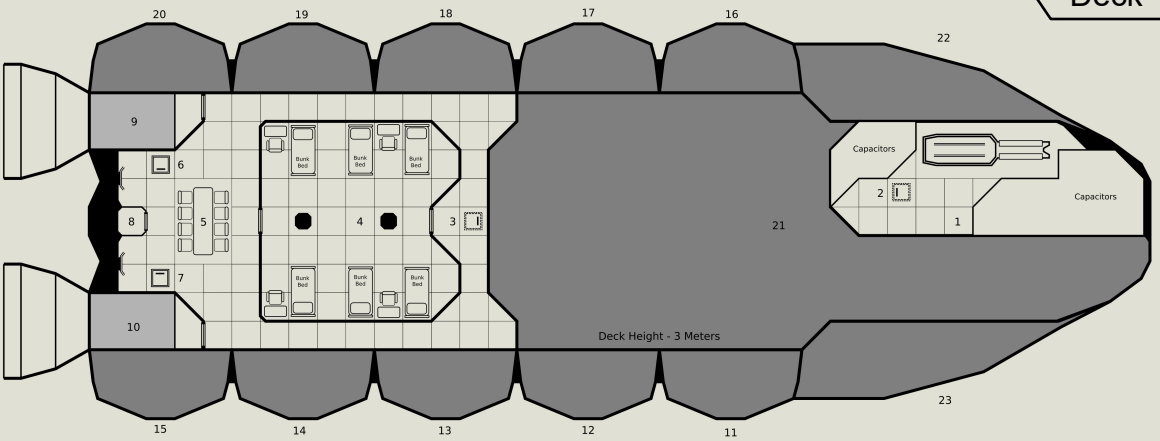
Deck - 4

1.) Pilot's Seat
2.) Astrogator's Seat
3.) Captain's Seat
4.) Sensor Operator's Seat
5.) Engineer's Seat
6.) Emergency Power System
7.) Mass Driver Bay – Hatch
8.) Deck 3 – Hatch
9.) Captain's Quarters
10-20.) Crew Quarters
21-31.) Fuel Tanks
32.) Rear Double Turret – Cover
33.) Mass Driver Bay – Cover
34-35.) Deck 3 – Engine Outlines
36-43.) Assault Capsules



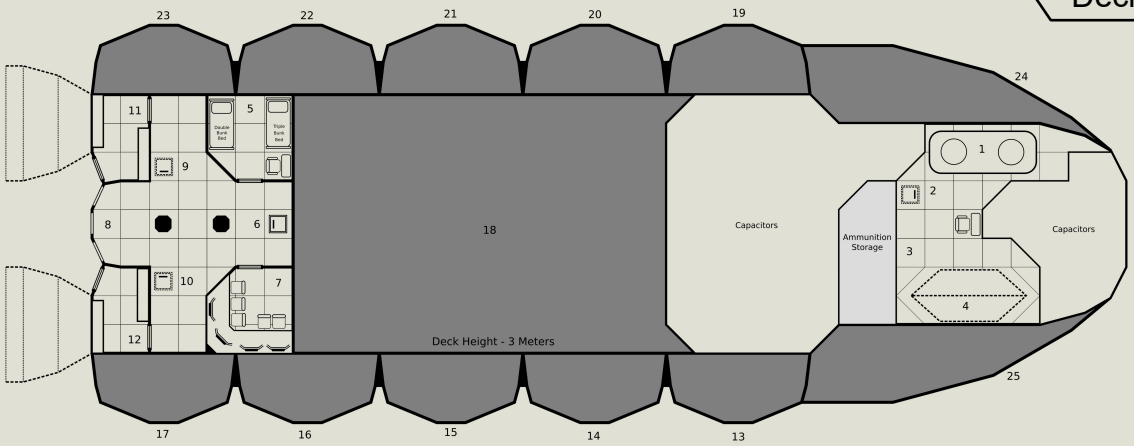
Deck - 3

1.) Upper Mass Driver Bay
2.) Deck 2 – Passthrough
3.) Deck 4 - Hatch
4.) Barracks
5.) Common Area
6-7.) Deck 2 - Hatch
8.) Pop-up Turret Access
9-10.) Reaction Drives
11-23.) Fuel Tanks



