# TRAVELLER
HIGHGUARD

SCIENCE FICTION ADVENTURE IN THE FAR FUTURE

TRAVELLER
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MONGOOSE PUBLISHING

INTRODUCTION

High Guard: Refuelling operations for a task force are another danger point, as forces which are low on fuel and manoeuvring in a gravity well are especially vulnerable. The high guard position, so named because the ship or ships involved are higher in the gravity well than their companions, is used to mount protective operations during such manoeuvres.

Welcome to *High Guard*.

This book is a major expansion to the Traveller roleplaying game, enabling you to design, build and fly spacecraft of all types found throughout the galaxy. You will find rules to modify existing ships, design high performance space superiority flyers, and construct the largest capital ships to travel the space lanes.

High Guard also presents new approaches to handle spacecraft operations, from engaging in vicious boarding actions to spacecraft security, from employing a range of warheads in missiles to accessing technologies seen in science fiction settings beyond the Third Imperium. Your warp drives await.

With more options and more powerful weapons, *High Guard* returns to space combat and provides a rules framework to use in epic space battles, from spiralling dogfights involving just a handful of lightweight fighters to the clash of heavily armed battleships across a front stretching through an entire star system.

THIRD IMPERIUM IMPERIAL NAVY

The force that rules the space between the stars controls both transportation and communication, and as a result, controls all intercourse between worlds. The instrument of such control is the Navy.

An interstellar community operates under many unique restrictions, most notably the fact that it consists of many island-planets set in an ocean of vacuum. Such a society must have control of that ocean. Its instrument is the Navy. The Third Imperium is a remote centralised government possessed of great industrial and technological might; but due to the sheer distances and travel times involved within its star-spanning realm, the Imperial Navy is unable to be everywhere at once. As a result, the Imperium allows a large degree of autonomy to its subject worlds, calling only for some respect for its overall policies, and for a united front against outside pressures.

To monitor the space lanes, the Imperium maintains a Navy. Because these forces can never be everywhere at once, local provinces (subsectors) also maintain navies, as do individual worlds. This three tiered structure of Imperial, subsector, and planetary navies produces a flexible system for patrolling space, while putting the limited resources of the Imperium to best use. *High Guard* deals with the navies of the Imperium, of subsectors, and of worlds.

The sheer size of the Imperium precludes the navy from concentrating its forces in one place – if war broke out on one border of the Imperium, it would be months

The Ship's Locker
Every ship has a ship's locker, usually located near an airlock, cargo bay, or the bridge, for the convenience of the crew. Typical equipment within includes protective clothing, vacc suits, defensive weapons such as shotguns or pistols, ammunition, compasses and survival aids, and portable shelters. The contents of the locker are defined by the referee only when needed but always contains vacc suits and other useful items. The ship's locker is usually protected by a biometric lock keyed to the ship's officers.

ABUSING THE SHIP'S LOCKER
The purpose of the ship's locker is to provide useful mundane equipment on demand so Travellers do not have to keep track of every single flak jacket and toolkit. It is not an inexhaustible supply of free stuff, nor is it a magic box that produces whatever the Travellers happen to need at any given moment. Referees should sternly refuse any unreasonable requests regarding the contents of the ship's locker – it is a tool to simplify bookkeeping, nothing more.

before news reached the capital, and long months more before the navy could respond. Instead, there are one or more Imperial fleets for each sector, named for that sector. The Imperial navy is the tool of diplomacy and conquest as needs dictate, the Emperor's own sabre.

The Imperial Navy has some of the largest and most powerful vessels in space – dreadnoughts, battle tenders and other mighty warships.

SUBSECTOR NAVIES

Each subsector maintains its own fleet of ships, composed normally of cruisers, escorts, frigates and medium-sized ships. Subsector navies are primarily responsible for defence, patrol of the spaceways and safeguarding trade and commerce across the sector. In wartime, each subsector is required to put a fraction of its ships at the disposal of the Imperial Navy to act as reserves and reinforcements.

PLANETARY NAVIES

Planetary navies are responsible solely for the defence of their home system, or a handful of related systems held by the same duke. At minimum, the planetary navy protects the space up to the main world's jump limit, but in most systems, it will have bases in orbit of the main world and the gas giant, as well as a presence at any inhabited worlds or asteroid belts. Planetary navies tend to be eccentric at best – officers are often retired or cashiered command staff from the subsector navy, poorly educated locals using out-of-date tactics, and third or fourth sons of noblemen. The equipment is equally eclectic – a combination of local designs, antiques and monitors.

THIRD IMPERIUM NAVAL OPERATIONS

Naval vessels generally operate in task forces or squadrons, rather than alone; the merits of each individual ship supplement and complement the others in company with it. Squadrons are given a numerical designation when they are created, which are tacked onto the squadron type to give their full squadron name. A BatRon given the designation 175 would be known as BatRon 175, or the 175th BatRon.

The squadrons are also prefixed with a classification dependant on what part of the fleet they serve with. A front line regular fleet unit would have the classification 'Imperial' prefixed; a planetary squadron is usually referred to as a colonial squadron and prefixed 'Colonial'. Reserve squadrons are considered to be part of the regular fleets and keep the Imperial classification.

System Defence Boats & Monitors

A considerable percentage of any starship is taken up with jump engines and fuel tanks. This means that a non-jump-capable ship can defeat a starship of equal or even considerably greater tonnage. System Defence Boats are 300 to 500 ton patrol boats used for planetary defence. Monitors are the same concept on a capital scale – a monitor is a multi-thousand ton warship with the bulk of its tonnage allocated to weapons and manoeuvre drives. Many monitors are constructed from planetoids, or by stripping the jump engines and fuel tanks from an outdated warship hull. It is very rare for a brand-new monitor to be built using modern technologies, although especially important worlds can justify such protection. Sector capitals are sometimes protected by such 'supermonitors'.

Battle Squadrons (BatRons) are built around dreadnoughts and battleships, and are designed to smash through enemy lines and engage other Battle Squadrons. Auxiliary craft attached to a BatRon are limited to a few fuel tankers and fast-moving tenders and couriers, and must stay out of the line of fire when dreadnoughts clash.

Cruiser Squadrons (CruRons) have a core of cruisers accompanied by escorts and frigates. These are the work-horses of the Navy, given assignments such as holding captured systems, interdicting or bombarding enemy worlds, supporting the Battle Squadron advance, or harassing enemy supply lines.

Assault Squadrons (AssaultRons) have the duty of capturing enemy worlds, and are made up of ortillery ships and troop transports. Often, a naval force can take control of space, but face significant resistance on the ground, and the only way to hold a world is to put boots on the ground.

Carrier Squadrons (CarRons) are made up of tenders or carriers— single large ships which carry well-armed smaller ships which actually do the fighting when battles are joined. When the craft being carried are in the ten to thirty ton range, the ship is a fighter carrier. When the ships being carried are in the 10,000 ton range, and the large ship is 200,000 tons or more, the ship is called a battle tender or transport.

The points of greatest danger to carried squadrons are immediately prior to jump (when the craft or ships have been recalled) and just after returning to normal space (when the craft have not yet been launched).

Tanker Squadrons (TankRons) are mostly composed of huge fuel tankers, which carry the millions of tons of hydrogen fuel needed by a jump-capable fleet. As such vessels are very vulnerable, a tankron is normally led by a cruiser and accompanied by numerous armed escorts.

Scout Squadrons (ScoutRons) are rarely maintained full-time by the navy, but are instead assembled as needed. ScoutRons are made up mainly of ships borrowed from the Imperial Scout Service, together with a handful of larger fast frigates and stealth ships.

DEFINITIONS

A number of definitions and conventions are used throughout High Guard, drawn from the Third Imperium, other science fiction settings, and navies of our own modern world. The terminology used throughout this book is consistent and noted here for easy reference, though note that specific universes may have their own interpretation of some of these definitions. Any changes will be covered in the core book of each universe.

General

Ships are measured in 'displacement tons' or d-tons: a hundred-ton ship displaces a volume equal to one hundred tons of liquid hydrogen (one d-ton equals roughly 14 cubic metres).

Ship: A spacecraft of 100 tons or more.
Small Craft: A spacecraft of less than 100 tons. Small craft are incapable of jumping to other star systems.
Capital Ship: A military ship of more than 5,000 tons.
System Ship: A ship without jump drives.
Star Ship: A ship of 100 tons or more that is capable of jump travel.
Streamlined Hull: A ship designed to fly through atmosphere – will feature a wing or lifting body.
Standard Hull: These ships may enter atmospheres but are not specifically designed to do so and are extremely ungainly.
Dispersed Structure Hull: These ships are completely non-aerodynamic. While they can potentially enter atmospheres, this tends to be very dangerous.

Small Craft

Boat: A small long-range interplanetary craft, designed for independent operations.
Shuttle: A large cargo carrier, used to transfer cargo or passengers from orbit to surface.
Fighter: A small, short-ranged fast combat vessel, normally displacing less than fifty tons.
Bomber: A heavier combat vessel, usually equipped with weapons capable of damaging a capital ship or ground-based structures.
Torpedo Boat: A special variety of bomber equipped with torpedoes.

Star Ships

Blockade Runner: A fast ship designed to be fast enough and tough enough to force its way through a formation of enemy ships.
Courier: A small ship dedicated to speed (either in real space or through large jump distances), allowing it to carry valuable cargo or personnel quickly.
Q-Ship: A trader, merchant, freighter or other civilian vessel that has hidden weapons, used to trap pirates and other raiders.
Trader/Merchant: A small (sub-1,000 ton) ship dedicated to carrying cargo and/or passengers.
Freighter: A large (1,000 tons or more) ship dedicated to carrying cargo.
Liner: A ship dedicated to carrying passengers long distances in at least a degree of comfort.
Yacht: A pleasure ship, capable of taking a small number of passengers across space in great comfort.

Military Ships

Cutter: An armed ship that is both small and cheap, cutters are often found in the system defence, anti-piracy, or customs roles in the hands of law enforcement or planetary navies.
Corvette: A larger version of the cutter, sometimes also capable of making light and fast raids.
Frigate: A small but powerful warship, the role of a frigate is to roam space away from a fleet, patrolling borders and attacking commerce.
Destroyer: Similar to frigates, a destroyer's main role is

in acting as picket defence for a fleet, eliminating small ships and fighters before they can threaten larger ships.

System Defence Boat: Foregoing a jump drive, a system defence boat is capable of mounting more armour and weapons that the equivalent star ship, making it perfect for the defence of a single star system. The largest are called monitors.

Troop Ship: A flying barracks, these ships are designed to ferry platoons, companies or entire regiments between planets, usually with only a degree of comfort.

Capital Ships

Cruiser: The mainstay of a fleet, the cruiser is a large capital ship capable of outgunning anything it cannot outrun, and outrunning anything it cannot outgun.

Light Cruiser: Either a small and fast cruiser, or one with smaller and cheaper weaponry. They are intended to fulfil the cruiser role while keeping to a budget.

Heavy Cruiser: A cruiser with notably increased weaponry, either in number of guns or their size.

Armoured Cruiser: Where a heavy cruiser has increased firepower, the armoured cruiser has increased armour and is capable of standing in the frontline of battle.

Strike Cruiser: A cruiser designed to operate on its own or in small squadrons, strike cruisers have a combination of range, firepower and durability. They act on their own or at the vanguard of an attack.

Carrier: A general term used for any star ship that carries and deploys numerous small craft, usually fighters and their equivalents. A light carrier is the equivalent to a cruiser, while a heavy carrier is equivalent to a battleship.

Escort Carrier: The escort carrier is designed to protect small fleets, be they military or civilian, and is equivalent to a destroyer. Its main weaponry is carried by the small craft it transports, rather than the carrier itself.

Assault Carrier: A well-armed and armoured carrier that has only a small number of small craft on board, using them as just one component in its arsenal. It is generally very large and capable of going toe-to-toe with other capital ships.

Fleet Carrier: A very large carrier, a fleet carrier is often the flagship of the fleet it travels with.

Battle Tender: A vast carrier that takes battle riders into battle, rather than small craft, allowing them to engage targets that require jump travel to reach.
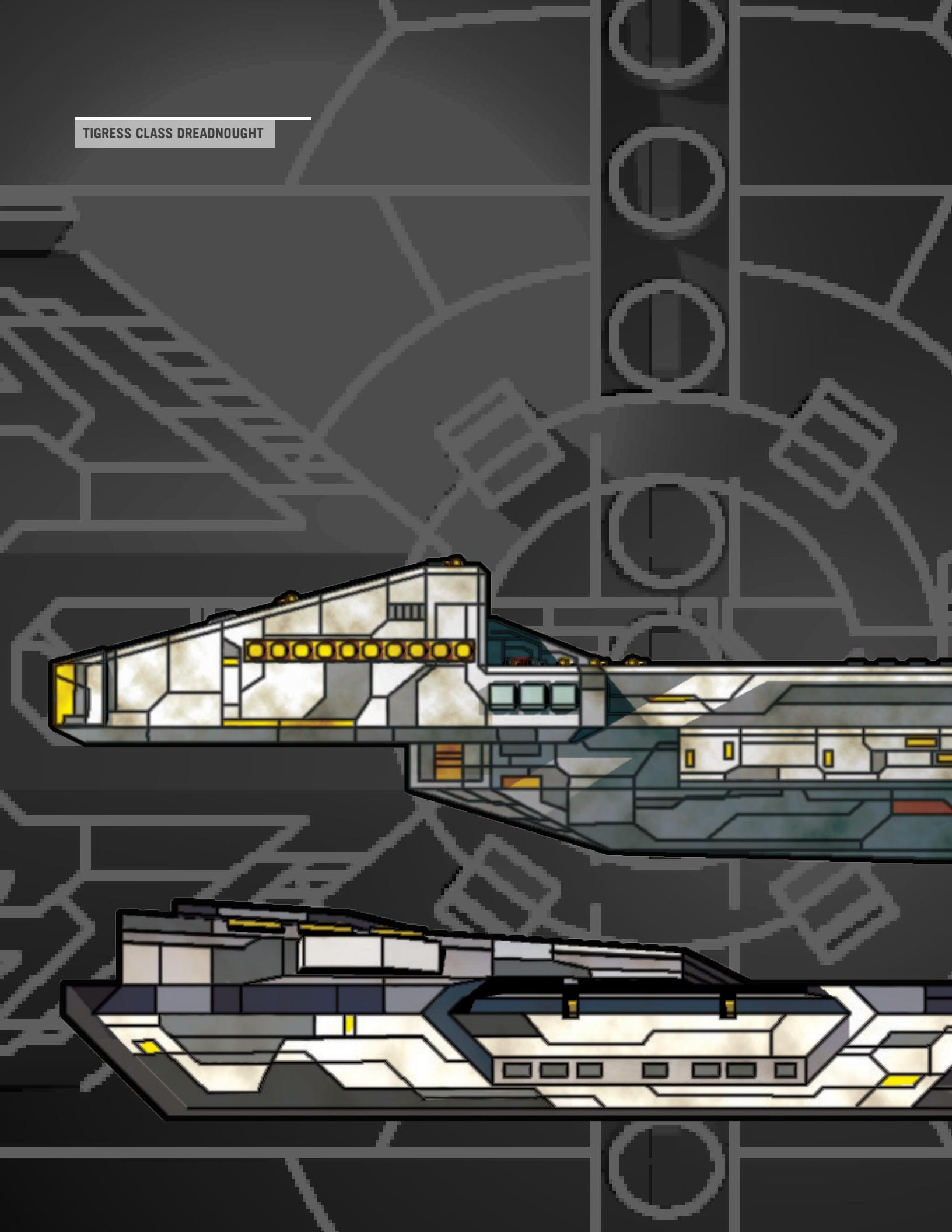
Battle Rider: A large ship, typically destroyer or even cruiser size, that has no jump engines. They are intended to be taken into battle in other systems by a battle tender.

Battleship: A very large capital ship with thick armour and powerful weapons. Sometimes called ships-of-the-line, battleships are the strength of a fleet and are designed to destroy any enemy they meet.

Battlecruiser: A battlecruiser is similar in size and role to a battleship but either foregoes armour for increased speed or speed for increased firepower.
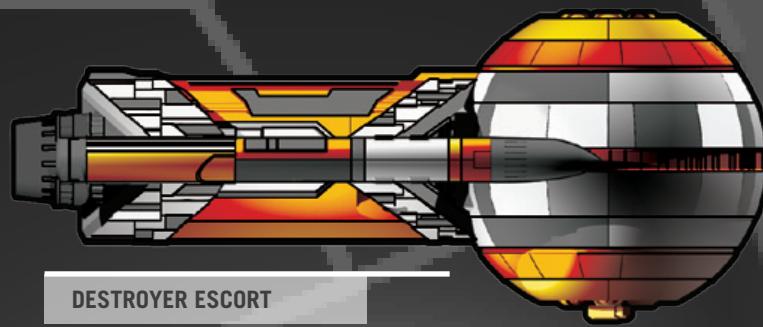
Dreadnought: The largest fighting ships of a fleet, dreadnoughts are over-sized battleships, fulfilling the same role but with notably more firepower and greater durability.

TROOP TRANSPORT

DESTROYER ESCORT

HEAVY FIGHTER

SERPENT CLASS SCOUT

CLOSE ESCORT

GIG

COLONIAL CRUISER

FLEET CARRIER

LIGHT CARRIER

SHIP DESIGN

The ship construction system detailed in this chapter is your gateway to modifying existing ship designs or creating your own, limited by only your imagination and the laws of physics in the far future.

Spacecraft are large and extremely complicated vehicles, capable of crossing the light years and unleashing weapons of terrifying power. The ship design rules presented here allow you to specify each component within a spacecraft, but you will go through the design process on a step-by-step basis. If you get lost or confused, simply return to the checklist on page 9 to see where to go next.

Throughout the design process, you will keep track of two key numbers – the total tonnage of the ship (and how much space each added component consumes) and the total cost. The mathematics required to create a ship are not complex, but you may find it handy to have a calculator close by!

Unless the referee states otherwise, it can be assumed that the Tech Level of the ship and its components will be the same as the shipyard in which it is being constructed. However, you may always install components of a lower Tech Level if you wish, perhaps in an effort to cut costs.

STANDARD DESIGNS VS NEW DESIGNS

Some ship designs have been used for centuries, and have become standard across the stars. Plans for such spacecraft are freely available and components can be purchased in bulk by shipyards, reducing the cost of the ship's construction by 10%. This reduced cost does not include ammunition for weapons or fuel, which must be bought – at full price – separately for the ship.

If a buyer needs a new type of ship, he must employ a ship architect to design it. The architect's fees are an additional 1% of the final cost of the ship.

CONSTRUCTION TIMES

Construction times vary wildly, depending on the size and complexity of the spacecraft and the capabilities of the shipyard. On average, assume that it takes one day per million credits to build a spacecraft at an average commercial shipyard.

COSTS

Spacecraft are extremely expensive and once options start being added, their cost can easily eclipse the simple designs found in the *Traveller Core Rulebook*. The construction of new spacecraft can be funded using finance options, as detailed on page 144 onwards of the *Traveller Core Rulebook.*

TECH LEVEL

Before you start building your ship, decide on the Tech Level of the ship yard that will construct it. This is the maximum Tech Level available for any given component you add, and will also serve as the overall Tech Level of the ship itselt.

DESIGN CHECHLIST

1. CREATE A HULL
a. Choose Hull Configuration (page 11).
b. Install Armour (page 12).
c. Install Hull Options (page 12).

INSTALL MANOEUVRE AND JUMP DRIVES

INSTALL POWER PLANT
Ensuring it can provide enough power for the Jump and Manoeuvre Drives, and any Screens, Sensors, Weapons.

INSTALL FUEL TANKS

INSTALL BRIDGE

INSTALL COMPUTER AND ANY SOFTWARE

INSTALL WEAPONS
If desired

INSTALL SENSORS

INSTALL OPTIONAL SYSTEMS
Such as smaller craft and fuel purification plants.

DETERMINE CREW

ALLOCATE CARGO SPACE

INSTALL STATEROOMS
Including low berths, briefing rooms and armouries.

13. FINALISE DESIGN

step 1:
CREATE A HULL

The first step in designing a ship is to build its hull – this is the body of the ship, its fuselage.

Decide on the total tonnage of the ship (a small scout might be 100-200 tons, for example, while a fully armed cruiser might be in the region of 20,000 to 80,000 tons). This will affect the performance of the ship and, ultimately, limit what it can carry and achieve. However a hull must be at least 10 tons.

A basic hull costs Cr50000 per ton. The ship will have 1 Hull point for every full 2.5 tons of hull.

Massive Ships
Very large ships require a lot more internal bracing to support their mass under acceleration, but this has the effect of increasing their durability under fire.

Ships over 25,000 tons have 1 Hull point for every 2 tons of hull.
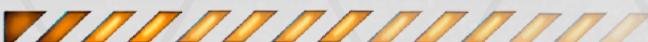
Ships over 100,000 tons have 1 Hull point for every 1.5 tons of hull.

Non-Gravity Hulls: Basic hulls include artificial gravity, using grav plates to ensure a normal gravitational environment for the comfort and convenience of the crew. Hulls can be built cheaper without artificial grav plating, using specific configurations that allow the hull to constantly spin in order to generate gravity if it is desired. Non-gravity hulls cost Cr25000 per ton, but are limited to a maximum size of 500,000 tons due to structural limitations.

Hull Configuration
The configuration of a hull dictates its shape which, in turn, affects the capability of the ship. Some ships may be capable of entering atmospheres, for example, while others will be destroyed if they try.

The hull configuration chosen for a ship will often affect its cost as more complex engineering factors must be

Reinforced and Light Hulls
Not all spacecraft hulls are built the same way and it is possible for naval architects to use advanced construction techniques to make a hull far more resilient or, alternatively, cut costs by using lower-grade materials and shortcuts during manufacture.

Reinforced Hull: By increasing the cost of a hull by +50%, a ship will have its Hull points increased by +10%.

Light Hull: By decreasing the cost of a hull by -25%, a ship will have its Hull points decreased by -10%.

resolved before it can be built, as shown on the Hull Configuration table. Once chosen for a ship, the hull configuration can never be changed – it is not possible to retrofit a new hull configuration.

Streamlined hulls include hulls that are needles, wedges, cones and cylinders in shape. They are designed to enter planetary atmospheres and function in a similar fashion to conventional aircraft.

Planetoid and Buffered Planetoid Hulls: These require an asteroid to be dragged from its orbit and hollowed out to be used as the exterior hull of a spacecraft. This costs Cr4000 per ton but only 80% of the volume of a planetoid is useable as a spacecraft. For a buffered planetoid, 65% of the volume is useable.

However, a planetoid's Hull points is calculated on the total volume of the planetoid, not the useable space.

Starting at TL9, all hulls are self-sealing. A self-sealing hull automatically repairs minor breaches such as micrometeoroid impacts, and prevents hull hits causing explosive decompression.

Special Hulls
Within the standard configurations, there are a variety of further options that will allow the design of more complex ships.