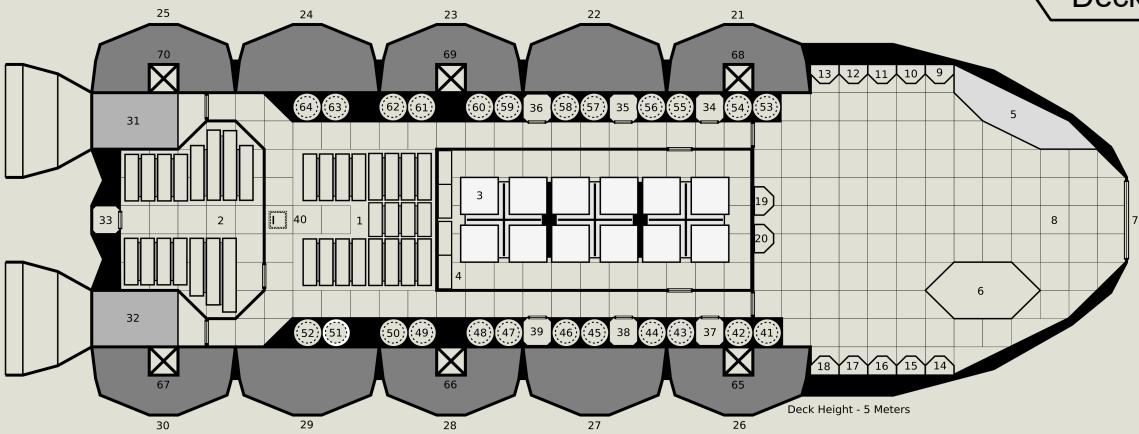
Deck - 2

1.) Mass Driver
2.) Deck 4 – Hatch
3.) Mass Driver Bay
4.) Deck 1 – Cargo Hatch
5.) Medical Bay
6.) Deck 1 – Hatch
7.) Briefing Room
8.) Common Area
9-10.) Deck 3 – Hatches
11-12.) Airlocks
13-25.) Fuel Tanks



Deck - 1

1.) Power Plant – Section 1
2.) Power Plant – Section 2
3.) Jump Drive
4.) Sensor Module
5.) Fuel Processor
6.) Deck 2 – Cargo Hatch
7.) Cargo Bay Door
8.) Cargo Bay
9-20.) Assault Capsules
21-30.) Fuel tanks
31-32.) Reaction Drives
33-39.) Pop-down Turret Access
40.) Deck 2 - Hatch
41-64.) Reaction Drives – VTOL
65-70.) Landing Gear Ducts



Gypsy Class Starship – Specifications

Total Cost – 755,000,000 Credits

Hull Configuration – Standard – Atmospheric Flight Capable – Total HP – 334			***Monthly Maintenance – 66,000 Credits***
Gravitic Hull – Light	530 – Tons	Power Requirement – 106	190 – Hull Points
Non-Gravitic Hull – Light	400 – Tons	Power Requirement – 80	144 – Hull Points
Heat Shielding	Integrated	No Power Requirement	Permits Atmospheric Reentry
Drive Configuration			
Reaction Drive	75 – Tons	No Power Requirement	Very Advanced – Fuel Efficient – x2
Jump Drive	47 – Tons	Power Requirement – 186	Prototype – Late Jump
Power Plant Configuration			
Fusion Power Plant	31 – Tons	Power Production – 380	Very Advanced – Size Efficient – x2
Fuel Tank Configuration			
Standard Fuel Tank	400 – Tons	No Power Requirement	285 Thrust Points
Armor Configuration			
Crystaliron	12 – Tons	No Power Requirement	Armor Points – 10
Control Systems Configuration			
Bridge	20 – Tons	No Power Requirement	
Computer/10	Integrated	No Power Requirement	Hardened, Jump Control Specialization
Military Grade Sensors	2 – Tons	Power Requirement – 2	Jammers, Lidar, Radar
Hard Points and Weapons Configuration			
Triple Pulse Laser Turret – x6	12 – Tons	Power Requirement – 78	Advanced – High Yield
Double Sandcaster Turret – x2	4 – Tons	Power Requirement – 2	
Medium Mass Driver Bay	100 – Tons	Power Requirement – 25	Very Advanced – Very High Yield
Crew Quarters and Habitation			
State Room – x12	48 – Tons	No Power Requirement	
Barracks – x12	24 – Tons	No Power Requirement	
Common Areas	22 – Tons	No Power Requirement	
Auxiliary Module Configuration			
Emergency Power System	4 – Tons	Power Production – 342	Lasts for 5 Rounds – Resets After 8 Hours.
Fuel Scoop	0 – Tons	No Power Requirement	
Fuel Processor	5 – Tons	Power Requirement – 5	Can Refine Up To 100 Tons of Fuel per Day
Airlock – x3	3 – Tons	No Power Requirement	
Medical Bay	4 – Tons	No Power Requirement	
Briefing Room	4 – Tons	No Power Requirement	
Assault Capsule – x24	12 – Tons	No Power Requirement	
Cargo Bay	100 – Tons	No Power Requirement	

Propulsion and Fuel Consumption

Fuel is a critical resource for both interstellar and local travel. This is even more important for vessels utilizing reaction drives. Unlike gravitic drives which cause a controlled “fall” of a mass inside the ship to generate thrust, a reaction drive produces its thrust by expelling a reaction mass in the opposite direction you intend to accelerate. In the case of the reaction drives onboard a Gypsy class starship, each drive module utilizes a self sustained fusion reaction to provide the energy necessary to expel hydrogen plasma from its thrusters at roughly 6% the speed of light. Although this allows for an impressive level of sustained thrust, it does come with one caveat: Reaction drives consume fuel.

How much fuel a reaction drive consumes is directly related to a starship’s mass, as well as the size and efficiency of its drive. And while it is interesting to measure the potential of a reaction drive by using its maximum change in velocity or Delta-V, there are far better methods for managing your fuel reserves. In this manual we will be subscribing to the Thrust-Point system listed in the *Highguard* supplementary guide.

Each thrust point represents 1-G of acceleration for 6 minutes, and a standard Gypsy class starship has 285 thrust points with 3 fuel held in reserve for life support and basic control systems. This means that if you where to expend all of these thrust points you would be traveling at over one million meters per second. While traveling at these speeds allows for exceptionally short transit times, it comes at the cost of increased fuel usage. There is a balance to be found when deciding what speed to travel at, and how long you are willing to wait to get to your destination. Remember, if you spend more than half your fuel accelerating, you won’t have enough left to slow down.

It is also worth noting that for each parsec you intend to traverse using the jump drive, you will need to expend 67 thrust points. This includes in-system jumps which are less than 1-parsec. This allows for 2 separate 2-parsec jumps with 17 thrust points remaining if you start will a full tank.

If you find yourself continually running low on fuel, it may be worth the effort to invest in a collapsible fuel tank for your cargo bay. This can allow you to augment your fuel reserves by up to 25% of its default capacity.

If you intend to travel at a constant thrust to a given destination, you can find a suitable transit times table in the core rule book. Included below are the equations for calculating travel times for non-constant thrust maneuvers, as well as a pre-calculated table with much of the math already done.