Double Hull: This is a two-hulled cylinder where the outer hull (the whole, or at least a part) spins to create gravity and the inner hull does not. The outer hull is kept at around 1G by the speed of its spinning and is used for any areas that will be inhabited for extended periods of time, such as crew quarters. The outer, spun hull must be at least 60 tons. Machinery to spin a double hull
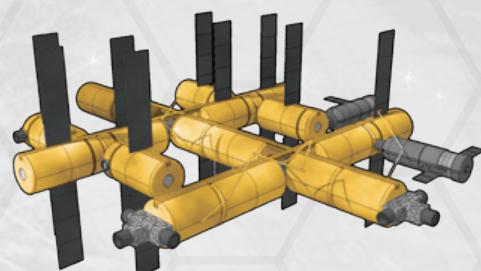
Hull Configurations

Hull Configuration	Streamlined?	Hull Points	Cost
Close Structure	Partial	+10%	-10%

Hull Configuration	Streamlined?	Hull Points	Cost
Standard	Partial	-	-

Hull Configuration	Streamlined?	Hull Points	Cost
Dispersed Structure	No	-10%	-50%
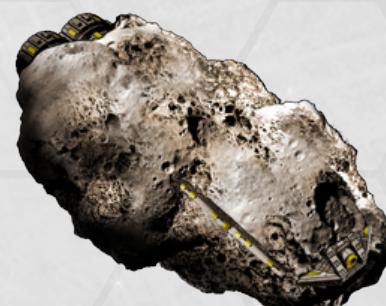
Hull Configuration	Streamlined?	Hull Points	Cost
Streamlined	Yes	-	+20%

Hull Configuration	Streamlined?	Hull Points	Cost
Planetoid	No	+25%	Special

Hull Configuration	Streamlined?	Hull Points	Cost
Sphere	Partial	-	-20%

Hull Configuration	Streamlined?	Hull Points	Cost
Buffered Planetoid	No	+50%	Special

uses 0.1 ton for every ton of outer hull. For each full percent of the total hull which is made part of the spun hull, the cost of the hull must be increased by +1%.

Hamster Cage: This is a series of spun rings set at right angles to the rest of the hull. The rings must have a radius of at least 15 metres in order to produce a gravitational field. Machinery to spin a hamster cage uses 0.1 tons for every ton of spun ring. Unlike other designs, the hamster cage is usually set at right angles to the hull and installed in counter-rotating pairs, eliminating torque effects on the ship's attitude. For each full percent of the hull which is made part of the hamster cage, the cost of the hull must be increased by +2%.

Breakaway Hulls: A ship can be designed so it can operate as two or more independent vessels, breaking or splitting away from one another. Each section must have an appropriate bridge and power plant to operate it. Manoeuvre drive, jump drive, sensors, weapons, screens and so forth are all options that can (and, under normal circumstances, should) be included in each section. While the sections are together, drives, power plants and weapons can all be combined when calculating performance. This whole process consumes 2% of the combined hull tonnage for the extra bulkheads and connections needed, and costs an additional MCr2 per ton consumed.

For example, you have a 1,000 ton ship and decide to split it so 400 tons can break away as a separate vessel. You install 20 tons of manoeuvre drive in the 400 ton section which gives it a Thrust of 5, while the 600 ton section has 66 tons of manoeuvre drive giving it Thrust 9. When combined, this is 86 tons of manoeuvre drive giving the 1,000 ton vessel Thrust 8. It typically takes 1D rounds to seperate a breakaway hull.

Install Armour
All hulls provide some protection from anti–ship weapons fire, but it is possible to add heavier armour for better defence.

All hulls start with armour Protection 0, though this can be improved upon.

Dispersed structure ships can be given increased armour but it consumes twice the normal tonnage.

Planetoid hulls provide a ship with armour Protection 2 (Protection 4 if they are Buffered Planetoids).

The Hull Armour table shows how much of the hull's tonnage is consumed per point of armour Protection added, along with its costs. A minimum TL is required for each type of armour, and there is a maximum amount that can be attached to a hull – this includes any armour the ship had prior to modification.

Molecular Bonded: This armour is so dense that not even tachyons can pass through unimpeded. Tachyon weapons attacking a ship with molecular bonded armour lose their AP trait.

Breakaway Hulls: Armour can be allocated on a per section basis if a breakaway hull is used, in which case the tonnage and cost are determined as if the two differently armoured sections of the ship were different vessels.

Install Hull Options
Hulls can be further modified with a range of options to create specialised ships.

Emissions Absorption Grid (TL8): This comprises wires placed in a pattern throughout the hull that capture electronic emissions and store them in capacitors. This grants DM-2 on any Electronics (sensors) checks to detect or lock onto the ship, and will stack with Stealth. Adding an Emissions Absorption Grid costs Cr40000 per ton of hull and consumes 2% of the total hull tonnage for the capacitors.

Heat Shielding (TL6): Heat shielding protects the ship against the heat of re–entry or other heat sources such as proximity to a star. A ship without a functioning gravitic drive attempting re–entry without heat shielding will burn up. If equipped with undamaged heat shielding, re–entry is successful on Easy (4+) Pilot (1D x 10 minutes, DEX) check, with failure resulting in burn up (this task is often undertaken at a slower rate, making it easier). Damage to the ship from proximity to a star in the absence of heat shielding is at the referee's discretion, but should start at 1D per round, increasing by a cumulative 1D as the ship gets closer. Heat shielding does not provide protection against starship combat weapons. Heat shielding costs MCr0.1 per ton of hull.

Radiation Shielding (TL7): Radiation shielding improves the crew's protection against radiation from both natural sources (such as solar flares and pulsars) and artificial

Hull Armour

Armour	TL	Tonnage Consumed	Cost (as percentage of hull cost)	Max. Armour
Titanium Steel	7	2.5%	2.5%	TL or 9, (whichever is less)
Crystaliron	10	1.25%	5%	TL or 13, (whichever is less)
Bonded Superdense	14	0.80%	8%	TL
Molecular Bonded	16	0.50%	15%	TL +4

(including nuclear bombs and meson weapons). A ship with radiation shielding decreases the amount of rads absorbed by all crew by 1,000 (rather than the normal 500), and treats the bridge as if it is Hardened. Radiation shielding costs Cr25000 per ton of hull.

Reflec (TL10): Reflec coating on a hull increases the ship's Protection against lasers by +3, but it cannot be combined with Stealth. Adding Reflec costs MCr0.1 per ton of hull, and can only be added once.

Stealth (TL10): A stealth coating absorbs radar and lidar beams, and disguises heat emissions, but it is highly dependent on the Tech Level of the ship and that of enemies trying to find it. This gives DM-4 on any Electronics (sensors) checks made to detect or lock onto the ship, with an additional DM-1 for every Tech Level the ship is higher than the sensors trying to locate it. Stealth cannot be combined with Reflec. Adding Stealth costs MCr0.1 per ton of hull, and can only be added once.

Superior Stealth (TL12): A highly advanced stealth coating makes a ship all but invisible to sensors. This gives DM-6 on any Electronics (sensors) checks made to detect or lock onto the ship, with an additional DM-1 for every Tech Level the ship is higher than the sensors trying to locate it. It cannot be combined with Stealth or Reflec. Adding Superior Stealth costs MCr1 per ton of hull, and can only be added once.

Radiation Damage

Several weapons carried by ships are capable of dealing radiation damage to the crew of a target, through the use of the Radiation trait (see page 75 of the Traveller Core Rulebook). This is simple to apply to the types of low-tonnage ship most Travellers will be using, but what is the best way to represent radiation damage on board cruisers and battleships massing thousands of tons with hundreds or even thousands of crew members?

To keep things quick and easy, and still reflect the effects of accumulating radiation damage on the crew of large vessels, we would suggest simply apply a cumulative DM-1 to all actions a ship performs for every 10% of Hull it loses to Radiation weapons.

If the ship has radiation shielding, increase this to DM-1 every time it loses 40% of its Hull to Radiation weapons (radiation shielding is well worth it if you are facing enemies who like to poison your crew!).

However, if meson weapons are being used, ignore any radiation shielding – regardless of the protection the ship has, the crew will still be getting the full dose of radiation from these weapons.

INSTALL DRIVES

Once you have your basic hull complete, it is time to start filling it! The first items to add are the engines so the ship is able to move through space. These are divided into manoeuvre and jump drives. Manoeuvre drives use gravitic technology that pushes the ship through space – it is these that give a ship its Thrust score. Jump drives are special systems that allow a ship to travel faster-than-light across interstellar distances.

Reaction drives are very similar to manoeuvre drives but instead act as giant thrusters, exhausting gases that push the ship forward like today's rockets.

To fit a manoeuvre (or reaction) drive, consult the Thrust Potential table and decide what Thrust score you want your ship to have. The figure below that Thrust score shows what percentage of the ship's hull the manoeuvre drive requires.

Synchronised Jumps

When on the offensive, it is advantageous for every ship in a fleet to arrive at their destination within a few minutes of one another, rather than appearing in drips and drabs over the course of several hours and allowing an alert enemy to engage piecemeal.

Ships within a fleet can synchronise their jumps so they arrive at their destination within the same combat round, but this takes some engineering skill and a lot of processing power.

To synchronise a jump, every ship taking part must have a crew member succeed at a Difficult (10+) Engineer (jump drive) check (1D rounds, INT or EDU).

If one ship fails in this check, then it may not join in the synchronised jump. If this happens, the admiral may choose to jump without it or give the order for every ship to make the check again, restarting the whole process.

Synchronised jumps use the same Jump Control software as normal jumps, but the software package will require an extra +5 Bandwidth on top of its usual demands.

Thrust Potential

Manoeuvre Drive Rating	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
% of Hull	0.5%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	-	-	-	-	-
Manoeuvre TL	7	9	10	10	11	11	12	12	13	13	16	17	-	-	-	-	-
Reaction Drive Rating	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
% of Hull	-	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%	22%	24%	26%	28%	30%	32%
Reaction TL	-	7	7	7	8	8	8	9	9	9	10	10	10	11	11	11	12

Jump Potential

Rating	1	2	3	4	5	6	7	8	9
% of Hull	2.5%	5%	7.5%	10%	12.5%	15%	17.5%	20%	22.5%
Jump TL	9	11	12	13	14	15	16	17	18

Manoeuvre and reaction drives are limited by TL, as shown on the table. You cannot select a manoeuvre or reaction drive with a higher TL than the shipyard that is building it. So, for example, a TL9 shipyard can only install manoeuvre drives that are a maximum of Thrust 1.

A manoeuvre drive with Thrust 0 allows for station keeping to maintain position (such as with an orbiting station) but is not sufficient to move the hull any great distance.

Manoeuvre drives cost MCr2 per ton. Reaction drives cost MCr0.2 per ton.

Jump drives follow a very similar pattern. Select the jump score you wish your ship to have and use the figure below as the percentage of the ship's hull that the jump drive will consume, then add 5 tons.

A jump drive must be a minimum of 10 tons.

As with manoeuvre drives, jump drives are also limited by TL, as shown on the table. You cannot select a jump drive with a higher TL than the shipyard that is building it. So, for example, a TL12 shipyard can only install jump drives that are a maximum of jump-3.

Jump drives cost MCr1.5 per ton.

step 3:
INSTALL POWER PLANT

The heart of a spacecraft is the power plant. Typically fusion-based, the power plant meets all the energy requirements for every system on the ship, from the massive amounts required for jump and manoeuvre drives to the expresso machine in the captain's stateroom. Ships are typically built with power plants large enough to supply energy to all systems on a ship without interruption, though some cheaper vessels may require weapons and other systems to be off-lined while making a jump, for example.

The Power Plant table illustrates the types of power plant available, how much Power they generate and their cost.

Power Requirements
There are three main requirements a power plant must meet in terms of Power points needed by a ship.

Basic Ship Systems: This includes everything a ship needs for day-to-day operations, including artificial gravity, heating, lighting and life support. The number of Power points needed for basic ship systems is equal to 20% of the total tonnage of the hull.

Manoeuvre Drive: In order to use the manoeuvre drive, the ship requires a number of Power points equal to 10% of the hull's total tonnage multiplied by the maximum Thrust the drive is capable of (multiply by 0.25 if the ship is capable only of Thrust 0). Note that reaction drives do *not* require Power points.

Jump Drive: In order to use the jump drive, the ship requires a number of Power points equal to 10% of the hull's total tonnage multiplied by the maximum jump number the drive is capable of.

It is considered good practice to ensure there is enough Power available to use the basic ships systems and the manoeuvre drive simultaneously – being able to use the jump drive at the same time without taking power from other systems is considered a good advantage. You should also note that certain weapons and types of equipment require additional Power, as noted in their descriptions.

Power Plant

Type	Power per Ton	Cost per Ton
Fission (TL6)	8	MCr0.4
Chemical (TL7)	5	MCr0.25
Fusion (TL8)	10	MCr0.5
Fusion (TL12)	15	MCr1
Fusion (TL15)	20	MCr2
Antimatter (TL20)	100	MCr10

Not Enough Power, Cap'n!

There are several ways a ship can run out of power, from suffering damage in combat to simple bad design that requires certain systems to be switched off in order for others to function. Fortunately, ships have many systems that are less than vital and these can be temporarily powered down without much loss of function, as covered on page 144 of the Traveller Core Rulebook, under Basic Ship Systems.

While the Power required for basic ship systems can be halved in emergencies, a ship may lack enough Power to keep just these systems running. What will happen in these circumstances?

If a ship cannot run basic ship systems at even half power, the following will happen (and the referee is free to impose other, perhaps harsher, penalties).

- Life support will stop functioning at anything approaching an efficient rate. While the crew will not freeze or suffocate immediately, the ship will become distinctly uncomfortable to work in. Eventually, the breathable atmosphere will be expended and the temperature will drop to unsurvivable levels, typically in D3+3 hours.
- Iris valves, cargo hatches and automatic doors will cease to function, locking in open or closed positions as they were when the power failed.
- Even if Power can be supplied to the ship's computer, individual terminals throughout the ship will cease to function, with the exception of those on the bridge.
- The grav plating throughout the ship will cease to function, creating zero-G conditions across all decks.
- Shipboard communications systems (such as the PA system) will cease to function, reducing the crew to the use of personal communicators or shouting.

step 4:
INSTALL FUEL TANKS

All ships require fuel to function and the total fuel tankage for a ship must be indicated in the design plans. There is no cost associated with space allocated to fuel tanks, but their capacity will influence how often the ship must refuel.

Manoeuvring

Manoeuvre drives do not require fuel, though reaction drives do.

The amount of fuel a reaction drive requires is determined as the percentage of ship's total tonnage, and is equal to;

2.5% per Thrust per hour

So, a ship capable of Thrust 4 will require 10% of the ship's tonnage as fuel for every hour of use. If you wanted this ship's reaction drive to be able to function for four hours, it would require 40% of its tonnage to be allocated as fuel tanks.

In combat, it is convenient to multiply the Thrust the ship is capable of by the number of hours it can operate, and then multiply that again by 10 to obtain a Thrust Point Total. Because there are ten combat rounds every

hour, you can then simply deduct every Thrust point the ship uses in combat from the Thrust Point Total. When it reaches zero, the ship has run out of fuel for its reaction drive!

Jump Drives

The fuel tankage needed for a jump drive is related to the size of the ship and the length of the jump, as follows;

10% of the total tonnage of the ship, multiplied by the maximum jump score of the drive

The result of this is the number of tons that needs to be dedicated to jump fuel.

Power Plants

Chemical power plants require 10 tons of fuel per ton of power plant for every two weeks of operation.

Other power plants require fuel tankage equal to 10% of their size (rounding up, minimum 1 ton). This provides enough fuel for the power plant for a month (four weeks). This can be extended further by increasing the fuel tankage for the power plant (so, doubling it will provide enough fuel for eight weeks, and so on).

step 5:

INSTALL BRIDGE

All ships must have a bridge containing basic controls, communications equipment, avionics, scanners, detectors, sensors, and other equipment for proper operation of the ship. The size of the bridge varies depending on the size of the ship and can range from a massive deck with multiple crew positions on a capital ship to a snug single-seat cockpit in a fighter.

The size of bridge required and its cost are shown on the Bridges table.

Bridges

Size of Ship	Size of Bridge
50 tons or less	3 tons
51-99 tons	6 tons
100-200 tons	10 tons
201-1,000 tons	20 tons
1,001-2,000 tons	40 tons
2,000 tons or more	60 tons

The cost of any bridge is MCr0.5 per 100 tons (or part of) of the ship it is installed within.

Smaller Bridges

It is possible to install a smaller bridge than a ship should normally have. This is usually done to save space or money.

A ship can have a bridge one size smaller than the Bridges table indicates, halving the cost of the bridge. For example, a 100 ton scout could be built with a 6 ton bridge.

A ship with a smaller bridge suffers DM-1 for all checks related to spacecraft operations made from within the bridge (these would include Astrogation and Pilot checks, for example).

Command Bridges

A command bridge is used by ships intended to lead squadrons or entire fleets, where the control of large regions of space is critical. A command bridge consumes 80 tons, can be used by any ship of 5,000 tons or more and costs MCr0.75 per 100 tons (or part of) of the ship it is installed within. It functions as a normal bridge but also grants DM+1 to all Tactics (naval) checks made by Travellers within it. A command bridge may replace the regular ships bridge or be added as a seperate component.

Cockpits

Instead of a bridge, ships of 50 tons or less may install a cockpit. This is a self-contained, sealed area that contains a single seat and all controls necessary for the operation of the ship. Cockpits are typically entered via an external hatch or canopy.

A cockpit consumes 1.5 ton of space and costs Cr10000.

A dual cockpit provides space for an additional crew member, such as a sensor operator or dedicated gunner. This consumes 2.5 tons of space and costs Cr15000.

A cockpit is not designed for long term use and only has life support for 24 hours. However, pilots will want to leave the cockpit long before then…

step 6:
INSTALL COMPUTER

Every ship needs a central computer, usually installed near the bridge. The computer is the heart of the ship, controlling all functions from life support to the complex calculations needed to perform a jump.

Computers are identified by their model number, and the Computers table indicates their price, capacity, and Tech Level. In general, larger and more powerful computers are advantageous in combat. The computers installed in a ship work just like personal computers (see the *Traveller Core Rulebook* page 104) but are considerably more powerful because the software needed for ship operations requires a great deal of processing power (see The Ship's Computer on page 63).

Computers

Processing	Tech Level	Cost
Computer/5	7	Cr30000
Computer/10	9	Cr160000
Computer/15	11	MCr2
Computer/20	12	MCr5
Computer/25	13	MCr10
Computer/30	14	MCr20
Computer/35	15	MCr30

Computers do not consume any tonnage on a ship – while they do have a physical presence, they are distributed throughout the ship and considered part of other components such as the bridge, staterooms and drives.

A ship may have a maximum of two computers (a primary and a backup), but the second must have a lower Processing score than the primary.

Computer Cores
Most capital ships and certain other vessels have multiple distributed computer networks spread throughout their decks, but always include a central computer core that controls the ship's jump drive. These are extremely powerful computing systems with massive amounts of processing power available.

Processing	TL	Cost
Core/40	9	MCr45
Core/50	10	MCr60
Core/60	11	MCr75
Core/70	12	MCr80
Core/80	13	MCr95
Core/90	14	MCr120
Core/100	15	MCr130

The Processing score for a computer core is in addition to the processing power needed for Jump Control programs, and all Jump Control software is included in the price of the core. Other ship software must be added at extra cost as normal.

Computer Options
There are two additional options to consider when fitting a ship's computer.

Jump Control Specialisation (/bis): A computer's Processing score is increased by +5 for the purposes of running Jump Control programs only. This increases the computer's cost by +50%.

Hardened Systems (/fib): A computer and its connections can be Hardened against attack by electromagnetic pulse weapons. A hardened computer is immune to Ion weapons, but costs +50% more.

Both options can be applied to the same computer by doubling its cost (+100%).

step 7:
INSTALL SENSORS

All ships come equipped with basic communications, sensor, and emission-control suites, usually as part of their bridge. However, specialised or military ships often benefit from more advanced systems that are far more sensitive and resistant to jamming.

The DM column in the Sensors table is applied to all Electronics (comms) and Electronics (sensors) checks made by crew in the ship. All ships have Basic sensors unless upgraded.

Sensors	TL	Suite	DM	Power	Tons	Cost
Basic	8	Lidar, Radar	-4	0	-	-
Civilian Grade	9	Lidar, Radar	-2	1	1	MCr3
Military Grade	10	Jammers, Lidar, Radar	+0	2	2	MCr4.1
Improved	12	Densitometer, Jammers, Lidar, Radar	+1	4	3	MCr4.3
Advanced	15	Densitometer, Jammers, Lidar, Neural Activity Sensor, Radar	+2	6	5	MCr5.3

step 8:
INSTALL WEAPONS

Military ships rely on a broad range of weaponry to project power across space but even a humble merchant or scout will find a weaponised turret a useful addition when straying into rougher star systems.

Weapons are installed in the same way as components, taking note of the tonnage they consume within the hull and their cost. Most weapons also have a Power cost associated with them and so you should ensure your power plant is still large enough to handle all the needs of the spacecraft after weapons have been installed.

Specific details of weapons (and defensive screens) and how they are installed in a ship can be found in the spacecraft options chapter.

step 9:

INSTALL OPTIONAL SYSTEMS

There are a multitude of optional systems, components and other accessories that can be added to a ship. These are covered in the spacecraft options chapter.

Note that most of these optional systems consume tonnage and some also require Power, both of which you should make careful note of.

step 10:

DETERMINE CREW

All ships, regardless of their level of technology and automation, require a certain number of crew on board to run each system and perform necessary duties. The smallest of ships can get away with just one or two multi-skilled individuals but the largest capital ships may need many thousands.

The Crew Requirements table shows how many crew are needed for a commercial or adventuring ship, and how many will usually be found on a military vessel. Salary

can vary but the values on the Crew Requirements table shows a monthly average for skill level 1 crew, with the presumption that +50% will be added for every skill level above this.

Note that these are the crew levels a ship *should* have. When Travellers get their hands on a ship, they may want to do things a little differently, and this is handled by the guidelines detailed under Small Star Ships below.

Small Craft
Ships of 100 tons or less that do not possess a jump drive typically have only a single pilot. The journeys undertaken by such ships are generally short and it is assumed regular maintenance will remove any need for mid-voyage engineering.

Specialised small craft, such as those engaged in scientific work or with separate weapon stations may function more efficiently with more crew positions but they are not strictly necessary to the operation of the ship.

Small Star Ships
Spacecraft in the hands of small-time traders or adventurers usually run with the barest minimum of crew, with personnel often fulfilling more than one role as situations demand. For example, it is very common on a smaller ship for the pilot to also act as the astrogator, or a steward to have basic medical skills. This keep the monthly salary bill low and increases what may otherwise be very slim profits.

Ships of less than 1,000 tons can, in theory, be run by just one or two multi-skilled people, but the ship will be at a serious disadvantage in high-stress situations such as combat. The crewman acting as pilot will likely be kept busy in the cockpit, actually flying the ship, while the other will find his attention split between engineering, damage control and the weapon systems – a quick look at the Crew Duties section in the *Traveller Core Rulebook* (page 154) will quickly demonstrate how inefficient this will prove to be.

Large Ships
The number of crew required to effectively operate a ship increases hugely with the size of the vessel, but large ships do have efficient centralisation of systems.

For ships of more than 5,000 tons, the referee can opt to reduce the required crew by two thirds.

Crew Requirements

Position	Skills	Salary	Commercial	Military
Captain	-	Cr10000	Usually the leading officer	1
Pilot	Pilot	Cr6000	1	3
Astrogator	Astrogation	Cr5000	1 if jump drive installed	1 if jump drive installed
Engineer	Engineer	Cr4000	1 per 35 tons of drives and power plant	1 per 35 tons of drives and power plant
Maintenance	Mechanic	Cr1000	1 per 1000 tons of ship	1 per 500 tons of ship
Medic	Medic	Cr4000	1 per 120 crew and passengers	1 per 120 crew
Gunner	Gunner	Cr2000	1 per turret, bay or screen	2 per turret, bay or screen, 1 per 100 tons of spinal mount weaponry
Steward	Steward	Cr2000	1 per 10 High or 100 Middle passengers	1 per 10 High or 100 Middle passengers
Administrator	Admin	Cr1500	1 per 2000 tons of ship	1 per 1000 tons of ship
Officer	Leadership or Tactics	Cr5000 *	1 per full 20 crew	1 per full 10 crew

* This can be presumed to be an average taken across all officer positions on a ship. In practice, it will vary a great deal between junior and senior officers.