Total Thrust Points Expended at a Thrust Score of 4

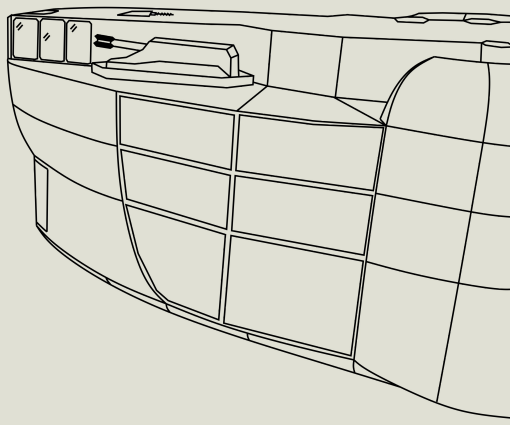
Distance	1	2	3	4	10	40	100	140
1,000km	10m 12s	6m 13s	5m 24s	-	-	-	-	-
10,000km	1h 40m	48m 44s	33m 45s	26m 37s	16m 57s	-	-	-
400,000km	2d 15h	1d 8h	21h 2m	15h 47m	6h 25m	2h 4m	-	-
45,000,000km	295d 4h	147d 15h	98d 10h	73d 19h	29d 13h	7d 10h	3d 0h	2d 5h
255,000,000km	4y 213d	2y 107d	1y 193d	1y 53d	167d 7h	41d 19h	16d 17h	11d 23h
600,000,000km	**10y 287d**	5y 143d	3y 217d	2y 254d	1y 29d	98d 10h	39d 8h	28d 3h
900,000,000km	**16y 65d**	**8y 33d**	5y 143d	4y 16d	1y 226d	147d 14h	59d 2h	42d 5h

Red listed times are not valid orbital transfers. *Dashes indicate times when a constant burn is more efficient.*

Thrust-Point-to-Transit-Time Equation

$$\textbf{Transit Time (In Seconds)} = \frac{(\text{Total Distance in Meters}) - 9.8\left[\frac{360\ (\text{Thrust Points})}{(\text{Thrust Score})}\right]^2 + \frac{360\ (\text{Thrust Points})}{(\text{Thrust Score})}}{1764\ (\text{Thrust Points})}$$

Armaments and Ammunition



A Gypsy class starship can maintain a substantial compliment of weapons using its nine available hardpoints. Typically there are two primary configurations to chose from during construction, the military variant or the civilian variant.

The primary difference between these two configurations is the lack of a mass driver bay on the civilian variant. Instead of a mass driver bay, the civilian variant of the Gypsy class comes will 100 additional tons of cargo capacity. You can find the entire list of armaments for the military variant and their specifications below.

Sand Casters – Double Turrets – x2

The Aft-Section of the Gypsy Class starship contains two pop-up sandcaster turrets. Each of the sandcaster turrets can hold 24 sand canisters to help protect against incoming enemy laser-fire. Being pop-up turrets, enemy sensors which rely solely upon exterior scanning are unable to detect them while they are retracted. Typically all pop-up turrets are retracted during atmospheric reentry. Sandcasters are primarily used to disperse sand between vessels to reduce the damage from incoming laser-fire, but these can also be used at close range to cause devastating amounts of damage to enemy boarders.

Damage-Type	Range	Damage / Mitigation	Power-Usage
Special	Reactionary	1D + Effect → Single Shot (Disperse)	1
		1D + Effect + 1 → Double Shot (Disperse)	1
		8D (Personal Scale) → Against Boarders	1

Pulse Lasers – Triple Turrets – x6

The underside of the Gypsy Class starship contains six pop-up pulse laser turrets. Each of the pulse lasers equipped to these turrets have been upgraded to their advanced version which allows them to function at a higher yield. The high yield capability of these turrets means than any 1s which are rolled during damage calculation are instead treated as 2s. Pulse Lasers do not use ammunition. Being pop-up turrets, enemy sensors which rely solely upon exterior scanning are unable to detect them while they are retracted. Typically all pop-up turrets are retracted during atmospheric reentry.