Note that any smaller craft carried by a ship may have their own crew in addition to those necessary for the mother vessel.

step 11:

INSTALL STATEROOMS

Staterooms represent the living space for both crew and passengers on ships. A single stateroom contains living and sleeping facilities, including a bed, fresher and a very basic kitchen.

Each stateroom consumes 4 tons and costs MCr0.5. Most ships will allocate one person to each stateroom.

Double Occupancy

Some ships have bunks in their staterooms rather than single beds, allowing two people to share the same stateroom. This is called double occupancy and is often done on exploratory ships, privately-owned vessels and, especially, military ships.

Employing double occupancy on a ship does not cost anything (which is why many commercial captains insist on it) but lack of privacy for extended periods of time can quickly wear on crew not used to it.

Low Berths

A low berth provides suspended animation facilities for emergencies and low-paying passengers. They are not always safe to use but take up relatively little space or power.

A low berth can hold one low passenger. It consumes half a ton and costs Cr50000. Low berths require 1 Power for every 10 berths or part of.

Emergency Low Berths

These are compact low berth suites, designed to be used in extreme emergencies, such as if a crewman develops a medical condition that cannot be cured on ship or if the ship is stranded for an extended period of time.

An emergency low berth can hold four people in dire circumstances. It consumes one ton, costs MCr1 and requires 1 Power.

Common Areas and Living Space

It is common practice to assign an additional amount of tonnage, perhaps equal to a quarter of that used for

staterooms, as common areas or general living space. These will typically be recreation area such as a mess, canteen, or lounge and can provide facilities such as parks, pools, theatres and so on, for the amusement and entertainment of visiting crew and passengers.

This is not strictly necessary and ships can and will vary in this allocation, either increasing it to give crews and passengers a more luxurious (or at least more comfortable) journey, or cutting back to give more space to useful components though at a cost of crew comfort.

Common areas cost MCr0.1 per ton.

step 12:
ALLOCATE CARGO SPACE

Any space left on the ship that has not been allocated to other components is considered to be free for cargo. There is no cost associated with areas designated for cargo, but any cargo or other materials taken on board the ship can obviously not exceed the tonnage set aside for cargo.

step 13:
FINALISE DESIGN

Once cargo space has been allocated, the design process has been completed – your ship is now ready to fly.

Airlocks
Airlocks are sealed systems consisting of two heavy-duty doors or iris valves, with atmospheric pumping equipment, allowing transit to and from a spacecraft in a vacuum or hostile atmosphere. A ship may have one airlock for every 100 tons or part of. A standard airlock is capable of cycling two humans per minute between the ship's interior and exterior, or vice versa. Additional airlocks may be added using the system in the spacecraft options chapter.

Cargo Hatches
Any area designated for cargo can be given a cargo hatch of any size but this is not an airlock. Generally speaking, cargo areas are capable of being sealed and so are effectively one large airlock unto themselves, but this can cause problems when needing to unload cargo in a hostile environment. See the description of cargo airlocks on page 39 for a solution.

All that remains is to total up the tonnage consumed by components to ensure you have not tried to squeeze too much within the hull, and to add up all components to find the final cost of the ship. If you need to go back and revise any part of the ship, now is the time.

Once everything has been double-checked, you can now record all the details of the ship in a handy file, perhaps using the Ship Roster template found on page 87 and the Mongoose Publishing web site. You might also find it handy to sketch out a deck plan using the guidelines found on page 81.

At this point, you should work out the monthly maintenance cost of the ship. For this, simply take the total cost of the ship, minus any other ships it is carrying, and deduct 99.9%. Divide this final figure by 12, and you will have the monthly maintenance cost of the ship!

You may also find it useful, especially on military ships, to calculate the monthly life support cost. This may be more difficult on ships belonging to Travellers as the number of people on board can vary greatly, but such ships are generally small enough that this will not be a burden to calculate on a month-to-month basis.

That done, your ship is now ready for you to walk onto the bridge, take command, and set sail for the stars!

WEAPONS & SCREENS

From a small laser mounted on a trader for point defence and the discouragement of piracy, to the massive spinal weapons that battleships are built around, weapons (both offensive and defensive in nature) are an important component for many ships. This chapter explores the vast range of options available to spacecraft architects who are looking to weaponise their creations.

Unless otherwise stated, all weapons in this chapter are Spacecraft scale (see *Traveller Core Rulebook,* page 158).

NUMBER OF WEAPONS

There are only so many weapons that can be attached to a ship, the limiting factors being the supply of energy, the stresses imposed upon the hull through the use of high-powered weaponry, and the surface area of a hull it is possible to cover with weapons.

Spacecraft therefore have a maximum number of Hardpoints to which weapons can be attached.

A ship has one Hardpoint for every full 100 tons of its hull.

Each weapon system uses a number of Hardpoints, depending on its size as shown on the Hardpoints table.

Hardpoints

Weapon System	Hardpoints Used
Fixed Mount	1
Turret	1
Barbette	1
Small Bay	1
Medium Bay	1
Large Bay	5
Spinal Mount	Weapon Tonnage / 100

Small Craft

Ships of less than 100 tons have Firmpoints instead of Hardpoints. A Firmpoint on a small craft is a fixed mount (typically forward-facing, but there is no requirement for this), but can be upgraded to a single (not double or triple) turret.

A ship of less than 35 tons has one Firmpoint. A ship of 35-70 tons has two Firmpoints, and a ship of 70-99 tons has three Firmpoints. Beyond this size, ships use Hardpoints.

A weapon mounted upon a Firmpoint has the following changes applied to it.

- Weapons of Medium range or less are reduced to Adjacent range.
- Weapons of greater range are reduced to Close range.
- A weapon on a Firmpoint may not have its range increased beyond Close by any means.
- Power requirements of the weapon are reduced by 25% (rounding up).
- Barbettes consume two Firmpoints.

Critical Hits on Large Ships

Large ships have a huge array of redundancy built into their critical systems, allowing them to weather a tremendous amount of damage. A hit that would disable the entire power plant of a Type-S scout might do nothing more than cause a technician to flip a switch to engage an auxiliary relay on board a heavy cruiser.

Because of this, large ships can simply ignore a large number of critical hits.

- Ships larger than 2,000 tons ignore critical hits from turrets and barbettes.
- Ships larger than 10,000 tons ignore critical hits from all weapons except medium and large bay weapons.
- Ships larger than 100,000 tons ignore critical hits from all weapons except large bays.

Large ships can also endure a great deal more damage before the effects of any critical hits become noticeable. The Severity of a critical hit is based on 1% increments of the ship's hull value (minimum 10 points of damage). For example, a ship with 10,000 Hull points that receives a critical hit that causes 224 points of damage, will sustain a Severity 2 critical hit.

System Defence and Sensors

The Traveller Core Rulebook covers ranges in space up to Distant, but this is still a relatively short distance in astronomical terms. When constructing fleets and space stations, referees may find it useful to consider ranges above Distant.

When using these rules, Distant covers ranges up to 300,000 km, and is the maximum practical range that any attacks or other offensive can be made. However, it is possible for sensors to reach further in order to detect incoming threats. The following new range bands reflect this.

Very Distant (up to 5,000,000 km): All Electronics (sensors) checks become Formidable (14+).

Far: (over 5,000,000 km): At these ranges, sensors can spot the signature of ships making jumps (inbound or out), and can determine only whether a contact is a ship or other similar-sized astronomical body. In either case, sensors will only be able to determine the size of the contact to the nearest 10,000 tons.

Immense size is also a factor in detection, and it can be a real trial trying to creep up on a starport with a dreadnought. Attempts to detect ships of 100,000 tons of greater gain DM+2, while attempts to detect ships of 500,000 tons or greater gain DM+4.

Spinal mount weapons can always (and will!) cause critical hits.

All ships, even the largest, suffer critical hits from Sustained Damage (see page 158 of the Traveller Core Rulebook) as normal.

TURRETS AND FIXED MOUNTS

Turrets and fixed mounts use the same type of weapons but whereas a fixed mount may only fire at targets directly ahead of it, a turret rotates and may engage any target in sight.

One turret or fixed mount may be attached to each Hardpoint on a ship.

| Mount	TL	Power	Tons	Cost
Fixed Mount	-	0	0	MCr0.1
Single Turret	7	1	1	MCr0.2
Double Turret	8	1	1	MCr0.5
Triple Turret	9	1	1	MCr1
Pop-Up Mounting	10	+0	+1	MCr1
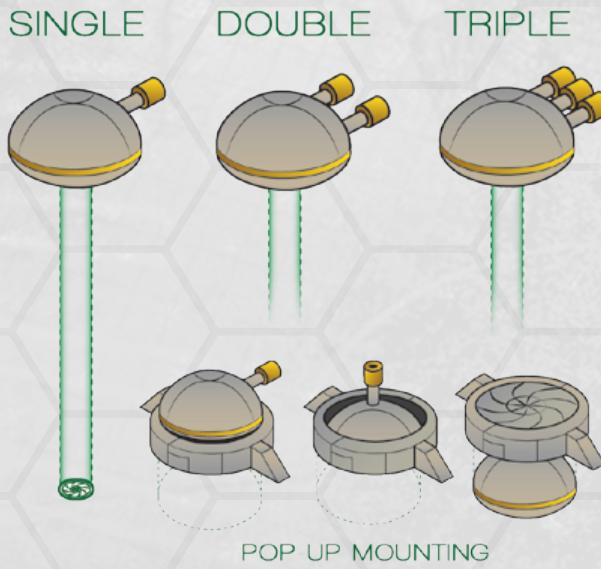
Up to three weapons may be mounted on a fixed mount (small craft have additional limitations), while turrets can mount one, two or three weapons, depending on their type. These weapons need not be of the same type but only one type may be used in the same attack.

If two or more weapons are of the same type, they may be fired together. One attack roll is made for all weapons being fired, but each additional weapon adds +1 per damage dice to the final damage total.

For example, if a triple turret with three pulse lasers is fired, it will only make one attack roll but will deal 2D+4 damage (two additional pulse lasers each adding +1 per damage dice).

Turrets and fixed mounts require just one gunner to operate, even if multiple weapons are mounted upon them.

Pop-Up Mounting: This can be applied to any turret or fixed mount. The weapon system is concealed in a pod or recess on the hull, and detectable only when deployed. A ship with all its weapons hidden in pop-up mounts will appear unarmed to a sensor scan that focusses only on its exterior.

SINGLE   DOUBLE   TRIPLE

POP UP MOUNTING

Turret Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Beam Laser	10	Medium	4	1D	MCr0.5	-
Laser Drill	8	Adjacent	4	4D	Cr150000	-
Missile Rack	7	Special	0	4D	MCr0.75	Smart
Pulse Laser	9	Long	4	2D	MCr1	-
Sandcaster	9	Special	0	Special	MCr0.25	-

Beam Laser: A laser-based weapon that fires a continuous beam, allowing targets to be tracked and hit more easily. However, this does require more power to function and so is shorter ranged and does less damage than a pulse laser.

Laser Drill: This is more of a tool than a weapon, used by belters to penetrate asteroids and reach valuable ores. Salvagers also use laser drills to gain entry into derelict ships. However, in an emergency, the laser drill makes for a potent, if very short-ranged, weapon. The laser drill suffers DM-3 to attack rolls if used as a weapon.

Missile Rack: Though missile racks require ammunition and the warheads take time to reach distant targets, they can be very powerful weapons and, when a range of warheads is available, extremely versatile too. Each missile rack holds 12 missiles (missile racks on Firmpoints hold four missiles). The missile rack here is equipped with standard missiles.

Pulse Laser: Utilising capacitors to discharge its energy in a single powerful blast, the pulse laser is less accurate than its beam-based counterpart but is longer ranged and does more damage.

Sandcaster: Though mounted in turrets and of use against boarders, the sandcaster is primarily a defensive weapon used to protect ships from laser weapons. Each sandcaster holds 12 sand canisters and costs Cr25000 to refill.

BARBETTES

Barbettes are effectively heavy turrets. A barbette uses a single Hardpoint, and requires the Gunner (turret) skill, but also consumes additional tonnage inside the ship, as its larger weapons need more space for capacitors, targeting mechanisms, ammunition feeds and other components. Like turrets, barbettes require just one gunner to operate.

Each barbette consumes a total of 5 tons.

Fusion Barbette: An extremely powerful weapon in planet-based warfare, in space the fusion barbette provides hard-hitting strikes at a reasonable cost. It remains power-hungry, however.

Gravimetric Distorter: This weapon creates a distortion field that negates the effect of grav plating. Each gravimetric distorter can effect an area equivalent to one hundred tons of displacement (that is, an entire 100 ton ship or smaller, or part of a larger ship). This means all crew and items in the area will be subject to zero gravity conditions, unless the ship expends Thrust in which case they will be subject to high gravity conditions (see *Traveller Core Rulebook*, page 76). The effect lasts for one round. These weapons are more commonly used by pirates than naval forces although dedicated boarding parties do sometimes make use of them.

Ion Cannon: This weapon disrupts the systems of the target ship. Ion weapons are typically used to

Weapon	TL	Range	Power	Damage	Cost	Traits
Fusion Barbette	12	Medium	20	5D	MCr4	Radiation
Gravimetric Distorter	13	Short	10	Special	MCr4	-
Ion Cannon	12	Medium	10	2D x 10	MCr6	Ion
Missile Barbette	7	Special	0	4D	MCr4	Smart
Particle Barbette	11	Very Long	15	4D	MCr8	Radiation
Plasma Barbette	11	Medium	12	4D	MCr5	-
Tachyon Cannon	14	Long	6	2D	MCr5	AP 10
Torpedo	7	Special	2	6D	MCr3	Smart

New Weapon Trait: Ion

By means of massive electromagnetic pulses, overloading or power systems or other exotic effects, ion weapons have the potential to temporarily disrupt critical systems on board a ship without causing permanent damage. This can give a vital edge in combat while an enemy ship recovers or force an enemy to surrender before the disabling attack is followed up by something far more potent.

Instead of dealing damage as usual, Ion weapons use the following rules.

When an Ion weapon successfully hits a target, roll for its damage but ignore any armour the target possesses. Instead of applying damage to the target's hull, it is instead temporarily deducted from the target's Power, representing the disabling effects as they spread throughout the ship and the crew working hard to keep the most vital systems online.

This reduction in Power will last until the target completes its next set of actions, in either the current round or the next.

If the Effect of the attack roll is 6 or more, the reduction in Power will last for D3 rounds.

Hardened Systems: If a system is listed as being hardened (as with /fib computers, for example), the crew may choose to allocate any Power to it before any deductions for Ion weapons are applied. This ensures a hardened system will always have enough Power to function (so long as the Power was available *before* the Ion attack!).

temporarily disable enemy ships, stopping them from fleeing or attacking while a position of advantage can be attained. For this reason, they may be found on well-equipped pirate vessels or customs ships.

Missile Barbette: Equipped with multilaunchers, a missile barbette can unleash a flurry of warheads at a target. A missile barbette fires 5 missiles at a time, and holds enough missiles for 5 full salvos (a total of 25 missiles). Missile barbettes on Firmpoints hold eight missiles.

Particle Barbette: Taking advantage of the increased power efficiencies and space available to a barbette, this is a much larger particle weapon than those mounted in turrets.

Plasma Barbette: A large plasma weapon, the plasma barbette is capable of smashing through even well-armoured targets.

Tachyon Cannon: This weapon fires a stream of high speed tachyons that are able to pass through thick armour without being slowed by it. Molecular bonded armour is immune to this effect and tachyon cannons lose their AP trait when attacking a ship so armoured.

Torpedo: A torpedo is a heavy anti–ship missiles capable of carrying tremendous destructive force. Torpedoes are treated in every way like missiles, though they tend to be a lot more powerful. Each torpedo barbette holds 3 torpedoes (those on Firmpoints hold two torpedoes). The torpedo here is equipped with a standard warhead.

BAYS

For ships requiring more destructive power than can be provided by turrets and barbettes, weapons bays allow ships to concentrate a lot of fire from a single weapon system. However, they do not have the fast-tracking systems found in turrets and consequently find smaller targets harder to score hits upon.

Bays come in three sizes; small, medium and large. They require tonnage, Hardpoints and crew as shown on the Bay Weapons table.

Bay Hardpoints

Mount	Tons	Hardpoints	Crew
Small	50	1	1
Medium	100	1	2
Large	500	5	4

All bay weapons suffer DM-2 when attacking targets of 2,000 tons or less, and DM-4 when attacking targets of 100 tons or less. Large bays add +1 per damage dice (this is done before multiplying by 10 for Destructive weapons) to the final damage total, and gain DM+4 when attacking targets of 3,000 tons or more, due to the massive amount of weaponry they hold. (missile and torpedo salvoes do not use these modifiers).

Fusion Gun Bay: Each fusion gun bay mounts one or more massive fusion cannons, capable of blasting apart small vessels with a single blast.

Ion Cannon Bay: This weapon disrupts the systems of the target ship. Ion cannon bays allow the focussing of a great deal of energy, potentially causing even small capital ships problems when used in sufficient number. This can give a small but important advantage in fleet battles that will bring final victory.

Mass Driver Bay: Also known as an ortillery railgun, this weapon fires large, solid projectiles at speeds optimised for smashing planetary targets. Each bay contains enough ammunition for 6 attacks. Extra or replacement ammunition can be purchased as shown on the Mass Driver Ammunition table.

Mass Driver Ammunition

Mass Driver Bay	Tons/Attack	Cost/Attack
Small	2	Cr20000
Medium	4	Cr40000
Large	20	Cr200000

Small Bay Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Fusion Gun Bay	12	Medium	50	1DD	MCr8	-
Ion Cannon Bay	12	Medium	20	6D x 10	MCr15	Ion
Mass Driver Bay	8	Short	15	1DD	MCr40	-
Missile Bay	7	Special	5	4D	MCr12	Smart
Particle Beam Bay	11	Very Long	30	6D	MCr20	Radiation
Railgun Bay	12	Short	10	3D	MCr30	Auto 4
Tachyon Cannon Bay	14	Long	10	4D	MCr15	AP 10
Torpedo Bay	9	Special	2	6D	MCr3	Smart

Medium Bay Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Fusion Gun Bay	12	Medium	80	2DD	MCr16	-
Ion Cannon Bay	12	Medium	30	8D x 10	MCr25	Ion
Mass Driver Bay	8	Short	25	2DD	MCr70	-
Missile Bay	7	Special	10	4D	MCr25	Smart
Particle Beam Bay	11	Very Long	45	8D	MCr40	Radiation
Railgun Bay	12	Short	15	4D	MCr60	Auto 6
Tachyon Cannon Bay	14	Long	15	6D	MCr30	AP 15
Torpedo Bay	9	Special	5	6D	MCr6	Smart

Large Bay Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Fusion Gun Bay	12	Medium	220	2DD	MCr50	-
Mass Driver Bay	8	Short	40	2DD	MCr120	-
Missile Bay	7	Special	50	4D	MCr125	Smart
Particle Beam Bay	11	Very Long	200	8D	MCr120	Radiation
Railgun Bay	12	Short	75	4D	MCr90	Auto 6
Tachyon Cannon Bay	14	Long	50	6D	MCr90	AP 15
Torpedo Bay	9	Special	25	6D	MCr30	Smart

Missile Bay: Packed full of launchers, a missile bay can unleash salvos of warheads at a target, overwhelming its active defences. A small bay fires 12 missiles at a time, a medium bay fires 24, and a large bay can fire 120 missiles in a single round. Each bay holds enough missiles for 12 full salvos (so, 144 missiles in a small bay, 288 in a medium bay and 1,440 in a large bay).

Multiple Warheads Incoming!

Once ships start mounting bay weapons, the number of missiles they can throw at their enemies increases significantly. When multiple salvoes of missiles (or torpedoes) are incoming, even the finest sensor operator can become quickly overwhelmed. To counter this, large warships tend to have multiple sensor stations operated by several dedicated crew members.

Because of this, assume that a ship will have one sensor operator for every full 1,000 tons. A 7,500 ton ship, for example, would normally have seven sensor operators who could between them perform the Electronic Warfare action on seven different incoming salvoes.

At his discretion, a referee may specify a particular ship has more or less sensor operators, perhaps to reflect a ship in a universe where missile combat is not common or one that is expected to face nothing but missiles, but one sensor operator per 1,000 tons is a good place to start.

Particle Beam Bay: The use of a bay allows much larger particle beam weapons to be installed, the largest capable of terrifying firepower that erodes a ship's hull and irradiates enemy crew.

Railgun Bay: Though the rounds a railgun uses are low technology armour penetrators, the weapon itself uses electromagnetic forces to accelerate them to sizeable fractions of the speed of light, delivering a high dose of kinetic energy to the target. Railgun bays contain enough ammunition for 12 attacks each. Extra or replacement ammunition can be purchased as shown on the Railgun Ammunition table.

Railgun Ammunition

Railgun Bay	Tons/Attack	Cost/Attack
Small	1	Cr15000
Medium	2	Cr30000
Large	10	Cr150000

Tachyon Cannon Bay: A larger tachyon cannon than those found on barbettes, this powerful weapon retains the ability to penetrate armour while delivering a much greater punch. Molecular bonded armour is immune to this effect and tachyon cannons lose their AP trait when attacking a ship so armoured.

Torpedo Bay: A flurry of missiles will panic any ship's captain but a salvo of torpedoes is real cause for concern. The torpedo bay launches a number of torpedoes with every attack; 3 torpedoes for a small bay, 6 torpedoes for a medium bay and 30 torpedoes for a large bay. Each bay holds enough torpedoes for 12 full salvos (so, 36 torpedoes in a small bay, 72 in a medium bay and 360 in a large bay).

SPINAL WEAPONS

Spinal weapons are the ultimate in ship-borne firepower, huge weapons that run the entire length of a ship. In many cases, a ship will be built around the weapon itself (hence the term 'spinal') and a single shot from a spinal weapon can cut a lesser vessel in two. Spinal weapons are specifically designed to deliver knockout blows against the largest vessels and surface installations. Consequently, they are extremely inaccurate when attacking small targets.

All spinal weapons suffer DM-4 when attacking targets of 10,000 tons or less, and DM-8 when attacking targets of 5,000 tons or less. Spinal weapons cannot attack targets of less than 2,000 tons unless they are stationary or are caught in the blast by accident!

Spinal weapons use a number of Hardpoints equal to their tonnage divided by 100, rounding up. A spinal mount cannot exceed a tonnage equal to half that of the ship carrying it.

While spinal weapons are classed as Destructive, they are by far the most potent weapons that can be installed on a ship. Instead of multiplying the damage by 10, as is normal for a Destructive weapon, spinal mounts multiply it by 1,000!

However, spinal weapons also require vast reserves of power and naval architects may consider using high efficiency batteries to allow a spinal weapon to be charged over time, rather than requiring a massive power plant that can deliver the required energy all at once.

Meson and particle spinal mounts are also far less effective when engaging targets within an atmosphere (such as planet-based installations) though they are still terrifying to behold. All damage against targets within an atmosphere is halved for these weapons and they lose their Radiation trait.

Spinal Mount Weapons

Weapon	TL	Range	Base Size	Power	Damage	Cost	Max. Size	Traits
Meson	12	Long	7500 tons	+1000	+2DD	+MCr2000	75000 tons	AP ∞, Radiation
Particle	11	Long	3500 tons	+1000	+1DD	+MCr1000	28000 tons	Radiation
Railgun	10	Medium	3500 tons	+500	+1DD	+MCr500	21000 tons	—

Spinal mount weapons are very large and, unlike other offensive systems, can be of variable size. The Spinal Mount Weapons table shows the effectiveness of a spinal mount weapon at its Base Size (this is also its minimum size). For every multiple of the Base Size, the spinal mount increases its Damage, Power consumption and cost by the amount shown.