Damage-Type	Range	Damage	Power-Usage
Laser	Long	2D + Effect → Single Shot	5
		2D + Effect + 2 → Double Shot	9
		2D + Effect + 4 → Triple Shot	13

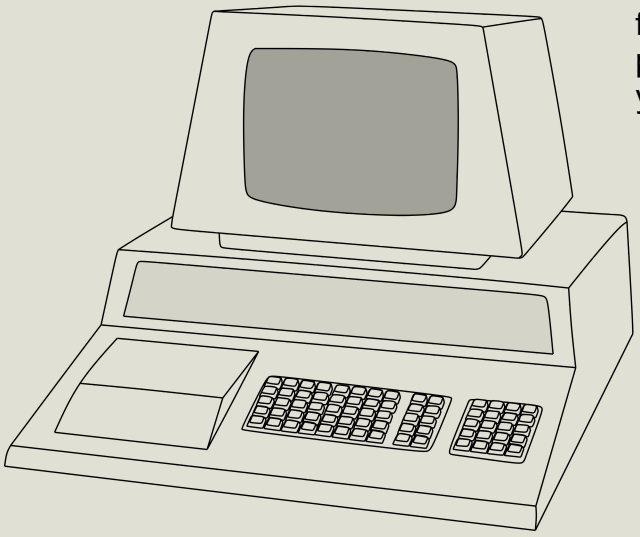
Mass Driver – Medium Bay

Mounted on the bow of a Gypsy class starship is a single medium weapon's bay containing a mass driver. This mass driver has been upgraded to its very advanced version, which allows it to operate at a very high yield. The very high yield trait on this weapon means that any 1s or 2s which are rolled during damage calculation are instead treated as 3s. The mass driver bay itself contains enough ammunition for six shots and requires two crew to operate it effectively. Only one of these crew will make the Gunner(Ortillary) check when firing. Additional ammunition for the mass driver can be stored in the cargo bay while consuming 4-tons of space per shot. This ammunition is not readily available and needs to be loaded into the bay using a reload action prior to use. The mass driver is typically retracted during atmospheric reentry.

Damage-Type	Range	Damage	Power-Usage
Destructive	Short	2DD + Effect → Single Shot	25
		(2D x 10) + Effect – Armor = Damage	

Primary Ship Systems

Model-2 Ship's Computer



The Computer system onboard a Gypsy class starship is fairly rudimentary. Due to its limited bandwidth, it is essential to put some focus towards program management to ensure that you have enough processing power left for critical operations.

The default computer compliment is a Model-2 standard ship's computer with systems hardening and jump control specialization built in. This computer has a normal bandwidth of 10 with an addition 5 bandwidth dedicated exclusively for Jump Control programs. This computer's bandwidth limitations mean than most system automation programs are completely incompatible with the onboard computer system.

The basic software package installed on this computer includes a Library program, a Maneuver program, and a Jump Control-2 program.

Military Grade Sensors

All Gypsy class starships are fitted with military grade sensors by default. These sensors come with three primary capabilities: Jamming, Lidar based scanning, and Radar based Scanning. At least 2 units of spare power are required in order to operate Military Grade Sensors. Without sufficient power, these sensors are completely non-functional. This sensor system does not provide a dice modifier to anyone operating it.

Operation	Difficulty	Duration
Jamming Enemy Comms	Opposed Electronics(Comms) (INT)	(1D) Minutes
Perform Sensor Scan	(6+) Electronics(Sensors) (INT)	(1D x 10) Minutes
Analyze Sensor Data	(8+) Electronics(Sensors) (INT)	(1D) Hours

Fusion Power Plant

The compact fusion power plant onboard a Gypsy class starship packs a lot of power into a small space. At full power, the primary power plant can power the Life Support, Artificial Gravity, Sensors, and Jump drive all at once. The power plant requires a steady supply of fuel in order to remain functional and will burn through that fuel at a rate of 4-tons per month.