So, for example, a 15,000 ton meson spinal mount will consume 2,000 Power, deal 4DD damage and cost MCr4000.

Spinal mounts improve rapidly with technology, with their power and projection systems becoming smaller and more efficient, allowing them to be placed within smaller vessels, as shown on the Spinal Mount Improvements table.

Spinal Mounts Improvement

TL	Tons	Cost
+1	-10%	+10%
+2	-15%	+20%
+3	-20%	+30%

Meson Spinal Mount: A truly awe-inspiring weapon, the dual-particle beams used by meson spinal mounts can end battles before they really begin. Meson spinal mounts ignore all armour.

Particle Spinal Mount: The largest version of a weapon whose development started with humble barbette-based systems, particle spinal mounts are a mainstay of the most powerful navies. The damage dealt by a particle spinal mount is reduced by 3% per point of armour possessed by the target.

Railgun Spinal Mount: Rather an array of smaller rapid-firing guns, the railgun spinal mount fires much larger rounds at near relativistic speeds that make a mockery of thick armour. The damage dealt by a railgun spinal mount is reduced by 2% per point of armour possessed by the target. Railgun spinal mounts come equipped with five rounds. Extra or replacement rounds consume 20 tons each and cost MCr0.2.

The Third Imperium
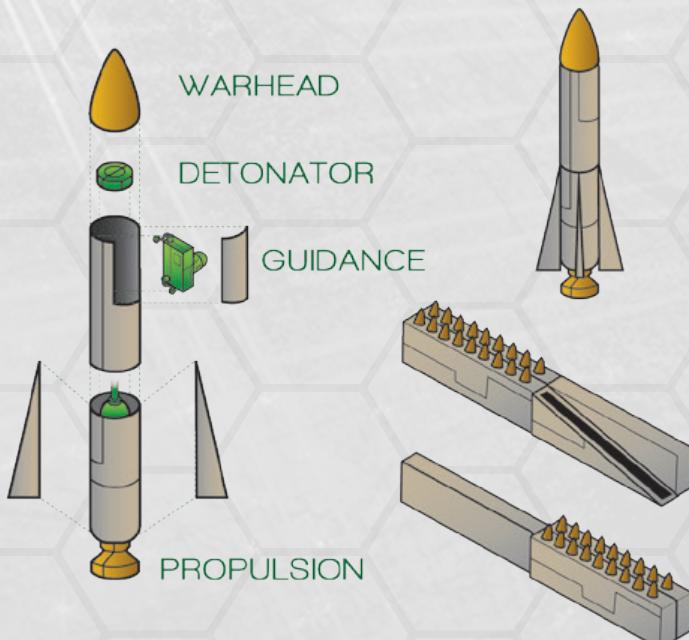
There is nothing within High Guard that stops you from mounting multiple spinal weapons onto one ship, creating a very powerful vessel! However, due to the structural reinforcements required and the technology available, ships in the Third Imperium universe may only have one spinal mount (or they would risk shaking themselves apart whenever they fired!)

MISSILES

There are several different types of missile beyond the standard warheads supplied with most weapon systems. Additional missiles may be purchased for a ship, increasing its stock of ammunition, and missiles can be replenished after use. Twelve missiles consume 1 ton.

Advanced Missile: A development of the standard missile, this model features improved motors and a far more devastating warhead.

WARHEAD

DETONATOR

GUIDANCE

PROPULSION

Missiles

Weapon	TL	Thrust	Damage	Cost	Traits
Advanced	14	15	5D	Cr350000	Smart
Antimatter	20	15	8D	MCr1	Radiation, Smart
Decoy	9	15	2D	Cr350000	Smart
Fragmentation	8	15	3D	Cr200000	Smart
Jumpbreaker	13	10	-	MCr1	Smart
Long Range	8	15	3D	Cr500000	Smart
Multi-Warhead	8	10	3D	Cr750000	Smart
Nuclear	6	10	6D	Cr450000	Radiation, Smart
Ortillery	7	6	1DD	Cr300000	Smart
Shockwave	7	10	-	Cr200000	Smart
Standard	7	10	4D	Cr250000	Smart

Antimatter Missile: Tipped with an antimatter warhead, these missiles are devastating enough in the attack but also release waves of destructive radiation on enemy crews.

Decoy Missile: These missiles have a small warhead but sport a pair of small pods mounted with powerful transmitters and jammers. These are detached shortly before impact, confusing point defence systems. All anti-missile fire directed at this missile suffers DM-2.

Fragmentation Missile: This missile is designed to target small craft. It explodes shortly before interception, throwing out a wall of high veolcity shrapnel. When fired in mass barrages this dense volley is enough to cripple entire bomber waves and disperse fighter screens. Upon reaching a target, the missile will make attack rolls against that target and up to three others within Adjacent range.

Fragmentation missiles are also an effective counter to other missiles when targeted at another missile salvo, Fragmentation missiles will reduce the number of missiles within the salvo on a one-for-one basis. They have no effect on torpedoes.

Jumpbreaker Missile: These missiles create localised gravitational distortions when they detonate, making the delicate calculations required for an accurate jump much more difficult. A ship hit by a jumpbreaker missile suffers DM-8 to any Jump check (see the *Traveller Core Rulebook*, page 148) attempted in this combat round or the next.

Long Range Missile: This missile forgoes a large warhead, instead using the space for greater fuel capacity and a more powerful motor. Long range missiles do not reduce their salvo strength every 5 rounds.

Missile Flight Times

High Guard introduces several new types of missiles and torpedoes that have different Thrust ratings compared to the standard warheads of the *Traveller Core Rulebook*. This Missile Flight Times table will aid referees in gauging how long it takes for salvoes to reach their target.

Missile Flight Times

Range	Thrust 6	Thrust 10	Thrust 12	Thrust 15
Short and Below	Immediate	Immediate	Immediate	Immediate
Medium	1	Immediate	Immediate	Immediate
Long	4	1	Immediate	Immediate
Very Long	6	4	3	2
Distant	21	10	9	7

In addition, when huge salvoes of missiles are in flight, problems with guidance and motor systems can be come more apparent. Halve the number of missiles within a salvo for every full 5 rounds of travel. Torpedoes have much greater endurance and so ignore this rule.

Multi–Warhead Missile: This heavy missile carries multiple warheads which detach before impact. This both overwhelms anti-missile defences (DM-2 to all point defence fire) and causes more damage. Just before you make an attack roll, multiply the number or missiles in the salvo by 3.

Nuclear Missile: A powerful missile available at lower Tech Levels, using nuclear missiles near an inhabited planet or orbit is forbidden by interstellar law.

Ortillery Missile: Specifically designed for planetary bombardment, ortillery missiles are powerful but too slow to be used effectively as anti–ship weapons unless the target is not expecting an attack. Ortillery missiles suffer DM-6 to hit any moving target.

Shockwave Missile: This is a highly specialised missile that carries a magnetic–pulse warhead. The blast it creates is harmless to spacecraft, but scatters and polarises sand clouds, rendering them useless in defence. A ship struck by a shockwave missile cannot benefit from sand defences for this round and the next.

Standard Missile: The most common form of missile, this carries a powerful explosive warhead.

SANDCASTERS

Most sandcasters fire canisters of small particles that counteract laser fire, but other types of canister are available. Additional canisters may be purchased for a ship, increasing its stock of ammunition, and missiles can be replenished after use. Twenty sand canisters consume 1 ton.

Canisters

Weapon	TL	Number	Cost	Traits
Chaff Canister	8	20	Cr30000	-
Pebble Canister	7	20	Cr25000	-
Sand Canister	7	20	Cr25000	-
Sandcutter Canister	8	20	Cr35000	-

Chaff Canister: Sandcaster chaff disrupts sensors and communications targeted at the ship that creates the cloud. All Electronics (comms), Electronics (sensors), Electronics (remote ops) checks and attack rolls for missiles made within a chaff cloud suffer DM-1. Chaff does not provide protection against laser fire.

Pebble Canister: This is designed as a basic offensive round for a sandcaster. When targeting boarders, pebble canisters cause 1DD damage. They do not provide protection against laser fire.

Sand Canister: The standard canister fitted to most casters. Its use is covered in the *Traveller Core Rulebook*, page 157.

Sandcutter Canister: A very short-ranged weapon, the sandcutter fires a hail of electromagnets into the midst of an enemy sand cloud. These magnets cause the sand to coagulate, reducing its effective protection. A sandcutter canister may be targeted against an enemy ship within Adjacent or Close range and a successful attack will halve the protection given by any sand canisters the enemy uses that round. It provides no protection against laser fire itself.

TORPEDOES

There are several different types of torpedo beyond the standard warheads supplied with most weapon systems. Additional torpedoes may be purchased for a ship, increasing its stock of ammunition, and torpedoes can be replenished after use. Three torpedoes consume 1 ton.

Torpedoes are much larger and more resilient than missiles, allowing them to punch through point defences to reach their targets.

A torpedo salvo halves the Effect of any successful point defence taken against it, rounding down.

However, torpedoes are designed to target larger vessels and can have trouble making successful attacks against smaller ships. Torpedo salvoes suffer an additional DM-2 on their attack rolls against ships smaller than 2,000 tons.

Advanced Torpedo: Manufactured with a more efficient warhead and far more powerful motors, the advanced torpedo is the weapon of choice for high technology fleets.

Antimatter Torpedo: Tipped with an antimatter warhead, this torpedo is immensely powerful, devastating to both ship and crew.

Antimatter Bomb-Pumped Torpedo: This torpedo contains a small antimatter device that is detonated prior to impact, charging a directed particle beam. Due to the 'stand-off' nature of its attack, point defence against this torpedo suffers DM-2. Defences that work against particle beams can be used against this torpedo.

Antiradiation Torpedo: A cunning weapon, the antiradiation torpedo is designed to home in on the

Torpedoes

Weapon	TL	Thrust	Damage	Cost	Traits
Advanced	14	15	7D	Cr275000	Smart
Antimatter	20	10	1DD	Cr900000	Smart
Antimatter Bomb-Pumped	21	10	8D	Cr800000	AP 10, Radiation, Smart
Antiradiation	12	10	6D	Cr300000	Smart
Bomb-Pumped	9	10	4D	Cr250000	Smart
EMP	9	10	4D x 10	Cr230000	Ion, Smart
Multi-Warhead Antimatter	21	10	1DD	MCr2	Radiation, Smart
Multi-Warhead Standard	8	10	4D	Cr400000	Smart
Multi-Warhead Nuclear	8	10	6D	Cr600000	Radiation, Smart
Nuclear	7	10	8D	Cr225000	Radiation, Smart
Ortillery	8	6	3DD	MCr1	Smart
Plasma	12	10	1DD	Cr650000	AP 10, Smart
Standard	7	10	6D	Cr150000	Smart

same emissions used in electronic warfare. This gives the target a stark choice; continue performing electronic warfare and be hit by the torpedo or shut down all such activities and be hit by a potentially nastier missile attack. Antiradiation torpedoes may only make an attack roll against a ship if it performed electronic warfare in this combat round or the previous one. However, it will make the attack roll with DM+6. If the ship did not perform electronic warfare, the torpedo will automatically miss.

Bomb–Pumped Torpedo: This torpedo contains a small nuclear device that is detonated prior to impact in order to charge a laser. Due to the 'stand-off' nature of its attack, point defence against this torpedo suffers DM-2. Defences that work against lasers can be used against this torpedo.

EMP Torpedo: This is similar to the standard torpedo but it replaces around half of its warhead with a flux compression generator, using the remainder to provide the high explosive compression. When it detonates, the torpedo produces a high power electro-magnetic burst which shorts out unshielded systems and can shut down unprotected vessels.

Multi-Warhead Torpedo: These heavy torpedoes carries multiple warheads which detach before impact. This both overwhelms anti-missile defences (DM-2 to all point defence fire) and causes more damage. Just before you make an attack roll, multiply the number or torpedoes in the salvo by 3.

Nuclear Torpedo: A basic but powerful weapon, the nuclear torpedo is used by lower tech navies.

Ortillery Torpedo: Like its smaller missile counterpart, this torpedo is designed to be launched from orbit

Smaller Weapons

It is possible to equip a spacecraft with Ground scale weaponry. This is usually done on small craft designed to operate regularly within an atmosphere while engaging ground targets but any spacecraft can use them.

Any weapon with a mass less than 250 kg can be mounted on a spacecraft at a cost of Cr1000 (the cost of the actual weapon is in addition to this). They will draw no Power from the spacecraft, as it is assumed their energy requirements are tiny in comparison to other systems, and nor do they require a hardpoint, but will consume 1 ton. However, up to four such weapons may be mounted for each ton dedicated to them. They will be attached to fixed mounts on any spacecraft of less than 50 tons, and small pop-up turrets operated from a remote station on larger ships.

Weapons of a mass of 250 kg or more will consume an amount of space equal to their mass, to a minimum of 1 ton. They are required to be mounted in turrets (if they mass one ton or less) or fixed mounts and again, will consume no power.

against planetside targets. Ortillery torpedos suffer DM-6 to hit any moving target.

Plasma Torpedo: This weapon is fitted with a powerful plasma burner in the nose, and is particularly effective at cutting through ship armour.

Standard Torpedo: This torpedo consists of a small but powerful engine, guidance computers, and a fragmentation device dedicated to kinetic–kill attacks.

POINT DEFENCE BATTERIES

A point defence battery consists of linked short-ranged laser turrets controlled by their own automated computer network. This removes the need for separate gunners dedicated to point defence, needing only a command from the bridge to activate when an incoming attack is detected.

A point defence battery automatically intercepts missile and torpedo salvoes just before they make their own attack rolls. A point defence battery will reduce the number of missiles attacking a ship each turn by its Intercept score. This can be applied to any salvo or spread between several salvoes. A point defence battery uses 1 Hardpoint.

SCREENS

Screens are a variety of directed defensive systems that use a number of technologies to defeat specific attacks. For example, meson screens prevent meson decay and so are targeted against incoming meson weapon attacks, while nuclear dampers are effective against nuclear warheads.

Angle Screens (Gunner)

Using a screen, a gunner can attempt to deflect or reduce incoming attacks. The type of attack that can be nullified in this way depends on the type of screen being used. The gunner must succeed at a Gunner (screen) check against an attack and, if successful, he will reduce the damage of the attack, after the armour has been accounted for, by the number of dice rolled by the screen (as noted in its description), multiplied by the Effect of his check.

A gunner may use any number of screens against a single attack, combining their dice (but only multiplying the result by his Effect once). A gunner may only attempt to Angle Screens once every round, and each screen can only be used once.

Screens use the Gunner (screen) skill and the Angle Screens reaction against specific attacks, in a similar way to the Point Defence and Disperse Sand reactions in the *Traveller Core Rulebook*.

Shields

Many universes feature ships capable of generating shields that deflect or absorb damage. These are covered in the High Technology chapter.

Meson Screen

Meson screens block attacks from meson weapons by preventing meson decay. A successful use of a meson screen against a meson weapon reduces its damage by 2D and remove its Radiation trait. Against Destructive weapons, every five meson screens will reduce damage by 1DD and remove the Radiation trait.

Nuclear Damper

Nuclear dampers project a series of nodes and anti-nodes where the strong nuclear force is enhanced or degraded, rendering nuclear warheads ineffective. A successful use of a nuclear damper against a fusion weapon or salvo of nuclear warheads (whether they are on missiles or torpedoes) reduces its damage by 2D and removes the Radiation trait. Against Destructive weapons, every five nuclear dampers will reduce damage by 1DD and remove the Radiation trait.

Screen	TL	Power	Tons	Cost
Meson Screen	13	30	10	MCr20
Nuclear Damper	12	20	10	MCr10

Black Globe Generator

Black globe generators are a special type of screen that project an energy–absorbing barrier which shunts the energy of an incoming attack into capacitors. Any ship using a black globe generator cannot manoeuvre, dodge, jump or use weapons or sensors while the globe is active. *All* energy aimed at a ship with an active black globe generator is automatically absorbed, irrespective of its type.

Black Globe generators are only available at TL15 or above and are not commercially available, tending to be

Point Defence

Weapon	TL	Intercept	Power	Tons	Cost
Type I	10	+1D	10	20	MCr5
Type II	12	+2D	20	20	MCr10
Type III	14	+3D	30	20	MCr20

either recovered artefacts of the Ancients or exotic (and not necessarily reliable) prototypes. They are installed either as makeshift defences or experimental screens on capital warships. These generators are therefore the jealously guarded property of governments and empires, and cannot be bought on the open market. The referee always has final discretion on the availability of black globe generators.

Black globe generators consume 50 tons and, when available, cost at least MCr100. They require 30 points of Power.

ABSORBING ATTACKS

As the energy of attacks absorbed by the generator is channelled to capacitors, a ship must have sufficient capacitor capacity if it is to avoid overloading its systems and explode catastrophically. Fortunately, if a ship possesses a jump drive, it will have considerable capacitor capacity.

A jump drive will have capacitors equal to 20% of its size in tons. Additional capacitors may be purchased at a cost of MCr3 per ton.

Each ton of capacitor will absorb 50 points of damage.

DISCHARGING CAPACITORS

If a ship with a black globe generator absorbs more damage than its capacitors can handle, the ship automatically explodes, destroyed instantly.

To avoid this, the capacitors can be discharged. For every combat round the black globe generator is switched off, the capacitors will discharge an amount of damage equal to 1% of the ship's total tonnage multiplied by 10% of the tonnage of the ship's power plant.

FLICKERING GENERATORS

A black globe generator that is switched on all the time will automatically absorb all incoming attacks. It will also make the ship it is protecting effectively invisible to sensors (since it absorbs *all* energy, not just that from weapons). However, the ship will be unable to manoeuvre in any fashion, cannot make any attacks of its own, nor use its own sensors, rendering it blind.

Note that switching on a black globe generator in battle will not guarantee the ship can automatically escape its enemies. As it cannot manoeuvre at all, it is a very simple task to project its vector and predict its position when the generator is switched off again, making it extremely vulnerable (DM+2 to any attacks made against it if its vector was tracked).

These considerable limitations can be offset by causing the generator to flicker (switching the field off and on hundreds of times per second) to give the ship intermittent protection while allowing manoeuvring, sensor use, and so forth to take place in the short periods when the globe is switched off.

The flicker rate is variable and shown on the Black Globe Flicker table.

Black Globe Flicker

Flicker Rate	Attacks	Thrust	Sensor DM
1	6+	-1	-1
2	5+	-2	-2
3	4+	-3	-3
4	3+	-4	-4
5	2+	-5	-5
6 (always on)	-	-	-

The flicker rate is determined at the start of a ship's Manoeuvre Step in a combat round, before any Thrust is allocated.

Every time the ship is attacked, roll 1D. If the dice roll is equal to or more than the score listed in the Attacks column for the flicker rate, then the attack is absorbed by the generator. If it is less, the attack hits the ship as normal.

The ship's available Thrust for that combat round is reduced by the Thrust modifier for the flicker rate and all sensor-related checks made by or against the ship suffer a negative DM indicated on the Black Globe Flicker table. Then Sensor DM is also applied to all attack rolls made by the ship using the generator, as it has far less time to plot accurate attacks.

Solar Panels

Extendible solar panels provide backup power for a ship's power plant. They are typically installed in scout or mining ships, extending their range and endurance.

The tonnage consumed by enough solar panels required to power a ship is equal to 10% that of the main power plant, to a minimum of 0.5 tons. Solar panels cost MCr0.1 per ton

If the panels are fitted to a ship without a power plant, then assume the (non–existent) power plant is sized to the ship's basic systems and a Thrust 1 manoeuvre drive. A ship equipped with solar panels consumes power plant fuel at one–quarter the normal rate so long as it is only engaged in minimal manoeuvring and does not fire any weapons. Minimal manoeuvring does not include long periods at full thrust, so solar power alone is useless for most commercial and military vessels.

No power plant fuel is consumed, and endurance is considered infinite, if the ship is not manoeuvring or refining fuel. Jump drives cannot be engaged with solar panels deployed.

DRIVES

Drives can be modified or given accessories to extend their utility or capability.

High Burn Thruster

A high burn thruster is an auxiliary chemical rocket designed to give a temporary speed boost to a ship.

This is easily mounted on a ship by adding an additional reaction drive. Ship architects should note that a reaction drive used as a high burn thruster is likely to require far less fuel than a ship that relies on a reaction drive alone for thrust. The effect of a high-burn thruster is cumulative with that of the ship's regular drive system.

Solar Sail

Solar sails are made of a flexible synthetic fabric that has limited self-repair capabilities. Particles emitted by the sun (the solar wind) are caught by the sail and provide a minuscule amount of thrust. Solar sails have the advantage that they require no power or reaction mass, but result in very slow ships, and high technology civilisations tend to regard them as useless for anything other than automated cargo ships and pleasure yachts.

A deployed solar sail covers an area dozens of kilometres across. A ship using a solar sail as its primary method of propulsion has an effective Thrust of 0 and requires several days to change course or speed.

A solar sail takes up 5% of the ship's total tonnage when stowed, and costs MCr0.2 per ton. Jump drives cannot be engaged when a sail is deployed.

FUEL

Even humble fuel tanks are ripe for modification or addition, and a variety of systems have been developed to enhance the endurance and range of ships without the need to invest in much larger and more expensive drives.

Collapsible Fuel Tank

Collapsible fuel tanks (also called fuel bladders) are large flexible bladders which expand when filled with hydrogen fuel. They take up cargo space in a ship and are used to extend range without the need to fit demountable tanks. Fuel cannot be pumped directly from these tanks to the jump drive, and so a ship must complete a jump before it can use fuel stored in collapsible tanks.

When empty, collapsible tanks take up 1% of the tonnage they use when full. They cost Cr500 per ton.

Demountable Tank

These tanks are used to convert cargo space into working fuel tanks with all the pumps and feed lines required. Fuel can be used directly from these tanks meaning ships can make longer jumps that they would be able to on their own tanks (they are still limited by the capability of their jump drive, however). When empty, these tanks take up the same space as when they are full and cannot be used for anything but fuel.

It takes four weeks to add or remove demountable fuel tanks to a ship's cargo spaces, and they cost Cr1000 per ton.

Drop Tank

Sometimes seen on military assault ships, these are external fuel tanks that are jettisoned just as the ship enters jump space. The virtue of a drop tank is that it allows a ship to carry a large amount of extra fuel, but jettisoning a tank so close to a jump carries a risk. Jumping is a delicate procedure, greatly complicated by having big empty fuel tanks drifting in close proximity to the jump bubble.

Jump tanks come in two parts. Firstly, there are the docking ports, fuel injectors and explosive collars that allow the spacecraft to mount drop tanks and jettison them quickly. Secondly, there are the drop tanks themselves.

A drop tank mount consumes a number of tons on board the ship equal to 0.4% of the tonnage of the drop tank itself (for the fittings needed to transfer fuel). The mount will cost MCr0.5 per ton.

The drop tank itself costs Cr25000 per ton of fuel space.

Jumping using a drop tank applies a penalty of DM-15 minus the Tech Level of the drop tanks to the Engineer (J-drive) check required to make a jump (see page 148 of the *Traveller Core Rulebook*).

When a drop tank is used and jettisoned, roll 2D. On 8+, the tank survives the ejection process and can, in theory, be retrieved and reused. Otherwise, it is destroyed by the expanding jump bubble or warped by the jettison explosion. In addition, drop tanks are automatically destroyed once their ship has lost 10% of its Hull points.