Operation	Difficulty	Duration
Overload Power Plant	(10+) Engineering(Power Plant) (INT)	(1) Round

Jump Drive

The most expensive part of a Gypsy class starship is undoubtedly the overbuilt Jump Drive. This Jump Drive is capable of Jump-2 and can do so twice in a row if your fuel tank permits it. The Jump Drive, being a prototype, has less of a tolerance for gravitational interference. As such, the drive has the trait Late-Jump. This means that in order to safely perform a jump maneuver, you will need to be at least 150-Diameters from the strongest gravitational influence acting upon the vessel.

Operation	Difficulty	Duration
Standard Jump	(4+) Engineering(Jump Drive) (EDU)	(1D x 10) Minutes
Combat Jump	(4+) Engineering(Jump Drive) (EDU)	(1D) Minutes

Auxiliary Ship Systems

Assault Capsule

Each Gypsy class starship comes fully equipped with enough escape pods to allow all 24 potential passengers to abandon ship in the event of emergency. These escape pods take the form of 24 assault capsules. Each of these capsules has an armor rating of 20, and inflicts a (-2) dice modifier upon anyone trying to detect it with sensors. The assault capsule is fully capable of atmospheric reentry and will propulsively land on any planet within range. Using an assault capsule in deep space is not recommended as the difficulty of detection will make any rescue attempts more difficult.

Medical Bay

The medical bay on each Gypsy class starship, although cramped, is capable of supporting the treatment of up to 5 patients as long as it is staffed by a medic or autodoc. While using the medical bay, all Medic checks receive a (+1) dice modifier.

Briefing Room

Like most military vessels, each Gypsy class starship contains a briefing room to allow for easy mission planning and private tactical discussions. This briefing room provides a (+1) dice modifier to any Tactics(Military) checks when planning missions. When not being used for mission planning, the briefing room makes for a nice quiet room to relax in.

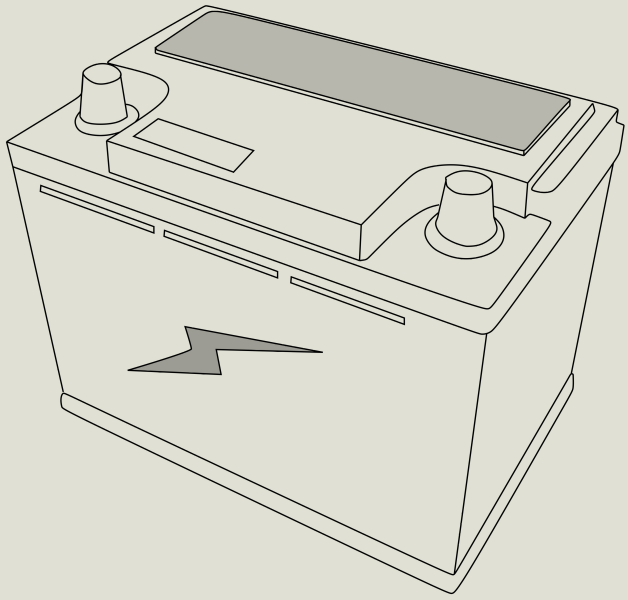
Fuel Scoop

Along the bottom of each Gypsy class starship there are a series of ducts which can take in atmospheric gasses and store them in the fuel tank. When this is done in an atmosphere that is rich in hydrogen, such is the case for most gas giants, you can fill your fuel tank with unrefined fuel. Rules regarding fuel scooping can be found in the core rule book.

Fuel Processor

Accessible from the maintenance hatch in the cargo bay, the Gypsy class starship's fuel processor is capable of refining up to 100 tons of jump-grade fuel per day. This means that a fuel tank filled with unrefined fuel will take 4 days to fully process.

While there is a risk involved with using unrefined fuel in a jump drive, your reaction drive can run off unrefined fuel just fine. This means that for trips where you don’t need the jump drive, it is much better to buy unrefined fuel and save on 80% of the fuel cost.