A ship's Thrust must be recalculated when carrying a drop tank, using the combined tonnage of the ship and the drop tanks it carries. This will likely mean the manoeuvre drive will be operating at a lower Thrust. The jump capability of the ship does not need to be recalculated, unless it jumps with the drop tanks attached. A ship using drop tanks cannot be streamlined – at best, it will be partially streamlined.

Fuel Processor

Fuel processors convert unrefined fuel (typically acquired through the use of a fuel scoop) into refined fuel, making the ship both self-reliant and safe.

Each ton of fuel processor can convert 20 tons of unrefined fuel into refined fuel per day.

Each ton consumed by fuel processors costs Cr50000. Fuel processors require 1 Power per ton.

Fuel Scoop

Fuel scoops allow an unstreamlined and partially streamlined ships to gather unrefined fuel from a gas giant (streamlined ships have fuel scoops built-in automatically).

Adding scoops costs MCr1 and consumes no tonnage.

High Efficiency Batteries (TL10)

Ship-board batteries are designed to store power until needed. They can be recharged in any round by excess Power not being used by other systems. These Power points may then be used in any subsequent round as if they were being produced by the power plant; simply add any amount of Power stored within the batteries (they need not be completely drained) to the Power the ship has available that round.

High efficiency batteries cost MCr0.1 and hold 40 points of Power per ton. At TL12, they cost MCr0.2 and hold 60 points of Power per ton.

Metal Hydride Storage (TL9)

Instead of storing the ship's hydrogen fuel in liquid form at extremely low temperatures with a high risk of explosion if a leak occurs into the inhabited spaces of the ship, it is possible to store hydrogen at room temperature using a non–flammable metal hydride matrix. This takes up more space but is safer.

Metal hydride storage replaces a ship's normal fuel tankage but consumes twice as much space, and costs MCr0.2 per ton.

If the ship sustains a fuel leak (fuel critical hit Severity 1-3, as shown on page 159 of the *Traveller Core Rulebook*), fuel loss will be reduced to 25% of the amount indicated, to a minimum of 1 ton.

ACCOMMODATIONS

Most ships utilise the humble stateroom, but other types of accommodation are possible. All accommodations listed in this book other than low berths and acceleration benches include a fresher, while all staterooms and barracks include a small food preparation unit. Laundry facilities are usually located in a common area.

Acceleration Benches

These comprise basic seating used for the temporary transportation of passengers. Comfort is limited but safety remains paramount. The benches are heavily padded with integral safety harnesses in case of gravity failure. They are normally designed to fold down from walls or pull up from floors, to grant more useable space when not in use.

Each ton dedicated to acceleration benches seats four passengers and costs Cr10000.

Acceleration Seat

Similar to an acceleration bench, this seating is somewhat comfier though less space efficient. While not luxurious, it is commonly used on commercial small craft designed for short haul flights to and from orbit and flights to close satellites.

Each acceleration seat consumes 0.5 tons and costs Cr30000

Barracks

Ships designed to carry large numbers of troops tend to use barracks instead of staterooms. A barracks may only be used to carry marines or basic passengers (few willingly pay for passage in such cramped conditions).

Barracks consume 2 tons per passenger, and cost Cr50000 per ton. Life support costs are Cr250 per ton.

Brig

This is a secure chamber with reinforced walls and a door that can be manually locked from the outside. Designed to hold up to six prisoners, it can uncomfortably hold double that number in a pinch. There are no internal facilities or controls, save for a curtained fresher and six pull down slabs that can be used as beds. Although intended for restraining captives or crew held on a charge, quite often the majority of time a brig is actually used as a temporary office or storage area.

A brig consumes 4 tons and costs MCr0.25. Life support costs are Cr250 per ton.

Cabin Space

Adding cabin space gives the crew more room to move around and to access other components of the ship, such as the engines or cargo bay. However, it does not provide comfortable living space and is generally only used in interplanetary craft where passengers are only expected to be on board for a few hours.

Every 1.5 tons dedicated to cabin space allows the ship to carry another passenger in moderate comfort.

Cabin space costs Cr50000 per ton. Life support costs are Cr250 per ton.

High Staterooms

These are very similar to the staterooms detailed on page 21, but they are more trimmed in finer materials and offer more space for the occupant. They are not required for a ship to take on high passengers, but a high passenger will almost always choose a ship that has a stateroom they deem appropriate. A high stateroom will typically grant DM+1 when seeking high passengers (see page 149 of the *Traveller Core Rulebook*).

A high stateroom consumes 6 tons of space and costs MCr0.8.

Luxury Staterooms

This is state of the art accommodation for the most discerning passenger. It is noticeably a step above even the high stateroom and more richly appointed, found on private yachts and the most luxurious of liners. A luxury stateroom will typically grant DM+2 when seeking high passengers (see page 149 of the *Traveller Core Rulebook*).

A luxury stateroom consumes 10 tons of space and costs MCr1.5. Life support costs are Cr500 per ton.

Multi-Environment Space

The environment of this designated area can be modified to a wide range of conditions including salt water, extreme temperatures, or unusual atmospheres, all to suit the needs of the occupant, usually an alien, animal, or exotic plant.

One ton of environmental equipment is needed for every 20 tons of space designated as multi-environment, at a cost of MCr0.5 per ton of equipment. Each ton of environmental equipment requires 1 Power.

BRIDGE

The bridge is the nerve centre of the ship, and vital to on board operations. Some bridge designs put the captain and other command staff on a raised balcony or walkway over the workstations, while others put the captain in a command seat in the centre of the bridge. Bridges on scout ships are notoriously cramped and smelly – even more so in belter mining ships where the bridge and living space is sometimes combined to maximise cargo capacity – while some groups of free traders pride themselves on the elegance and style of their command stations.

Detachable Bridge

This bridge design can be ejected from the ship in an emergency to become a lifeboat for the command crew. The bridge has two weeks of life support and battery power, while emergency thrusters give it basic manoeuvring capabilities, equivalent to Thrust 0. A detachable bridge is even capable of soft–landing on a planetary surface. See the Detachable Bridges table for costs and tonnage.

Size of Ship	Size of Bridge
200 tons or less	15 tons
201-1,000 tons	30 tons
1,001-2,000 tons	50 tons
2,000 tons or more	80 tons

The cost of a detachable bridge is MCr0.8 per 100 tons (or part of) of the ship it is installed within.

A detachable bridge can be made larger or smaller as normal.

Holographic Controls (TL9)

This bridge design incorporates advanced interactive holographic displays, and can automatically reconfigure itself to adapt to changing situations. A bridge with holographic controls is always optimised for the task at hand, and grants DM+2 when rolling for initiative.

Holographic controls add +25% to the cost of the bridge.

Sensor Station

While every bridge has equipment dedicated to monitoring and controlling the ship's sensors (even if this is tied into the pilot's own screens), some ships benefit from having additional stations to handle an increased number of sensor operators. Some scout and survey ships feature additional sensor stations, while military vessels may feature similar stations dedicated to locating the enemy and electronic warfare.

Each sensor station allows an additional sensor operator to perform actions (find typical numbers of sensor operators on page 41), costs MCr0.5 and consumes 1 ton.

CARGO

The majority of ships in the universe are designed to haul cargo from one star system to another. Predictably, a whole host of optional systems and equipment have been designed to make this easier.

Cargo Crane

Built into the ceiling of a cargo hold, this overhead gantry crane is designed to shift cargo containers in and out of the ship. The crane's mechanism moves about the bay on a sliding jig and can extend beyond the cargo door on a gibbet to deposit freight directly onto a dockside or vehicle. The crane is strong enough to lift fully loaded 32 and 65 ton containers and can couple to most types of pallets or creates.

The traversing lift mechanism of a cargo crane consumes 2.5 tons but the gantry jigs require a further 0.5 tons per 150 tons of cargo space. Cargo cranes cost MCr1 per ton.

Cargo Net

A slower but safer method than a scoop for retrieving cargo from space, the net consists of a mesh of tough plastic and several remotely-controlled tow drones. The drones are launched from the ship, dragging the net out behind them. The net is drawn around a volume of space and then retracted.

The plastic is extremely elastic, allowing the volume of the net to be potentially increased to a dozen cubic kilometres.

A cargo net consumes 5 tons of space, including the drones, and costs MCr1.

Cargo Scoop

A cargo scoop allows a ship to pick up cargo or other objects floating in space. The scoop includes anti-gravity baffles to minimise the impact but using a scoop with a high relative velocity is not recommended.

A Pilot check is required to scoop up an object; if failed, the ship collides with the object, taking an amount of damage equal to the negative Effect. Armour will negate this damage as normal, so most accidents will be embarrassing rather than catastrophic and merely require a little repainting. A scoop can sweep up one ton of material per round.

A cargo scoop consumes 2 tons of space and costs MCr0.5.

External Cargo Mount

Instead of carrying cargo inside the hull, a ship may be designed to mount cargo in an external rack or framework. This allows a smaller hull to be used, making the cost of transportation considerably cheaper. Streamlined or distributed ships may not use external cargo mounts.

A ship's Thrust and jump capability must be recalculated when using external cargo mounts, using the combined tonnage of the ship and the external cargo it carries. This will likely mean the manoeuvre drive will be operating at a lower Thrust and the jump capability may be reduced.

The cost of an external cargo mount is Cr1000 for every ton of cargo to be carried externally.

Cargo carried externally can only be accessed outside the ship by vacc suit or transport vehicle. Landing a ship with external cargo mounts is a dangerous procedure (a Bane is imposed on all Pilot checks made for landing such a ship), so these ships can have difficulties trading at worlds without a shuttle fleet or highport.

External cargo can be jettisoned remotely. The mount is equipped with explosive bolts, allowing specific cargo to be released if necessary. A ship using external cargo mounts will become unstreamlined.

Loading Belt (TL7)

Used to offload cargo from a hold, the loading belt does the work of 10 crewmen when used properly. From TL12, high-powered magnets are used to propel cargo containers, increasing the work output to that of 25 crewmen.

The TL7 version costs Cr3000; the TL12 version costs Cr10000. Both consume 1 ton and require 1 Power.

Jump Net (TL10)

A jump net consists of special field cables attached to the rear of a ship that extend the vessel's jump field to include additional cargo contained within the net. While this can look exceedingly crude, a great deal of engineering goes into making it work and it remains both cheap and effective.

A jump net consumes 1 ton per 100 tons of cargo carrying capacity, at a cost of Cr300000 per ton.

A cheaper version designed purely for interplanetary use is available at TL8 and costs Cr100000 per ton. However, the ship cannot perform a jump while this net is deployed.

A ship using a jump net must have its drive potentials adjusted by adding the cargo carried to the ship's total hull mass. This will likely degrade the ship's Thrust and jump scores.

DRONES

Drones are small robotic craft typically controlled from the bridge or dedicated station. They are used as labour-saving devices and for tasks that might otherwise endanger the crew.

Drones are typically man-sized and have gravitic drives that allow them to operate in both space and atmospheres. However, while they can land on a planet, they do not have the power to travel from the surface to orbit and must be recovered manually. The Electronics (remote ops) skill is required for their use.

Drones have the following profile at Ground scale, in addition to any special rules listed under their descriptions.

	Hits	Speed Band
Drone	25	Subsonic
Attacks	None	
Armour	+6	

Advanced Probe Drones (TL12)

The logical development of the probe drone, the advanced probe drone is of a similar size, and carries far more advanced sensors (TL12 equivalent).

Each ton dedicated to advanced probe drones contains five drones and costs MCr0.8.

Mining Drones

Mining drones allow a ship to mine asteroids without manoeuvring perilously close to spinning hunks of rock. Each set of five mining drones allows the ship to process 5D tons of asteroid per day (typically producing common ore, as detailed on page 212 of the *Traveller Core Rulebook*). The tonnage consumed includes ore handling machinery, allowing the ship to take on ore and transfer it to the cargo bay.

Every ten tons dedicated to mining drones contains five drones and costs MCr1.

	Hits	Speed Band
Mining Drone	50	Subsonic
Attacks	None	
Armour	+9	

Probe Drones (TL9)

Probe drones are for surveying planetary surfaces, and are commonly found on board scout ships. They can be dropped from orbit in disposable entry shells but must be recovered manually. Probe drones are also capable of surveying orbiting satellites, derelicts and other space debris, and can also be used as communications relays.

Each ton dedicated to probe drones contains five drones and costs MCr0.5.

Repair Drones

Carrying repair drones allows a ship to make repairs during combat, allowing access to exterior components without risking crew. They also have sufficient intelligence to allow repairs to be initiated by a drone controller rather than a dedicated engineer.

Repair drones allows a Traveller with the Electronics (remote ops) skill to use the Repair System action (see page 160 of the *Traveller Core Rulebook*). The repair drones are considered to have an Engineer skill level of 1 or the level the Traveller has in Electronics (remote ops), whichever is lower, in all specialities for the Repair System action alone.

A ship needs to dedicate 1% of its tonnage for effective repair drone coverage (minimum 1 ton), at a cost of MCr0.2 per ton.

SENSORS

Many ships, especially larger and more expensive vessels, feature upgraded or specialised sensor suites. However, any sensor suite may be upgraded with a range of options to improve likelihood and quality of information, and the range at which objects may be detected.

Countermeasures Suite (TL13)

A countermeasures suite is specifically designed for jamming enemy transmissions. Note, however, that meson transmissions cannot be jammed.

The countermeasures suite grants DM+4 to all attempts at jamming and electronic warfare, regardless of the usual DM the sensor suite it is attached to.

A countermeasures suite consumes 2 tons and costs MCr4. It requires 1 Power.

Deep Penetration Scanners (TL13)

Using NAS and densitometers configured to check every centimetre of a ships internal and external hull, deep penetration scanners require a target to be within Adjacent range. They allow the operator to see everything within a ship that may be perceived visually such as layout, any hidden spaces and the make-up of anything carried be it crew, cargo or personal effects. However they are also very slow when scanning large ships unless the scanner suite is very large.

Each ton of deep penetration scanner allows for 20 tons of a target vessel to be scanned every hour (so, for example, a 25 ton suite would scan a 500 ton ship in an hour).

Deep penetration scanners cost MCr1 per ton. They require 1 Power.

Distributed Arrays (TL11)

By using multiple hull-mounted arrays in an integrated computer-controlled arrangement, it is possible to increase the effective antenna size of a sensor suite and increase its range. EM and active radar/lidar will now detect objects at Distant range and passive radar/lidar at Long range. All information gained at these ranges is minimal (see page 150 of the *Traveller Core Rulebook*)

This modification can only be added to improved and advanced sensor suites and only to ships of 5,000 tons or more.

Distributed arrays triple the tonnage and cost of the sensor suite they are attached to, and double the Power requirement.

Enhanced Signal Processing (TL 13)

Signal processing systems consist of extremely specialised computers and software to improve the quality and likelihood of detection of sensor suites.

Enhanced signal processing grants DM+4 to all sensor-related checks. It does not have the vulnerability to jamming of lesser signal processing systems.

Enhanced signal processing consumes 2 tons and costs MCr8. It requires 2 Power.

Extended Arrays (TL11)

This is a distributed array that is extended well beyond the hull of the ship on retractable arms; therefore there is no limit on the size of ship it can be mounted upon. However, use of an extended array greatly limits the manoeuvrability of the ship and increases its own sensor signature.

An extended array acts in the same way as a distributed array. While in use, the ship cannot expend any Thrust or jump, and any attempts to detect it gain DM+2.

Extended arrays triple the tonnage and cost of the sensor suite they are attached to, and triple the Power requirement.

Extension Net (TL10)

Interdiction of space is entirely reliant upon properly identifying ships and objects within range. A sensor extension net enhances the clarity of a sensor suite beyond the ranges which it would normally be able to function through the use of small drones to relay for data. The drones are also sensor platforms in their own right, the results of their scans being channelled back through the same links.

An extension net increases the range at which a sensor suite would normally be able to obtain Limited or Full detail by a single step. For example a visual sensor can normally see Full detail up to Short range and Limited detail up to Long range. With an extension net, this would be increased to full detail up to Medium range and Limited detail up to Very Long range.

The extension net cannot be used with NAS or densitometers, nor can it be used to receive data if the ship that deployed it is manoeuvring.

An extension net consumes 1% of a ship's tonnage (minimum 1 ton) and costs Mcr1 per ton.

Improved Signal Processing (TL 11)

Signal processing systems consist of extremely specialised computers and software to improve the quality and likelihood of detection of sensor suites.

Improved signal processing grants DM+2 to all sensor-related checks. However, this comes at a cost of increased vulnerability to jamming, with other ships doubling all DMs they have for jamming a ship equipped with signal processing.

Improved signal processing consumes 1 ton and costs MCr4. It requires 1 Power.

Life Scanner (TL12)

The life scanner is a ship-mounted sensor array specifically calibrated for detecting signs of life and differentiating between life forms. It can differentiate, for example, between colonies of insects, herds of migrating animals, and social groups of sentient creatures. Typically used in high orbit above a newly discovered planet, within 24 hours (for an average, earth-sized world) it can identify and quantify population densities, likely life types (sapient, sentient, non-sapient and so forth), and ecological niches.

When using the life scanner, an Electronics (sensors) check is required to successfully interpret the results. The life scanner is not 100% accurate; it typically has an accuracy of between 70% and 85%, but this is sufficient for first-pass exploration needs.

A life scanner consumes 1 ton and costs MCr2. It requires 1 Power.

Life Scanner Analysis Suite (TL14)

A development of the life scanner, the Analysis model also takes atmospheric and environmental factors into account to develop an accurate portrait of the biology of life detected. The system can, for example, indicate the physical configuration of detected life, approximate its food requirements, and analyse additional critical data that will inform the Traveller on how to prepare for any direct encounter with the life form.

A life scanner analysis suite consumes 1 ton and costs MCr4. It requires 1 Power.

Mail Distribution Array (TL10)

Normal ship communications systems cannot handle the data loads necessary for dealing with mail on the scale that the X-boat network requires. Instead, most X-boats and similar ships will mount a specialised communications array specifically for handling those data streams.

A mail distribution array consumes 10 tons and costs MCr20. An advanced version is available at TL13, consuming 20 tons but costing only MCr10.

Military Countermeasures Suite (TL15)

The military countermeasures suite is the cutting edge of countermeasure technology in the galaxy, incorporating both powerful transmitters and advanced electronic–warfare programs to shut down enemy communications.

The military countermeasures suite grants DM+6 to all attempts at jamming and electronic warfare, regardless of the usual DM the sensor suite it is attached to.

A military countermeasures suite consumes 15 tons and costs MCr28. It requires 2 Power.

Mineral Detection Suite

This suite upgrades any ship's sensors systems that already have a densitometer to determine types of minerals present and their quantities.

The mineral detection suite consumes no tonnage and costs MCr5.

Rapid Deployment Extended Arrays

This system works in the same way as an extended arrays but it can be deployed and retracted within a few seconds, allowing a ship to use its manoeuvre and jump drives within the same combat round.

Rapid deployment extended arrays triple the tonnage and multiply the cost of the sensor suite they are attached to by five, and triple the Power requirement.

Shallow Penetration Suite (TL10)

This is a combined thermal/EM sensor suite designed specifically for hull penetration and internal scanning at range.

At up to Very Long range it allows a Traveller to ensure there is nothing unusual aboard a vessel that leaves a thermal or electromagnetic trace. For example, it will detect increased heat production where there should be none or the operation of fire control computers on an unarmed merchant.

A shallow penetration suite consumes 10 tons and costs MCr5. It requires 1 Power.

EXTERNAL SYSTEMS

External systems are components and optional items mounted on the exterior of a spacecraft, directly on or within the skin of its hull.

Aerofins

Extendible aerofins improve a spacecraft's manoeuvrability in atmosphere, giving a far greater degree of control over its movements.

A ship with aerofins deployed gains DM+2 to all Pilot checks when within an Atmosphere.

Aerofins consume 5% of the ship's tonnage, and cost MCr0.1 per ton.

Breaching Tube

All airlocks include flexible plastic docking tubes that allow passengers to cross from one ship to another by floating through the air-filled tube. A breaching tube is a military version of this. Instead of a thin myomer, the breaching tube is made of a combination of ballistic cloth and reflec. The breaching tube does not end in a docking collar, but in a magnetic clamp with a ring of plasma torches that burn through the hull of an enemy vessel when attached.

An attacking ship fitted with a breaching tube gains DM+1 to rolls made on the Boarding Actions table on page 163 of the *Traveller Core Rulebook*.

A breaching tube consumes 3 tons and costs MCr3.

Docking Clamp

A docking clamp allows a spacecraft to carry another vessel on the exterior of its hull, typically a small craft such as a ship's boat or fighter. This permits a ship to carry auxiliary craft without consuming valuable interior space.

A ship's Thrust and jump capability must be recalculated when another ship occupies its docking clamp, using the combined tonnage of both ships. This will likely mean the manoeuvre drive will be operating at a lower Thrust and the jump capability may be reduced.

The size of a docking clamp dictates the tonnage of the ship it may attach as shown in the Docking Clamp table.

A ship holding another ship in a docking clamp will become unstreamlined. It takes three full rounds to release or clamp a ship of less than 2,000 tons, during which time neither ship can expand any Thrust or make any attack rolls. Larger ships take D3+3 rounds.

Note that ships held in a docking clamp can be targeted separately by an attacker. Any evasive action employed by the mothership can be applied as normal.

Docking Clamp	Attached Ship Tonnage	Tons	Cost
Type I	1-30	1	MCr0.5
Type II	31-99	5	MCr1
Type III	100-300	10	MCr2
Type IV	301-2,000	20	MCr4
Type V	2,000 or more	50	MCr8

Forced Linkage Apparatus (TL7)

Used by scavengers and pirates to board spacecraft, derelict or otherwise, forced linkage apparatuses are close range devices that allow attempts at forced docking.

Attaching the linkage requires a Pilot check; this is opposed by the target's Pilot skill check if it is manned and under power. If this is successful, the attacking ship gains DM+2 to rolls made on the Boarding Actions table on page 163 of the *Traveller Core Rulebook*, as indicated on the Force Linkage table.

TL	Pilot check DM	Tons	Cost
7	-2	2	Cr50000
9	-1	2	Cr75000
12	+0	2	MCr0.1
15	+2	2	MCr0.5

At TL7 the apparatus is little more than a magnetic clamp on a retractable arm. At TL9 the linkages are gas-powered grapnels with a reeling cuff, while at TL12 the linkage is magnetically propelled and guided by targeting lasers. At TL15 the linkage is made of gravitic field control rods and antennae.

Forced linkage apparatus may be combined with a breaching tube.

Grappling Arm

A grappling arm is a remotely-controlled device used to pick up or manipulate objects in space. The arm is a flexible tentacle of thousands of telescoping segments, capable of reaching out to 250 metres. The arm ends in a set of cameras and grippers of varying sizes, from large claws to tiny micro-manipulators. It also carries a toolkit which can be customised for a particular task. Objects of up to two tons can be manipulated, while multiple grappling arms can be utilised to move heavier objects.

A grappling arm consumes 2 tons and costs MCr1.

Heavy Grappling Arm

A heavy grappling arm is a remotely-controlled device used to pick up or manipulate objects in space, but designed for heavy duty work. Objects of up to 10 tons can be manipulated, and multiple grappling arms can be combined to manipulate larger objects.

A heavy grappling arm consumes 6 tons and costs MCr3.

Holographic Hull (TL10)

Multiple holographic projectors are embedded within the hull allowing the ship to change hull colours, add graphics and adopt a different appearance (though its shape remains the same). Changing the hull colour or adding a stored graphic can be done by anyone with access to the ship's computer. Creating a complex colour scheme from scratch requires the talents of a skilled artist. Some young nobles try to outdo one another by changing the schemes daily or hiring artists to create the most complex scenes imaginable. Some pirates have made use of this system to simulate visual hull damage and lure other ships in with a GK distress call. However, most ship owner's use it for the purposes of advertising.

A holographic hull system costs Cr100000 per ton of hull and uses 1 Power for every two tons of hull. The projectors are small enough that they do not consume tonnage themselves.

Tow Cable

A simple device used to haul an attached derelict or unpowered ship behind the modified vessel. The ship can potentially tow any size vessel.

A ship's Thrust must be recalculated when it tows another ship or object, using the combined tonnage of both ships. This will likely mean the manoeuvre drive will be operating at a lower Thrust. A ship towing an object in this fashion cannot jump.

Tow cable systems consume 1% of the ship's tonnage, and cost Cr5000 per ton.

INTERNAL SYSTEMS

A wide variety of options and internal systems are available to customise a ship. This includes new rooms and facilities for the crew, as well as safety and security features.

Additional Airlock

Additional airlocks of any size may be added to a ship. It typically takes a minute for an airlock to fully cycle.

Airlocks consume a minimum of 2 tons and cost MCr0.1 per ton.

Armoury

Ships carrying a large number of marines or soldiers can benefit from an armoury, a specialised weapons storage facility. An armoury can only be accessed by those with the correct codes (usually the ship's senior officers and security teams) and contains a wide variety of weapons. An armoury can be equipped with specialised weaponry but, as standard, will have enough snub pistols for the entire crew, enough accelerator or gauss rifles for any marines, and a selection of other military equipment such as grenades, combat drugs, armour and communications equipment.

One armoury is required for every 25 crew members and every 5 marines in order to provide adequate storage for equipment, weapons and ammunition.

An armoury consumes 1 ton and costs MCr0.25.

Biosphere

This is an area depicted to flora and fauna, either for the production of food or as a leisure area. Every ton dedicated to a biosphere will eliminate the life support costs for two passengers.

Biosphere consume 1 power and cost Mcr0.2 per ton.

Booby-trapped Airlock

An existing airlock can be fitted with lethal defensive equipment designed to eliminate any undesirable occupant who attempts to gain entry to the ship. The actual methods of dealing with enemies vary, and can range from nerve gas and multiple flamethrowers, to sweeping lasers and extreme atmospheric pressures.

Any existing airlock can be booby-trapped in this fashion, and this modification consumes no tonnage.

Basic booby-trapped systems cost MCr0.1 and deal 3D damage per round.

At TL8, more advanced versions become available, costing MCr0.3 and dealing 5D damage per round.

At TL10, a booby-trapped airlock costs MCr0.5 and deals 6D damage per round.

At TL12, a booby-trapped airlock costs MCr1 and deals 8D damage per round.

Briefing Room

A specialised briefing room is useful on mercenary cruisers and other adventuring ships, where teams can discuss plans or meet with clients privately, and they are commonly found on ships with fighter squadrons or marines.

A briefing room grants DM+1 to any Tactics (military) checks made when planning missions on board the ship.

A briefing room consumes 4 tons and costs MCr0.5.

Concealed Compartment

A smuggler's favourite, concealed compartments are cunningly hidden from visual searches and shielded against sensors, allowing them to be used to transport contraband or other questionable items.

Up to 5% of a ship's tonnage may be designated as a concealed compartment and inflicts DM-2 to Electronics (sensors) checks and DM-4 to Investigate checks made to search for it.

Concealed compartments cost Cr20000 per ton.

Construction Deck

Primarily used on very large civilian vessels, this facility is effectively a mobile shipyard that can repair and even construct smaller ships. A construction yard can build a ship of tonnage equal to half the tonnage of the construction deck at a TL equal to the ship the construction deck is on.

Construction decks cost MCr0.5 and require 1 Power per ton.

Docking Space

This is an internal bay in which a smaller auxiliary ship or vehicle can dock. When sealed, the docking space completely covers the auxiliary ship. It normally takes 1D minutes for the auxiliary ship to enter or leave the larger ship.

Docking space consumes an amount of tonnage equal to that of the largest ship to be docked, plus 10% (round up to the nearest ton). Use shipping size for vehicles, as detailed in the *Traveller Core Rulebook.*

It takes D3 rounds to release or recover a ship of less than 2,000 tons, during which time neither ship can expand any Thrust or make any attack rolls. Larger ships take 1D rounds.

Docking space costs MCr0.25 per ton.

Fuel Tank Compartments

Fuel tank compartments are containers designed float within the hydrogen fuel tanks of a ship, and are harder that a concealed compartment to detect, as even a thorough examination of the ship will not detect the compartment unless the fuel tanks are opened and searched. Such compartments can only be accessed when the fuel tank is at least three-quarters empty.

A fuel tank compartment inflicts DM-4 to Electronics (sensors) checks and DM-6 to Investigate checks made to search for it.

Fuel tank compartments cost Cr4000 per ton. Note that the tonnage for these compartments is deducted from the ship's fuel tankage, not its total hull.

Full Hangar

Normally, when a smaller ship or vehicle is included in the design of a larger one, it is installed into a form–fitting enclosure within the hull of the mother vessel, with barely enough room for crew and passengers to scramble on board. Most repairs and maintenance require the craft to be launched first.

Alternatively, a full hangar allows for repairs and maintenance of the craft when it is on board its ship. The hangar includes spare parts and specialised testing and repair equipment. It normally takes 2D minutes for the auxiliary ship to enter or leave the larger ship.

A full hangar consumes an amount of tonnage equal to twice that of the craft it contains (round up to the nearest ton). Use shipping size for vehicles, as detailed in the *Traveller Core Rulebook.*

A full hangar costs MCr0.2 per ton.

Gaming Space

Adding gaming space gives crew and passengers a place to enjoy themselves and partake in sports or games of chance, depending on the nature of games the area is designed for.

Every 1.5 tons dedicated to gaming space allows one person to utilise the area.

Gaming space costs Cr6000 per ton.

Grav Screen (TL12)

A gravity screen blocks densitometers from scanning the inside of a ship, rendering them useless and returning error codes. They are impenetrable to this mode of scanning but the presence of gravity screens will be obvious to the sensor operator.

A grav screen consumes 1 ton for every 200 tons of ship shielded and costs MCr1 per ton. It requires 2 Power per ton.

Hardened Systems

Any system that draws power from the power plant can be Hardened to render it immune to Ion weapons. A Hardened system has its cost increased by +50%.

Laboratory

Space allocated to laboratories can be used for research and experimentation, effectively turning the ship into a space-going laboratory.

Every four tons dedicated to laboratories space allows one scientist to perform research on board the ship.

The cost for research equipment can vary depending on the nature of research undertaken, but is generally around MCr1 for every 4 tons.

Launch Tubes (TL9)

Launching and recovering smaller craft from a larger ship is usually a time-consuming activity when using docking spaces or full hangars. Launch tubes allow craft to be launched rapidly, using electromagnetic technology similar to that used by railguns. Multiple launch tubes are often installed on capital ships that carry small craft, allowing them to launch potentially entire squadrons very quickly.

It takes one round to manoeuvre a craft into 'firing' position within a launch tube but, once there, it takes a single combat round to release up to ten craft it into space or an atmosphere and both the mothership and smaller craft may expend Thrust and make attack rolls during this round.

A launch tube consumes an amount of tonnage equal to ten times the size of the largest craft it must launch. In addition, each craft carried on the ship that will use the launch tube must have a docking space or full hangar (using the costs and tonnage on page 45).

A launch tube costs MCr0.5 and requires 1 Power per ton.

Library (TL8)

A library room contains computer files as well as lecterns, display screens, holotanks and perhaps even hard copies of books. A good library is useful for both research and passing time in jump space.

Having a library on board a ship grants DM+1 on any EDU check made when training for new skills in jump space or other periods of extended inactivity.

A library consumes 4 tons and costs MCr4.

Medical Bay

The presence of a medical bay on board a ship can mean the difference between life and death for the crew, so long as there are sufficiently trained personnel on board.

A medical bay grants DM+1 to all Medic checks made within it.

Medical bays consume 4 tons and cost MCr2, which will support the treatment of 5 patients so long as one medic or autodoc (see *Central Supply Catalogue*, page 81) is present. It requires 1 Power.

Multiple medical bays can be combined into one larger facility.

Re-entry Capsule (TL8)

These capsules allow the quick exit of a spacecraft to the surface of any planet it is orbiting. They feature heavy heat-shielding and can provide a rocky, though relatively safe, passage through the atmosphere. Each capsule holds one person and is generally used as an emergency escape facility to save lives when a ship is in danger of being destroyed.

A re-entry capsule consumes 0.5 tons and costs Cr20000.

At TL10, assault capsules become available, used to deploy infantry directly onto a planetary surface, throwing out countermeasures as they go. Assault capsules consume 0.5 tons each and cost Cr50000. They grant the occupant Armour 20 and inflict DM-2 on any Electronics (sensors) checks made to detect them.

At TL14, high survivability capsules are available, an improvement on the assault capsule. They are heavily armoured and deploy six decoys as they plunge through the atmosphere. High survivability capsules consume 0.5 tons each and cost MCr0.1. They grant the occupant Armour 30 and inflict DM-4 on any Electronics (sensors) checks made to detect them, and DM-2 against any attack rolls.

Re-entry Pod (TL9)

A re-entry pod is similar to a capsule but is built with a gliding surface and computer guidance, allowing it to avoid potentially dangerous terrain and deliver its two occupants safely to the planet's surface. A skilled Traveller can take control of the pod's descent using the Flyer (wing) skill.

A re-entry pod consumes 1 ton and costs Cr150000.

Recovery Deck

The counterpart of launch tubes, a recovery deck allows the rapid recovery of ships. This is used on a tactical level, bringing small craft (normally fighters) on board rapidly before a ship jumps, and usually includes safety equipment that arrests the motion of any craft that enters it too quickly. A recovery deck may be used to store small craft on board a ship but it cannot function as a full hangar (it is often open to vacuum).

A recovery deck consumes an amount of tonnage equal to ten times the tonnage of the craft it is designed to recover. This will allow it to recover one craft every round.

Multiple recovery decks can be combined into larger recovery decks, each capable of recovering more than one craft at a time.

Recovery decks cost MCr0.5 and require 1 Power per ton.

Stables

Used by traders, stables are low-grade housing for animals and, in some systems, slaves. Stables come with their own air scrubbers and waste-collectors, avoiding the need to tax the existing life support systems of the ship.

Stables cost Cr25000 per ten tons. A ten ton stable is capable of housing 20 human-sized or 10 cattle-sized creatures. Life support costs are Cr250 per ton.

Studio

Space allocated to studios can be dedicated for specific specialities of the Profession skill.

Every 4 tons of space dedicated to studios allows for one Traveller to conduct his profession on board the ship.

Studios cost MCr0.1 per ton.

Training Facilities (TL10)

Mercenary companies based in ships have a particular problem not suffered by ground-based organisations. While training office workers and support units is easily done around the ship, given enough free space, combat training is much harder. For this reason many mercenary space vessels incorporate training facilities into their design with thick bulkhead walls to stop stray rounds and multiple gyms, prep rooms and firing ranges. This not only allows for new recruits to be brought up to scratch, but also allows old hands to keep their eye in.

Training facilities cost MCr0.2 and 1 Power per ton and 2 tons should be installed for each member of the unit to train simultaneously

UNREP System

This is a system designed to allow for replenishment and resupply of warships while in motion, and is vital to the function of squadrons in unexplored or hostile systems. The system includes fuel hoses, cargo transfer tubes and other gear designed to move ordnance and freight between two ships (though only one of the ships is required to carry the UNREP system.

Each ton dedicated to the UNREP system allows the transfer of 20 tons of fuel, cargo or ordnance every hour.

An UNREP system costs MCr0.5 and requires 1 Power per ton.

Vault (TL14)

A vault is a special armoured chamber placed within the heart of a ship, and designed to survive attacks that annihilate the rest of the vessel.

A vault will survive the destruction of its ship and is sealed so any occupants can survive in a vacuum (though the vault has no ability to manoeuvre itself. It has Armour 10 and Hits 2 at Spacecraft scale. The vault can contain cargo, staterooms or any other internal components equivalent up to 6 tons.

A vault consumes 12 tons and costs MCr6.

Workshop

A workshop can be used to repair parts and fabricate new ones, and is a common feature on scouts and other ships that operate in the wilderness areas of space.

Every 6 tons of space dedicated to workshops allows for two Travellers to use the Mechanic skill on board the ship with DM+2.

Workshops cost MCr0.15 per ton.

PRIMITIVE AND ADVANCED SPACECRAFT

When building new spacecraft, few shipyards will actively look to make the process more difficult. They will typically use common off-the-shelf components, hulls contracted from the lowest bidder, and robust electronics imported from high-tech industrial worlds from across the subsector. The techniques (and even blueprints) they use have become standardised across Charted Space. Many shipyards thus build ships that are effectively TL12, regardless of where the shipyard is actually located.

It does not always have to be this way, however. Individuals, corporations or (more rarely) governments may wish to commission the construction of a spacecraft that features the latest in advanced materials and technologies. At the other end of the scale, isolated or interdicted worlds may construct vessels without being able to import specialised components from other systems, while Travellers may run into derelicts or ships built by more primitive species.

Altering Tech Levels

This is all handled by adjusting the Tech Level, price and tonnage of components while a ship is being designed using the previous chapters. They will also have one or more Advantages or Disadvantages applied to reflect the effect of higher or lower technology.

Every component that can be mounted upon a ship has a minimum Tech Level listed which dictates when it normally comes available. The pulse laser on page 25, for example, is listed as being TL7. In theory prototype lasers can appear at lower Tech Levels, though they will be less capable, and more advanced versions will be available at higher Tech Levels.

When selecting prototype (lower TL) or advanced (higher TL) components, use the Prototype/Advanced table to alter its TL, tonnage, and cost, and to determine how many Advantages or Disadvantages it will acquire. Advantages and Disadvantages are then selected from a suitable category in this chapter, or the referee and Travellers can create their own.

Where the referee deems it appropriate, the same Advantage or Disadvantage can be applied more than once to a component.

Jump Drive Advantages

Decreased Fuel: The drive uses 5% less fuel then normal.
Early Jump: This drive can jump 10% closer to a gravity well than normal (90 diameters, as detailed on page 148 of the *Traveller Core Rulebook*).
Energy Efficient: This jump drive consumes 25% less Power than normal.
Size Reduction: This reduces the tonnage consumed by the jump drive by 10%. This can take the drive below the minimum size of 10 tons.
Stealth Jump: A stealth jump drive minimises the burst of radiation caused by the transition from jump space into real space. Normally, a ship that emerges into real space will be automatically detected if it emerges within the 'minimal' detail range of the sensor. However, detecting a ship equipped with a stealth drive emerging into real space requires a Formidable (14+) Computers (sensors) check (1D rounds, INT or EDU) if it is within the 'limited' detail range of the sensors or will automatically fail if within 'minimal' detail range. Stealth jump requires two Advantages.

Prototype/Advanced

	TL	Tonnage	Cost	Modifications
Early Prototype	-2	+100%	+1000%	2 Disadvantages
Prototype	-1	-	+500%	1 Disadvantage
Budget	+0	-	-25%	1 Disadvantage
Advanced	+1	-	+10%	1 Advantage
Very Advanced	+2	-	+25%	2 Advantages
High Technology	+3	-	+50%	3 Advantages

Jump Drive Disadvantages

Energy Inefficient: This jump drives consumes 30% more Power than normal.

Late Jump: This jump drive needs to be 50% further from a gravity well than normal (150 diameters, as detailed on page 148 of the *Traveller Core Rulebook*).

Increased Size: This increases the tonnage consumed by the jump drive by 25%.

Manoeuvre Drive Advantages

Energy Efficient: This manoeuvre drive consumes 25% less Power than normal.

Size Reduction: This reduces the tonnage consumed by the manoeuvre drive by 10%.

Manoeuvre Drive Disadvantages

Energy Inefficient: This manoeuvre drive consumes 30% more Power than normal.

Limited Range: This manoeuvre drive only functions within the 100 diameter limit (see page 148 of the *Traveller Core Rulebook*).

Increased Size: This increases the tonnage consumed by the manoeuvre drive by 25%.

Orbital Range: This manoeuvre drive only functions when the ship is within Short range (up to 1,250 km) of a planetary body. Orbital range requires two Disadvantages.

Reaction Drive Advantages

Fuel Efficient: This reaction drive requires 20% less fuel than normal.

Reaction Drive Disadvantages

Fuel Inefficient: This reaction drive requires 25% more fuel than normal.

Power Plant Advantages

Energy Efficient: This power plant produces +10% more Power than normal.

Size Reduction: This reduces the tonnage consumed by the power plant by 10%.

Power Plant Disadvantages

Energy Inefficient: This power plant produces -25% less Power than normal.

Increased Size: This increases the tonnage consumed by the power plant by 25%.

Weapon and Screen Advantages

Referees might want to restrict the use of these rules with spinal mount weapons, as they already have their own table for varying Tech Levels.

Accurate: Accurate weapons gain DM+1 to all attack rolls. Accurate requires two Advantages.

Easy to Repair: Easy to Repair weapons grant DM+1 to all attempts made to repair them.

Energy Efficient: This weapon consumes 25% less Power than normal.

High Yield: When rolling damage for a High Yield weapon or the performance of a High Yield screen, any '1's rolled are counted as '2's.

Very High Yield: When rolling damage for a Very High Yield weapon or the performance of a Very High Yield screen, any '1's and '2's rolled are counted as '3's. Very High Yield requires two Advantages.

Intense Focus: These weapons are more tightly focused allowing them to better cut through armour. Intense Focus weapons gain AP+2. Intense Focus can only be applied to lasers and particle weapons. Intense Focus requires two Advantages.

Long Range: The range for the weapon is increased by one band, to a maximum of Very Long. For example, a Long Range beam laser will change from Medium to Long range. Long Range requires two Advantages and may only be applied once.

Resilient: The Severity of all critical hits upon a Resilient weapon are reduced by -1.

Size Reduction: This reduces the tonnage consumed by the weapon by 10%.

Weapon and Screen Disadvantages

Energy Inefficient: This weapon consumes 30% more Power than normal.

Inaccurate: This weapon suffers from continual alignment problems, inflicting DM-1 to all attack rolls.

Increased Size: This increases the tonnage consumed by the weapon by 20%.

SPACE STATIONS

Often larger than the greatest capital ships, space stations are a vital component of any interplanetary society's military, economic and social structure, providing living space, manufacturing facilities and a stepping stone into deep space. Some space stations are dedicated to military operations and may be better described as battle stations, while others are specialised for industrial production, ship-building or habitation. Given the resources needed to build the largest space stations, however, most are capable of handling a multitude of functions, acting as a trading post or space port with industrial facilities, but serving the needs of warships when they dock alongside.

This chapter describes everything you will need to construct space stations and then operate them within a living universe.

CONSTRUCTION

Space stations are designed and built in the same fashion as ships, with just a few differences. Unless stated otherwise in this chapter, all rules that apply to ships also apply to space stations – in effect they are treated as large and (mostly) immobile spacecraft.

DESIGN CHECHLIST

1. **CREATE A HULL**
a. Choose Hull Configuration (page 11).
b. Install Armour (page 53).
c. Install Hull Options (page 53).

OPTIONALLY: INSTALL MANOEUVRE DRIVE

INSTALL FUEL TANKS

INSTALL POWER PLANT
Ensuring it can provide enough power for any Screens, Sensors, Weapons.

INSTALL BRIDGE

INSTALL COMPUTER AND ANY SOFTWARE

INSTALL WEAPONS
If desired

INSTALL SENSORS

INSTALL OPTIONAL SYSTEMS
Such as smaller craft and fuel purification plants.

DETERMINE CREW

ALLOCATE CARGO SPACE

INSTALL STATEROOMS
Including low berths, briefing rooms and armouries.

13. **FINALISE DESIGN**

step 1:
CREATE A HULL

The hull of a space station is created in the same way as that of a ship, though space stations tend to be much, much larger. A 100,000 ton hull might be considered to be a very modest space station, while the largest can be as much as several billion tons. However, much smaller space stations are possible, and are used as research stations or manned orbital defences.

A basic hull costs Cr50000 per ton. The space station will have at least 1 Hull point for every full 2.5 tons of hull. (See Spacecraft of the Third Imperium for very large stations).

Non-Gravity Hulls: Basic hulls include artificial gravity, using grav plates to ensure a normal gravitational environment for the comfort and convenience of the crew. Space stations are often built without artificial grav plating, using specific configurations that allow the hull to constantly spin in order to generate gravity. Non-gravity hulls cost Cr25000 per ton, but are limited to a maximum size of 500,000 tons due to structural limitations.

Hull Configuration
Space stations are not designed to enter atmospheres (in fact, they are rarely designed to move at all within their orbits), so the range of hull configurations open to them is limited. Space stations are therefore never streamlined.

Planetoid and Buffered Planetoid Hulls: These require an asteroid to be dragged from its orbit and hollowed out to be used as the exterior hull of the space station. This costs Cr4000 per ton but only 80% of the volume of a planetoid is useable as a space station. For a buffered planetoid, 65% of the volume is useable.

Starting at TL9, all hulls are self-sealing. A self-sealing hull automatically repairs minor breaches such as micrometeoroid impacts, and prevents hull hits causing explosive decompression.

Special Hulls
Within the standard configurations, there are a variety of further options that will allow the design of more complex space stations.

Double Hull: This is a two-hulled cylinder where the outer hull (the whole, or at least a part) spins to create gravity and the inner hull does not. The outer hull is kept at around 1G by the speed of its spinning and is used for any areas that will be inhabited for extended periods of time, such as residential areas. The outer, spun hull must be at least 60 tons. Machinery to spin a double hull uses 0.1 ton for every ton of outer hull. For each full percent of the total hull which is made part of the spun hull, the cost of the hull must be increased by +1%.

Hamster Cage: This is a series of spun rings set at right angles to the rest of the hull. The rings must have a radius of at least 15 metres in order to produce a gravitational field. Machinery to spin a hamster cage uses 0.1 tons for every ton of spun ring. Unlike other designs, the hamster cage is usually set at right angles to the hull and installed in counter-rotating pairs, eliminating torque effects on the space station's attitude. For each full percent of the hull which is made part of the hamster cage, the cost of the hull must be increased by +2%.

Breakaway Hulls: A space station can be designed so it can operate as two or more independent vessels, breaking or splitting away from one another. Each section must have an appropriate bridge and power plant to operate it. Manoeuvre drive, sensors, weapons, screens and so forth are all options that can be included in each section. While the sections are together, drives, power plants and weapons can all be combined

Hull Armour

Armour	TL	Tonnage Consumed	Cost (as percentage of hull cost)	Max. Protection
Titanium Steel	7	2.5%	2.5%	TL or 9, (whichever is less)
Crystaliron	10	1.25%	5%	TL or 13, (whichever is less)
Bonded Superdense	14	0.80%	8%	TL
Molecular Bonded	16	0.50%	15%	TL

when calculating performance. This whole process consumes 2% of the combined hull tonnage for the extra bulkheads and connections needed, and costs an additional MCr2 per ton consumed.

Install Armour

All hulls provide some protection from weapons fire, but it is possible to add heavier armour for improved defence.

All hulls start with armour Protection 0, though this can be improved upon.

Dispersed structure space stations cannot be given increased armour. Planetoid hulls provide a space station with armour Protection 2 (Protection 4 if they are Buffered Planetoids).

The Hull Armour table shows how much of the hull's tonnage is consumed per point of armour Protection added, along with its costs. A minimum TL is required for each type of armour, and there is a maximum amount that can be attached to a hull – this includes any armour the space station had prior to modification.