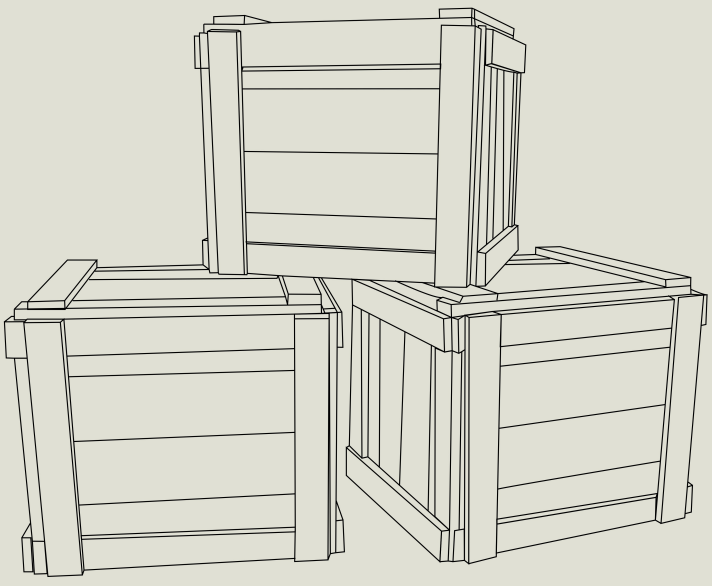
Emergency Power System

Gypsy class starships are equipped with an emergency power system which is designed to provide the majority of the vessel’s power needs for up to thirty minutes. The emergency power system is capable of providing up to 90% of the power of the primary reactor, and automatically activates when it detects a primary reactor failure. After 30 minutes of operation, the emergency power system is drained and will take at least 4 hours to recharge using the primary reactor, once the primary reactor comes back online.

Additional Information

Additional Tasks and Operations

Description	Skill	Extra Modifiers	Cost	Difficulty	Time
Forcing open an airlock door	Athletics (Strength)	+2 for each Traveller that helps	N/A	18+	(1D) Minutes
Forcing open the cargo bay door	Athletics (Strength)	+2 for each Traveller that helps	N/A	22+	(1D + 5) Minutes
Repairing a busted rear thruster	Engineering (Maneuver)	N/A	10,000cr Per attempt	8+	(1D) Hours
Repairing a busted fuel tank	Mechanic	N/A	500cr Per attempt	6+	(1D) Hours
Repair damaged radio	Electronics (Comms)	N/A	2000cr Per attempt	8+	(1D) Hours
Repair damaged gravity plating	Engineer (Maneuver)	N/A	30,000cr Per attempt	10+	(1D) Days
Repair damaged heat shield	N/A	N/A	2,000,000cr	N/A	(1D) Days In drydock
Change startup song	Electronics (Computers)	N/A	N/A	10+	(1D) Hours
Remove the pocket nuke in the barracks	Explosives	N/A	N/A	14+	(1D) Minutes
Remove the vermin infestation	Animals	+2 for each Traveller that helps	N/A	16+	(1D + 10) Days



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This document is was designed for use with:

Mongoose Traveller – 2e
(Highguard Compatible)

Optional Cargo Roll Table

D66	Possible Cargo List
11 - 13	Cryoberth – 1
14 - 16	Combat Drugs – 16 Doses
21 - 23	Personal Safe Containing a Pistol – 1
24 - 26	Black Powder Cannon – 1
31 - 33	TL10 Translator – 1
34 - 36	Armoured Van with Flat Tires – 1
41 - 43	Dirigible (Stowed) – 1
44 - 46	Cargo Lifter – 1
51 - 53	Forgetful Utility Droid (Driver) – 1
54 - 56	Illegal Drugs – 1 Ton
61 - 63	Lumber – 40 Tons
64 - 66	Textiles (Rugs) – 20 Tons