Molecular Bonded: This armour is so dense that not even tachyons can pass through unimpeded. Tachyon weapons attacking a space station with molecular bonded armour lose their AP trait.

Breakaway Hulls: Armour can be allocated on a per section basis if a breakaway hull is used, in which case the tonnage and cost are determined as if the two differently armoured sections were different space stations.

Install Hull Options

Hulls can be further modified with a range of options to create specialised space stations.

Emissions Absorption Grid (TL8): This comprises wires placed in a pattern throughout the hull that capture electronic emissions and store them in capacitors. This grants DM-2 on any Electronics (sensors) checks to detect or lock onto the space station, and will stack with Stealth. Adding an Emissions Absorption Grid costs

Cr40000 per ton of hull and consumes 2% of the total hull tonnage for the capacitors.

Heat Shielding (TL6): Heat shielding protects the space station against heat sources such as proximity to a star. Damage to the space station from proximity to a star in the absence of heat shielding is at the referee's discretion, but should start at 1D per round. Heat shielding does not provide protection against starship combat weapons. Heat shielding costs MCr0.1 per ton of hull.

Radiation Shielding (TL7): Radiation shielding improves the crew's protection against radiation from both natural sources (such as solar flares and pulsars) and artificial (including nuclear bombs and meson weapons). A space station with radiation shielding decreases the amount of rads absorbed by all crew by 1,000, and treats the bridge as if it is hardened. Radiation shielding costs Cr25000 per ton of hull.

Reflec (TL10): Reflec coating on a hull increases the space station's Protection against lasers by +3, but it cannot be combined with Stealth. Adding Reflec costs MCr0.1 per ton of hull, and can only be added once.

Stealth: A stealth coating absorbs radar and lidar beams, and disguises heat emissions, but it is highly dependent on the Tech Level of the space station and that of enemies trying to find it. This gives DM-1 on any Electronics (sensors) checks made to detect or lock onto the space station, with an additional DM-1 for every Tech Level the station is higher than the sensors trying to locate it. Stealth cannot be combined with Reflec. Adding Stealth costs MCr0.1 per ton of hull, and can only be added once.

Superior Stealth (TL12): A highly advanced stealth coating makes a space station all but invisible to sensors. This gives DM-4 on any Electronics (sensors) checks made to detect or lock onto the space station, with an additional DM-1 for every Tech Level the station is higher than the sensors trying to locate it. It cannot be combined with Stealth or Reflec. Adding Superior Stealth costs MCr1 per ton of hull, and can only be added once.

step 2:
INSTALL DRIVES

Space stations are not designed to move any appreciable distance (otherwise they would be classified as ships!) and are never equipped with jump drives. A manoeuvre drive is necessary to make corrections in a space station's orbit, but those installed are proportionally much less powerful than the drives of even humble merchants.

The manoeuvre drive of a space station has Thrust 0, consumes tonnage equal to 0.25% of the space station's total hull, and costs MCr1 per ton.

In theory, it is possible to build a space station without a manoeuvre drive but it will require constant (perhaps monthly) corrections to its orbit by a tug or other suitable spacecraft.

step 3:
INSTALL POWER PLANT

As with ships, the heart of a space station is its power plant. Typically fusion-based, the power plant meets all the energy requirements for every system on the space station. The Power Plant table illustrates the types of power plant available, how much Power they generate and their cost.

Power Requirements

There are just two main requirements a power plant must meet in terms of Power points needed by a space station.

Power Plant

Type	Power per Ton	Cost per Ton
Fission (TL6)	8	MCr0.4
Chemical (TL7)	5	MCr0.25
Fusion (TL8)	10	MCr0.5
Fusion (TL12)	15	MCr1
Fusion (TL15)	20	MCr2
Antimatter (TL20)	100	MCr10

Basic Systems: This includes everything the station needs for day-to-day operations, including artificial gravity, heating, lighting and life support. The number of Power points needed for basic systems is equal to 20% of the total tonnage of the hull.

Manoeuvre Drive: In order to use the manoeuvre drive, the station requires a number of Power points equal to 10% of the hull's total tonnage. However, as a space station typically needs to make station-keeping corrections sporadically, designers sometimes install a smaller (and cheaper) power plant that requires other systems to be off-lined in order to supply power to the manoeuvre drive.

step 4:
INSTALL FUEL TANKS

All space stations require fuel to function but, without a thirsty jump drive installed, their tanks tend to be much smaller than those found on board capital ships.

Chemical power plants require 10 tons of fuel per ton of power plant for every two weeks of operation.

Other power plants require fuel tankage equal to 10% of their size (rounding up, minimum 1 ton). This provides enough fuel for the power plant for a month (four weeks). This can be extended further by increasing the fuel tankage for the power plant (so, doubling it will provide enough fuel for eight weeks, and so on).

step 5:
INSTALL BRIDGE

step 6:
INSTALL COMPUTER

Like ships, space stations need a central point from which basic controls, communications equipment, , scanners, detectors, sensors, and other equipment for proper operation are used. While this fulfils the same function as a bridge on board a ship, it is sometimes called something else on a station, such as Command and Control.

The size of bridge required for space stations and its cost are shown on the Bridges table.

Size of Space Station	Size of Bridge
500 tons or less	10 tons
501-5,000 tons	20 tons
5,001-20,000 tons	40 tons
20,001-100,000 tons	60 tons
100,001-2,500,000 tons	80 tons
2,500,001 tons or more	100 tons

The cost of any bridge is MCr0.1 per 100 tons (or part of) of the station it is installed within.

Command Bridges
A command bridge can be installed in military space stations, and are capable of commanding fleets across an entire system. A bridge on board a space station can be given command bridge capabilities by doubling its cost. It functions as a normal bridge but also grants DM+1 to all Tactics (naval) checks made by Travellers within it.

Every space station needs a central computer, usually installed near the bridge. The computer is the heart of the station, controlling all functions from life support to aiding in the traffic control of the busy regions of space in its orbit.

The computers installed in a space station work just like personal computers (see the *Traveller Core Rulebook* page 105) but are considerably more powerful.

Processing	Tech Level	Cost
Computer/5	7	Cr30000
Computer/10	9	Cr160000
Computer/15	11	MCr2
Computer/20	12	MCr5
Computer/25	13	MCr10
Computer/30	14	MCr20
Computer/35	15	MCr30

Computers do not consume any tonnage on a space station – while they do have a physical presence, they are distributed throughout the station and considered part of other components such as the bridge, staterooms and facilities.

A station may have a maximum of two computers (a primary and a backup), but the second must have a lower Processing score than the primary.

Computer Cores

Like capital ships, space stations are suitable places for multiple distributed computer networks. These are extremely powerful computing systems with massive amounts of processing power available.

Processing	TL	Cost
Core/40	9	MCr12
Core/50	10	MCr20
Core/60	11	MCr30
Core/70	12	MCr50
Core/80	13	MCr70
Core/90	14	MCr100
Core/100	15	MCr130

Hardened Systems (/fib): A computer and its connections can be hardened against attack by electromagnetic pulse weapons. A hardened computer is immune to Ion weapons, but costs +50% more.

step 7:
INSTALL SENSORS

All space stations come equipped with basic communications, sensor, and emission-control suites, usually as part of their bridge. However, specialised or military stations often benefit from more advanced systems that are far more sensitive and resistant to jamming.

The DM column in the Sensors table is applied to all Electronics (comms) and Electronics (sensors) checks made by crew in the station. All stations have Basic sensors unless upgraded.

step 8:
INSTALL WEAPONS

Military space stations rely on a broad range of weaponry to project power across their own region of space but even a humble starport will find a weaponised turret a useful addition when hostile raiders enter their system.

Weapons are installed in the same way as components, taking note of the tonnage they consume within the hull and their cost. Most weapons also have a Power cost associated with them and so you should ensure your power plant is still large enough to handle all the needs of the station after weapons have been installed.

Specific details of weapons (and defensive screens) and how they are installed in a space station can be found in the spacecraft options chapter.

| Sensors	TL	Suite	DM	Power	Tons	Cost
Basic	8	Lidar, Radar	-4	0	-	-
Civilian Grade	9	Lidar, Radar	-2	1	1	MCr3
Military Grade	10	Jammers, Lidar, Radar	+0	2	2	MCr4.1
Improved	12	Densitometer, Jammers, Lidar, Radar	+1	4	3	MCr4.3
Advanced	15	Densitometer, Jammers, Lidar, Neural Activity Sensor, Radar	+2	6	5	MCr5.3

step 9:

INSTALL OPTIONAL SYSTEMS

There are a multitude of optional systems, components and other accessories that can be added to a station. Many of these are identical to those installed within ships and are covered in the spacecraft options chapter, but a few specific to space stations are detailed in this chapter.

Note that most of these optional systems consume tonnage and some also require Power, both of which you should make careful note of.

step 10:

DETERMINE CREW

All space stations, regardless of their level of technology and automation, require a certain number of crew on board to run each system and perform necessary duties. The smallest of stations can get away with just one or two multi-skilled individuals but the largest may need many thousands.

The Crew Requirements table shows how many crew are needed for a commercial station, and how many will usually be found on a military station. Salary can vary but the values on the Crew Requirements table shows a monthly average for skill level 1 crew, with the presumption that +50% will be added for every skill level above this.

Crew Requirements

Position	Skills	Salary	Commercial	Military
Captain	-	Cr10000	Usually the leading officer	1
Engineer	Engineer	Cr4000	1 per 35 tons of drives and power plant	1 per 35 tons of drives and power plant
Maintenance	Mechanic	Cr1000	1 per 2000 tons of hull	1 per 1000 tons of hull
General Crew	Profession	Cr1000	As detailed in Space Station Options	As detailed in Space Station Options
Medic	Medic	Cr4000	1 per 120 crew and visitors	1 per 120 crew
Gunner	Gunner	Cr2000	1 per turret, bay or screen	2 per turret, bay or screen, 1 per 100 tons of spinal mount weaponry
Administrator	Admin	Cr1500	1 per 1000 tons of hull	1 per 1000 tons of hull
Officer	Leadership or Tactics	Cr5000 *	1 per full 20 crew	1 per full 10 crew

* This can be presumed to be an average taken across all officer positions on a ship. In practice, it will vary a great deal between junior and senior officers.

step 11:

INSTALL STATEROOMS

Staterooms represent the living space for both crew and visitors to the space station. A single stateroom contains living and sleeping facilities, including a bed, fresher and a very basic kitchen.

Each stateroom consumes 4 tons and costs MCr0.5. Most space stations will allocate one person to each stateroom.

Double Occupancy

Some space stations have bunks in their staterooms rather than single beds, allowing two people to share the same stateroom. This is called double occupancy and is often done on non-commercial stations that closely orbit an inhabited world (where crew are likely to spend less time continuously on the station).

Employing double occupancy on a station does not cost anything but lack of privacy for extended periods of time can quickly wear on crew not used to it.

Low Berths

A low berth provides suspended animation facilities for emergencies. They are not always safe to use but take up relatively little space or power.

A low berth can hold one low passenger. It consumes half a ton and costs Cr50000.

Common Areas and Living Space

It is common practice to assign an additional amount of tonnage, perhaps equal to half of that used for staterooms, as common areas or general living space. These will typically be recreation area such as a mess, canteen, or lounge and can provide facilities such as parks, pools, theatres and so on, for the amusement and entertainment of crew and visitors.

This is not strictly necessary and space stations can and will vary in this allocation, either increasing it to give crews and passengers a more luxurious (or at least more comfortable) stay, or cutting back to give more space to useful components though at a cost of crew comfort. However, in general, space stations tend to have twice as much space given to common areas as ships do.

Common areas cost MCr0.1 per ton.

Airlocks

Airlocks are sealed systems consisting of two heavy-duty doors or iris valves, with atmospheric pumping equipment, allowing transit to and from a space station while in orbit. A space station may have one airlock for every 100 tons or part of. A standard airlock is capable of cycling two humans per minute between the station's interior and exterior, or vice versa. Additional airlocks may be added using the system in the spacecraft options chapter.

Cargo Hatches

Any area designated for cargo can be given a cargo hatch of any size but this is not an airlock. Generally speaking, cargo areas are capable of being sealed and so are effectively one large airlock unto themselves. See the description of cargo airlocks on page 39 for a solution.

step 12:

ALLOCATE CARGO SPACE

Any space left on the space station that has not been allocated to other components is considered to be free for cargo. There is no cost associated with areas designated for cargo, but any cargo or other materials taken on board the station can obviously not exceed the tonnage set aside for cargo.

step 13:
FINALISE DESIGN

Once cargo space has been allocated, the design process has been completed – your space station is now ready to take its place in its orbit, whether this is around a planet, a star, or other more exotic stellar object.

All that remains is to total up the tonnage consumed by components to ensure you have not tried to squeeze too much within the hull, and to add up all components to find the final cost of the space station. If you need to go back and revise any part of the station, now is the time.

Once everything has been double-checked, you can now record all the details of the space station in a handy file, perhaps using the Ship Roster template found on page 79 and the Mongoose Publishing web site. You might also find it handy to sketch out a deck plan using the guidelines found on page 73.

At this point, you should work out the monthly maintenance cost of the space station. For this, simply take the total cost of the station, minus any ships it is carrying, and deduct 99.9%. Divide this final figure by 12, and you will have the monthly maintenance cost of the station!

You may also find it useful to calculate the monthly life support cost. This may be difficult to do precisely on space stations that have a constant flux of visitors, but determining a monthly average, perhaps with the help of the referee, will not be too difficult.

That done, your space station is now ready for you to walk onto the bridge, take command, and announce that you are open for business!

SPACE STATIONS IN BATTLE

In combat, space stations are treated as if they were ships, with the following exceptions.

- Space stations cannot manoeuvre to any appreciable degree in combat and thus follow very predictable orbital paths. All attack rolls made against space stations gain DM+4.
- So long as the position of the space station is known, missiles and torpedoes can be used against space stations at any range, effectively coasting to their target in the final stages of attack. However, if the missile or torpedo is making an attack after it has expended its fuel, any point defence gains DM+2 against it.
- Space stations may never engage in any kind of combat manoeuvring (see the *Traveller Core Rulebook*, page 156).

SPACE STATION OPTIONS

The following options allow for the customisation of space stations and the fitting of modules that will greatly expand their utility.

Commercial Zone

Shops, offices, trading halls, restaurants and trinket stalls, are all required to attract regular custom to a space station. At the low end, commercial zones can simply be partitioned areas that are adapted by tenants, but advanced space stations are likely to offer extensive business and commercial facilities, such as trading networks, conference centres and attractive plazas.

Commercial zones cost MCr0.2 per ton and require 1 Power for every 200 tons.

Deep Space Communications Relay (TL10)

The longest delay in the X-boat network, other than the necessary week long jump, is the time it takes for the real space transfer from the 100 diameter limit to a central hub station. In some cases, a space station can work around this by using a high capacity network capable of transmitting huge reams of data directly to

Ships and Stations

At some point, it is very likely that a Traveller will start wondering whether they can put a space station module within a ship or give a space station an option that is normally found on board ships. The answer is, subject to the referee's approval, yes, ships and space station can be viewed as interchangeable. There is no reason why a large enough ship could not, for example, have a deck dedicated to mining and refining ore from asteroids.

Fundamentally, a space station is a ship that lacks any real motive system. Aside from its purpose within the universe in which it is created, that is the only real difference between a space station and a ship.

X-boats and the mail pods they carry. So long as the X-boat is not carrying physical cargo and mail in need of actual delivery, it need not visit a space station equipped with a deep space communications relay, and can exchange information from anywhere in the system in relatively short order (only accounting for time lag on the data transfer, occurring at the speed of light). Instead, the X-boat can refuel and move on immediately.

A deep space communications relay consumes 500 tons and costs MCr50.

At TL12, the relay has undergone enough refinement to only consume 250 tons but it costs MCr100. An advanced version is available from TL13 which only consumes 150 tons but costs MCr150.

Docking Facility

Unless they are extremely specialised, space station must have a way of connecting with ships in order to survive and prosper, be they traders looking to exchange goods, warships coming to rear or supply ships bringing vital materials and replacement crew.

All space stations are capable of externally docking with a number of ships whose total tonnage does not exceed twice their own tonnage. Alternatively, a single ship of any size can dock with a space station. This is achieved through the use of docking arms and clamps, which are assumed to be purchased and installed during the construction of the space station's hull.

The largest space stations are capable of receiving ships within internal bays. This provides ships with protection and makes their repair or the transfer of goods and passengers much easier.

This kind of docking facility consumes three tons for every ton of the largest ship it is capable of handling or the total tonnage of ships it can handle at any one time (so, a 6,000 ton docking facility can hold ships totalling up to 2,000 tons).

For every ton they consume, docking facilities cost MCr0.25. They also need 1 crewman for every 100 tons.

Fuel Refinery

The production of refined fuel in space has three distinct steps from start to finish; gathering unrefined fuel, refining, then storing and distributing it. A space station with a fuel refinery must be in orbit around either a gas giant or water world in order to function.

The gathering of unrefined materials is performed by streamlined scoop drones; flying wings with bulbous fuel bays. They fly through the atmospheres of gas giants or scoop up water from oceans, before returning to the space station with the raw gasses or water.

A fuel refinery is a collection of high-end processing machinery which turns water and gases into starship fuel. The Fuel Refinery table shows how much fuel each refinery is capable of outputting per day, per ton dedicated to it, along with its Power requirement. The table also shows how many crew are needed to service the refinery. Space dedicated to refineries includes hangars and other facilities required for scoop drones to bring the raw materials back to the space station.

Manufacturing Plant

Plant	TL	Plant per ton of Goods	Power	Crew	Cost
Basic	7	10 tons	1	1 per 5 tons	MCr0.2
Advanced	10	25 tons	2	1 per 2 tons	MCr0.4
Specialist	9	50 tons	2	1 per 3 tons	MCr1
Agricultural	8	20 tons	1	1 per 10 tons	MCr0.5

Fuel Refinery

TL	Produce	Power	Crew	Cost
7	10 tons	2	1 per 50 tons	MCr0.1 per ton
10	12 tons	1	1 per 100 tons	MCr1 per ton
13	15 tons	1	1 per 500 tons	MCr0.5 per ton

Fuel Tanks: Normal cargo space cannot be used to store processed fuel. Instead, large fuel tanks must be constructed, at a cost of Cr50000 per ton.

Manufacturing Plant

Orbital manufacturing facilities allows for potentially vast amounts of goods to be manufactured without taking up space which may be at a premium on developed worlds, or for specialist goods to be made that are impossible planetside. The type of goods created is dependent on the type of manufacturing plant, which will be one of the following types; Basic, Advanced, Specialist and Agricultural, as shown on the Manufacturing Plant table. This table also shows the cost and power requirement per ton, and how many tons of manufacturing plant is needed to produce 1 ton of goods per day.

At TL10, advanced technology doubles the amount of goods produced by a plant while halving the crew needed, while TL13 plants produce triple the amount of goods while quartering the crew needed.

In addition, the rate of production can be improved if goods are manufactured in a system which can provide the right raw materials quickly and easily. If the system the space station is within meets the Trade Code requirement in the Goods table, then production is increased by 25%.

Mineral Refinery

Mineral refineries convert asteroids into useful metals and materials. Some are made up of individual platforms, each of which contribute their own work to the completion of the operation, others mix several aspects, while a few are unified stations thought of when most talk about mineral refineries.

Mineral refineries rely on manned tugs to bring suitable asteroids to the space station, though at TL12 these are replaced by tug drones.

Once asteroids are delivered to the station, they must be crushed, the ores and other by-products sorted, and waste released back into space. The produce is split between 50% Common Ore, 30% Uncommon Ore,

Goods

Goods	Plant Type	Trade Code
Common Electronics, Machine Parts, Manufactured Goods	Basic	None
Common Consumables	Agricultural	None
Advanced Electronics, Machine Parts, Manufactured Goods	Advanced	Industrial
Advanced Weapons	Advanced	High Tech
Advanced Vehicles	Advanced	High Tech
Biochemicals	Agricultural	Water World
Cybernetics	Specialist	High Tech
Live Animals	Agricultural	Agricultural
Luxury Consumables	Agricultural	Agricultural
Luxury Goods	Specialist	High Population
Medical Supplies	Specialist	High Tech
Pharmaceuticals	Specialist	Asteroid
Robots	Specialist	Industrial
Spices	Agricultural	Desert
Textiles	Basic	Agricultural
Wood	Agricultural	Agricultural
Vehicles	Basic	Industrial

15% Crystals & Gems and 5% Precious Metals (as defined on page 220 of the *Traveller Core Rulebook*). So, for example, for every 100 tons of produce from the refinery, 50 tons will be Basic Ore, 30 tons will be Uncommon Ore, 15 tons Crystals & Gems, and 5 tons Precious Metals.

Technology rapidly enhances the capabilities of a mineral refinery. The Mineral Refinery table shows how much produce each refinery is capable of outputting per day, per ton dedicated to it, along with its Power requirement. The table also shows how many crew are needed to service the refinery. Space dedicated to refineries includes hangars and other facilities required for tugs to bring asteroids back to the space station.

Mineral Refinery

TL	Produce	Power	Crew	Cost
7	0.5 tons	5	1 per 10 tons	MCr0.5 per ton
10	1 tons	2	1 per 20 tons	MCr1 per ton
13	2 tons	1	1 per 50 tons	MCr2 per ton

Cargo space is normally dedicated to storing the produce from a refinery.

Smelter: Ores are the normal end-product of a mineral refinery, but many stations also conduct on-board processing to create more valuable materials. A smelter allows Common Ores to be processed into Common Raw Materials, and Uncommon Ores into Uncommon Raw Materials. Each ton of smelter allows the processing of 0.2 tons of Ores into 0.1 tons of Raw Materials per day. A smelter costs MCr0.5 and requires 1 Power per ton.

Residential Zone

On advanced worlds, population will often outstrip demand for space, and huge orbital colonies will be created. In other systems, people live on space stations because of dangerous environments planetside or simply because of personal preference. The number of people who can be housed within residential space will depend on the resources and space allocated to it, as shown on the Residential Zones table. This table lists approximate SOC suited to the housing and facilities, as well as the tonnage consumed per person housed, the cost per ton and Power required for every 100 tons or part of consumed by the residential zone.

Quality	SOC	Tons per Person	Power per 100 tons	Cost per Ton
Low	1+	2	1	MCr0.05
Medium	4+	4	2	MCr0.1
High	8+	6	3	MCr0.25
Luxury	10+	10	5	MCr0.75

Shipyard

The smallest shipyards are found on civilian stations for the construction of small craft, but far larger construction sites can be found on the stations of megacorporations and militaries. Shipyards provide the facilities needed to build ships to the Tech Level of the space station.

A shipyard consumes five tons for every ton of the largest ship it is capable of building or the total tonnage of ships it can build at any one time (so, a 10,000 ton shipyard can build ships totalling up to 2,000 tons).

For every ton they consume, shipyards cost MCr0.5 and require 1 Power. They also need 1 crewman for every 10 tons.

In order to construct ships with jump drives, a shipyard must be of a suitable Tech Level, as defined on the Jump Potential table on page 14. So, for example, to build jump-3 ships, a shipyard must be at least Tech Level 12. Shipyards capable of building ships with jump drives have their cost increased to MCr0.75 per ton.

STARPORTS

It is possible for a space station to be classed as a starport for a system. This can be either as a highport servicing ships that cannot reasonably reach planetside facilities or as the sole starport within a system. The class of starport a space station can be rated as depends on the facilities it can offer, as shown on the starport table. All the facilities listed are minimums the starport must have installed.

Note that while a space station may qualify as a starport by having the right facilities, that does not necessarily mean it will automatically be classified as one. Commercial pressures may force the designated starport to be elsewhere in the system or government control may effectively outlaw a space station from being use as a starport.

Class	Total Docking Space	Refined Fuel per Day	Sensors	Commercial Zones	Residential Zones	Shipyard
A	100,000 tons	2,500 tons	Improved	25,000 tons	10,000 tons	25,000 tons, jump-capable
B	50,000 tons	1,000 tons	Civilian	5,000 tons	2,500 tons	10,000 tons
C	20,000 tons	100 tons	Civilian	100 tons	100 tons	-
D	-	-	Basic	100 tons	-	-
E	-	-	Basic	-	-	-

THE SHIP'S COMPUTER

A ship's computer shares much in common with more portable systems but is immensely more powerful. The complex calculations required for quick and easy travel between planets and using jump space need suitable hardware with a lot more processing power. However, while the computing power available to the average merchant ship is staggering enough, capital ships tend to carry multiple distributed networks which can effectively provide unlimited processing potential.

This has led to the creation of software packages that are far more advanced than those run on portable computer systems, each granting a ship a wide range of comprehensive capabilities that not only allow it to travel safely and without error across the immense distances between the stars, but also function far more effectively when it reaches its destination.

This chapter looks at the advanced software available for ship's computers, though note that any sufficiently powerful computer can run this software.

Advanced Fire Control: The basic Fire Control packages available to most ships (see the *Traveller Core Rulebook*, page 151) are suitable for small ships with a handful of turrets, but they quickly surpass their capabilities on larger vessels with multiple weapon systems. Advanced Fire Control software utilises the greater processing potential of capital ships to create an entire offensive network that increases the efficiency of gunnery crew. Note that Advanced Fire Control does not allow a ship's computer to fire any weapons itself, merely increasing the accuracy of those who do.

All weapons mounted upon the ship gain a DM to their attack rolls equal to the Advanced Fire Control package's score (so, Advanced Fire Control/2 grants DM+2 to all attack rolls).

Software	Bandwidth	TL	Cost
Advanced Fire Control/1	15	TL10	MCr12
Advanced Fire Control/2	25	TL12	MCr15
Advanced Fire Control/3	30	TL14	MCr18

Anti-Hijack: This software package constantly monitors airlocks, access to critical areas and attempts to break into computer systems. In the event it discovers an anomaly, the software automatically shuts down access to the affected area, making unauthorised attempts to enter key areas and functions difficult. This is intended to act as a ward against hijacking but also serves as a strong security system. Any skill check made to gain unauthorised entry to the ship's computer or any restricted area suffers a negative DM equal to double the Anti-Hijack's software score.

Software	Bandwidth	TL	Cost
Anti-Hijack/1	2	TL11	MCr6
Anti-Hijack/2	5	TL12	MCr8
Anti-Hijack/3	10	TL13	MCr10

Battle System: The Battle System software package is a complex suite of programmes that interact with each other and other ship-board systems to create a tactical view of fleet actions. It then runs high-level simulations and makes predictions to advise officers as to the correct course of action. Any Traveller using Battle System gains a DM to Tactics (naval) checks equal to the Battle System package's score (so, Battle System/2 grants DM+2 to the check).

Software	Bandwidth	TL	Cost
Battle System/1	5	TL9	MCr18
Battle System /2	10	TL12	MCr24
Battle System /3	15	TL15	MCr36

Broad Spectrum EW: While a software package cannot match a skilled sentient electronics warfare officer, computers can act much faster, disrupting entire salvoes in the time it takes an operator to simply notice a launch. The Broad Spectrum EW package continuously scans for hostile missile launches and automatically sends disruptive signals known to interfere with the guidance systems of all common missiles. A single electronic warfare action (with no crew skill DM applied) is automatically performed against any and all enemy salvoes launched within Long range. Each salvo can still only be subjected to one electronic warfare action, so manual attempts to disrupt salvoes should be performed beforehand.

Software	Bandwidth	TL	Cost
Broad Spectrum	12	TL13	MCr14

Conscious Intelligence: A Conscious Intelligence is far more than a basic Intellect package or a mere artificial intelligence. A Conscious Intelligence is a fully aware, completely sentient digital being, capable of thought, deduction, analysis and, it appears in every measureable way, emotion. A Conscious Intelligence is treated as a computer-bound Traveller with INT 15 and EDU 15, with a range of skills that can be uploaded, changed and improved (typically in the skill level 3-5 range). The Conscious Intelligence will have a name, an easily recognisable personality and is considered, by all ways except the biological, alive.

Software	Bandwidth	TL	Cost
Conscious Intelligence	40	TL16	MCr25
Conscious Intelligence	25	TL17	MCr20
Conscious Intelligence	10	TL18	MCr15

Electronic Warfare: With access to the ship's sensor suites, this software package provides aid to the vessel's electronic warfare experts by quickly finding the correct frequencies to disrupt a target and then applying massive processing power to break through any firewall security.

All electronic warfare actions (see page 161 of the *Traveller Core Rulebook*) performed from the ship gain a DM to their Electronics (sensors) checks equal to the Electronic Warfare package's score (so, Electronic Warfare/2 grants DM+2 to the checks).

Software	Bandwidth	TL	Cost
Electronic Warfare/1	10	TL10	MCr15
Electronic Warfare/2	15	TL13	MCr18
Electronic Warfare/3	20	TL15	MCr24

Launch Solution: Using complex calculations to mark the trajectories of entire salvos of missiles, the Launch Solution software package optimises missile and torpedo attacks to devastating effect.

All missile and torpedo salvoes fired by the ship gain a DM to their attack rolls equal to the Launch Solution package's score (so, Launch Solution/2 grants DM+2 to all missile and torpedo salvo attack rolls).

Software	Bandwidth	TL	Cost
Launch Solution/1	5	TL8	MCr10
Launch Solution/2	10	TL10	MCr12
Launch Solution/3	15	TL12	MCr16

Point Defence: While any ship with a laser turret can engage in point defence against incoming attacks, the computing power required to effectively shield another ship is staggering, relying on complex calculations of the trajectories of enemy ships, friendly targets and the actual weapons used. A ship running the Point Defence package may use point defence batteries and the Point Defence (Gunner) reaction to defend any ship within Close range. The Point Defence/2 package increases this range to Short.

Software	Bandwidth	TL	Cost
Point Defence/1	12	TL9	MCr8
Point Defence/2	15	TL12	MCr12

Screen Optimiser: The Screen Optimiser package takes control of any screens mounted on a ship, and automatically configures them on the fly to best degrade enemy attacks. It automatically performs the Angle Screens (Gunner) action with a total DM+0, against any attack and can use any number of screens simultaneously.

Software	Bandwidth	TL	Cost
Screen Optimiser	10	TL10	MCr5

Virtual Crew: While ships are vastly complicated to run, requiring highly trained crews, relatively simple operations can be performed by this software package. Virtual Crew can replace up to five pilots, gunners or sensor operators on board a ship, potentially allowing the ship to act completely autonomously if all crew can be replaced in this way. Indeed, ships can be designed without a bridge, relying purely on this software package in order to function as a drone. Ships that have no living crew make appropriate checks with a skill level equal to their Virtual Crew score, and can also be controlled through the use of the Electronics (remote ops) skill. When using Electronics (remote ops), DM-2 is applied to all checks made if the drone ship is at Long range to the controller and DM-4 if it is at Very Long range. A drone ship cannot be remotely controlled at Distant ranges and must rely on its own programming. The package can replace any number of crew, though will require +1 Bandwidth for every 5 crew or part of beyond the first five.

Software	Bandwidth	TL	Cost
Virtual Crew/0	5	TL10	MCr1
Virtual Crew/1	10	TL13	MCr5
Virtual Crew/2	15	TL15	MCr10

Virtual Gunner: A Virtual Gunner package allows a ship's computer to replace living gunnery crew in an efficient manner. The package can replace any number of gunners, though will require +1 Bandwidth for every ten gunners or part of beyond the first ten. Weapons

controlled by a Virtual Gunner have a skill level equal to the package's own score, but they can take advantage of other modifiers such as Advanced Fire Control.

Software	Bandwidth	TL	Cost
Virtual Gunner/0	5	TL9	MCr1
Virtual Gunner/1	10	TL12	MCr5
Virtual Gunner/2	15	TL15	MCr10

Virtual Mining: The process of virtual mining allows computers across the galaxy to effectively compete with one another in solving various maths-related problems, for which their owners are then rewarded with money. While virtual mining software can be run on almost any computer, most portable systems simply do not have the processing power to crunch through the maths quickly enough to generate enough Credits for the process to be worthwhile. However, with the massive resources available to a ship's computer, substantial profits can be made over time.

The cost listed for a Virtual Mining software package is per point of Bandwidth. A computer running this package will generate a number of Credits per day equal to the Bandwidth of the software, multiplied by the Tech Level of the computer it is running on.

Rumours that this software is actually part of a government-based surveillance network are likely to be completely unfounded.

Software	Bandwidth	TL	Cost
Virtual Mining	1+	TL7	Cr100

HIGH TECHNOLOGY

The ship design rules covered in previous chapters cover a broad range of technologies, up to around TL15. While technology beyond this is rare in the Third Imperium, it certainly exists and in other universes it may be common to the extent of ubiquity. This chapter introduces a range of new technologies that can be used as part of the design process to create some truly awesome ships.

NEW DRIVES

Fundamental to the technology a ship uses is based on its drives – the jump drive, manoeuvre drive and, to a large extent, its power plant. The drives detailed here can be used as additions or complete replacements to those presented in Chapter Two. If they are intended as replacements (that is, standard drives do not exist in the universe), then a referee is free to reduce the TL required for a drive by as much as 8 or 10 levels.

Hyperdrive

An alternate method of crossing the vast distances between the stars, the hyperdrive opens a temporary portal into hyperspace which the ship physically flies into. While within hyperspace, the ship uses its conventional manoeuvre drive to travel, though the effect of hyperspace is to greatly magnify its effect in relation to realspace. Once at its destination, the hyperdrive opens a new portal which leads the ship back into realspace. Hyperdrives cost MCr2 per ton.

A hyperdrive consumes no fuel and, while in hyperspace, the spacecraft moves a number of parsecs equal to its Thrust per hour, up to a maximum of the hyperdrive's rating. This is the equivalent distance moved in realspace, and determines where the spacecraft will appear once it leaves hyperspace.

Power Requirements: In order to use the hyperdrive, the ship requires a number of Power points equal to the hyperdrive's total tonnage.

Warp Drive

The warp drive is similar in effect to a hyperdrive, but instead of entering hyperspace it creates a warp 'bubble' around the ship, effectively stretching spacetime. The ship can now travel many times the speed of light but does so in realspace. In every other way, it functions in the same fashion as a hyperdrive.

Space Folding Drive

Using a space folding drive, a ship instantaneously jumps from one point to another. This works just like the standard jump drive on page 14, but there is no week-long wait in hyperspace. No time whatsoever elapses during the transition from one place to another, but the drive must recharge for 24 hours before it can make another jump. A space folding drive must be a minimum of 20 tons. Space folding drives cost MCr3 per ton.

Hyperdrive Potential

Rating	1	2	3	4	5	6	7	8	9
% of Hull	10%	12%	14%	16%	18%	20%	22%	24%	26%
Hyperdrive TL	17	19	20	21	22	23	24	25	26

Space Folding Potential

Rating	1	2	3	4	5	6	7	8	9
% of Hull	2.5%	5%	7.5%	10%	12.5%	15%	17.5%	20%	22.5%
Space Folding TL	17	18	18	19	19	20	21	22	23

Time Drive Potential

Rating	1	2	3	4	5	6	7	8	9	10
TL	20	20	21	21	22	22	23	23	24	25
% of Hull	5%	8%	11%	14%	17%	20%	23%	26%	29%	32%
Time Increment	Rounds	Minutes	Hours	Days	Weeks	Months	Years	Decades	Centuries	Millennia

Power Requirements: In order to use the space folding drive, the ship requires a number of Power points equal to 50% of the hull's total tonnage multiplied by the space folding drive rating. No fuel is consumed.

Time Drive

This drive manipulates the fabric of time and space around the ship, allowing it to actually travel through time rather than space. It is capable of moving the ship forward or backward in time, allowing Travellers inside the ability to create all kinds of paradoxes.

Like other drives, it uses a power plant for its function and consumes a certain amount of tonnage. The maximum period of movement possible (hours, days, months, years and so forth) is dependent on the percentage of hull volume the drive uses – the larger the time drive proportional to the hull it is installed within, the greater amount of time can be travelled in a single jump, as detailed on the Time Drive Potential table.

The time drive can move a ship up to six of the increments listed. So, for example, a time drive-3 could move a ship forward or backward in time up to six hours. The fuel required to do so is equal to:

0.05 x (ship's hull in tons/2) x time drive rating

Time drives cost MCr5 per ton.

Power Requirements: In order to use the time drive, the ship requires a number of Power points equal to 25% of the hull's total tonnage multiplied by the time drive.

NEW WEAPONS

As new technology becomes available or technological research goes down different paths, a variety of new weapons or new implementations of weapons begin appearing on ships.

Quad Turrets

There is a practical limit to how many weapons may be placed within a turret but, at the same time, there are always engineers who like to push the limits on what is considered possible. Quad turrets are rare and not especially efficient, but they pack a serious punch and have potential for intimidation alone.

Quad turrets provide DM+3 on Point Defence actions.

Mount	TL	Power	Tons	Cost
Quad Turret	12	2	1	MCr2

Antimatter Spinal Mount: A massive weapon of truly awesome potential, the antimatter spinal mount uses electromagnetic forces to funnel a stream of antimatter particles to a target, where they react violently to cause devastating damage. While only the most advanced vessels can utilise this weapon, they are true fleet killers when they appear in a system.

Fusion Gun: An extremely powerful weapon in planet-based warfare, in space the fusion gun provides hard-hitting strikes at a reasonable cost. However, it is extremely power-hungry.

Particle Beam: This weapon fires a stream of accelerated subatomic particles at a target. It is not only more powerful than the average ship-mounted laser but some of the particles it fires easily penetrate ship armour as if it were not there, irradiating the crew on board.

Plasma Gun: Firing a high-energy plasma stream, this weapon is far more powerful than equivalent lasers and provides a good balance between cost and hitting power.

Plasma-pulse Cannon: Plasma-pulse cannons use bolts or pulses of hydrogen plasma funnelled within an electromagnetic field. Upon striking a target, it vaporises any surface it contacts. While relatively power-hungry, plasma-pulse technology is readily adaptable at any size of weapon, and is capable of delivering a series of strikes rapidly.

Meson Gun: Using dual particle accelerator technology, meson guns fire destructive beams that make a mockery of armour and produce intense radiation effects inside a target. Meson gun bays ignore all Armour and radiation shielding.

Neutron Laser: An advanced development of the humble beam laser, neutron lasers are large weapons that require bay installations to handle their size, but they are true capital ship armaments. Neutron lasers are cannon-sized beam lasers that are stabilised by a neutron flow for greater stability – this greatly enhances their damage potential.

Solar Pulse Generator: The solar pulse generator is a highly unusual weapon that is distributed across the hull of an entire ship, using massive amounts of power to generate a pulse that affects all nearby ships, shorting out their systems and disabling them. A ship armed with a solar pulse generator is immune to its own weapon, but not those of other ships.

A solar pulse generator has capacitors installed, allowing the 2000 Power points required to fire it to be added incrementally over time. However, once it has started charging, it must be fired within 10 rounds or be discharged safely, a process that takes 1D rounds. If this is not done, the ship risks sustaining fatal damage as the generator overloads.

Turret Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Fusion Gun	14	Medium	12	4D	MCr2	Radiation
Particle Beam	12	Very Long	8	3D	MCr4	Radiation
Plasma Gun	11	Medium	6	3D	MCr2.5	-
Plasma-pulse Cannon	13	Medium	10	2D	MCr3	Auto 4

Barbette Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Plasma-pulse Cannon	13	Medium	20	3D	MCr6	Auto 4

Small Bay Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Meson Gun Bay	11	Long	20	8D	MCr50	AP Special, Radiation
Neutron Laser Bay	16	Long	40	7D	MCr18	-
Plasma-pulse Cannon Bay	13	Medium	60	6D	MCr15	Auto 6
Tractor Beam Bay	16	Short	60	Special	MCr14	-

Medium Bay Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Meson Gun Bay	11	Long	30	1DD	MCr100	AP Special, Radiation
Neutron Laser Bay	16	Long	60	9D	MCr35	-
Plasma-pulse Cannon Bay	13	Medium	90	8D	MCr30	Auto 8
Tractor Beam Bay	16	Short	90	Special	MCr30	-

Large Bay Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Meson Gun Bay	11	Long	150	2DD	MCr250	AP Special, Radiation
Neutron Laser Bay	16	Long	180	9D	MCr100	-
Plasma-pulse Cannon Bay	13	Medium	400	8D	MCr80	Auto 8
Tractor Beam Bay	16	Short	270	Special	MCr90	-

Spinal Mount Weapons

Weapon	TL	Range	Base Size	Power	Damage	Cost	Max. Size	Traits
Antimatter	21	Long	12000 tons	2500	+3DD	+MCr5000	200000 tons	Radiation
Super Laser	16	Very Long	20000 tons	6000	+4DD	+MCr25000	No maximum	-

Special Weapons

Weapon	TL	Range	Power	Damage	Cost	Traits
Solar Pulse Generator	18	Short	2000	5DD x 10	MCr25000	Ion

When fired, the solar pulse generator automatically damages every ship within range.

Super Laser: A term used to describe a wide range of different technological implementations, the result is always the same; a vast and awesomely powerful directed laser beam capable of tearing ships and, when built large enough, even planets apart. While hugely inefficient, both in terms of power and cost, super lasers have no practical limit when it comes to scalability.

Tractor Beam: In some universes, these bays are called repulsors, dependant on the primary tactical doctrine in which they are used – a tractor beam locks onto an object (such as a ship) and holds it fast or pulls it inward, but a simple change of polarity will push the object away instead.

Tractor beams are mounted within bays but upon a successful attack roll will cause no damage to their target. Small bay tractor beams can hold objects of up to 100 tons, medium bays up to 200 tons, and large bays up to 800 tons. Objects held by a tractor beam cannot expend Thrust but may be moved by the tractor beam operator as if they had Thrust 1.

A ship caught in a tractor beam can attempt to break the lock by making a Pilot check opposed by the Gunner (capital) check of the tractor beam operator. Each additional tractor beam holding the ship imposes DM-2 to this Pilot check, and large bay tractor beams impose a further DM-2.

By reversing their polarity, tractor beams can be used to violently repel small objects, and this is often done against missile salvoes. A successful Gunner (capital) check will remove a number of missiles from any salvo within range equal to 1D x Effect. Medium bay tractor beams multiply this by a further 2, while large bay tractor beams multiply it by 10.

A tractor beam may only be used once in every round, whether it is locking onto an object or repelling it.

Increasing the TL of a tractor beam bay will increase its cost by 10% and double the tonnage of the object it can hold. However, a ship may not lock onto an object of greater tonnage than itself.

NEW SCREENS
As weapons technology progresses, so too does that of defensive measures. Energy screens, in particular, become more ubiquitous as technology improves.

Deflector Screens
These are energy-based screens projected away from a ship to deflect incoming attacks and reduce the damage they cause. Deflector screens will mitigate damage from any weapon, reducing its damage by 1D (multiplied by the Effect of the Angle Screens action).

Energy Shields
Seen as the ultimate in defence, energy shields do not require dedicated gunners to ensure their effectiveness, only engineers to feed them power. Energy shields, when activated, form a permanent and invisible bubble around a ship that absorbs incoming energy. So long as the energy they can absorb is not overwhelmed rapidly, the ship will be kept safe from harm.

Each energy shield installed upon a ship will form a 'buffer' of 10 points of damage. All functioning energy shields on board a ship will combine to increase the damage they can collectively absorb.

All damage a ship suffers will initially be deducted from the energy shields. When the energy shields have had their buffer reduced to zero, all remaining damage is applied to the ship as normal.

Each energy shield will regenerate 1 point in its buffer at the end of every round. A successful Difficult (10+) Engineer (power) check (1 round, INT) will double this rate of regeneration.

Improved energy shields contribute 20 points to the energy buffer and regenerate 2 points at the end if every round. Advance d energy shields contribute 50 points and regenerate 5 points at the end of every round.

Screen	TL	Power	Tons	Cost
Deflector Screens	10	10	5	MCr5
Energy Shields	16	50	20	MCr25
Improved Energy Shields	18	75	15	MCr35
Advanced Energy Shields	20	100	10	MCr60

White Globe Generator
Similar in concept to the black globe generator, this defensive system is far more advanced, projecting a glowing white barrier of energy around a ship that absorbs incoming fire. However, unlike the black globe generator, the white globe generator allows a ship to function normally while it is in use, with no restrictions on sensors, manoeuvres or attacks.

White globe generators are available only at TL20 or above, and are extremely rare. They consume 50 tons and, when available, cost at least MCr1000. They require 100 points of Power.

As the energy of attacks absorbed by the generator is channelled to capacitors, a ship must have sufficient capacitor capacity if it is to avoid overloading its systems and explode catastrophically. Fortunately, if a ship possesses a jump drive, it will have considerable capacitor capacity.

A jump drive will have capacitors equal to 20% of its size in tons. Additional capacitors may be purchased at a cost of MCr3 per ton.

Each ton of capacitor will absorb 50 points of damage.

If a ship with a white globe generator absorbs more damage than its capacitors can handle, the ship automatically explodes, destroyed instantly.

To avoid this, the capacitors can be discharged. For every combat round the white globe generator is switched off, the capacitors will discharge an amount of damage equal to 1% of the ship's total tonnage multiplied by 10% of the tonnage of the ship's power plant.

NEW OPTIONS
Advanced systems installed on board a ship can radically alter its capabilities, allowing it to perform beyond the specifications of what is considered 'normal' in the galaxy.

Collectors (TL14)
These are accumulators, sweeping up exotic particles captured by a canopy and removing the need to carry separate fuel for the jump drive. This charge is released in a single spike to power a jump drive; collectors cannot be used for normal ship operations.

Collectors consume 1% of the ship's tonnage multiplied by the maximum jump number its drive is capable of, plus 5 tons. They cost MCr0.5 per ton.

It takes a week of normal space travel to fully charge an accumulator, and accumulators will not work at all in jump space, in an atmosphere or on a ship expending thrust.

Gravity Well Generator (TL16)
This complex device creates an artificial though temporary gravity well across a large area of space, making the process jumping extremely dangerous. It is typically used by navies and system patrol craft to trap pirates and other lawbreakers, stopping them escaping to jumpspace before they can be boarded or destroyed. Enterprising pirates, however, may make use of them to stop defenceless merchants from fleeing.

A gravity well generator consumes 100 tons and requires 500 Power points to function. It will project a gravity well across 300,000 kilometres with the same effect on jumping ships as being within the hundred diameter limit of a planet or star (see page 148 of the Traveller Core Rulebook). It costs MCr120.

At TL17, a more powerful gravity well generator with greater range becomes available. This version consumes 300 tons and 1,200 Power points. Its gravity well extends 1,200,000 kilometres and costs MCr360.

Jump Filters (TL14)
An advanced modification inserted between a ship's computer and its sensor suite, jump filters search for very specific traces created by expended fuel and broken jump envelopes in order to track the direction and location of a ship's jump. With detailed analysis, this allows a prediction of which star system a ship has jumped to.

In order to use a jump filter, a ship must be previously detected and its jump witnessed. A Very Difficult (10+) Electronics (sensors) check (1D rounds, INT) will allow the operator to determine where the ship has junmped to.

Jump filters consume no tonnage but require +5 Bandwidth from the ship's computer, 1 point of Power, and cost MCr5.

PSIONIC TECHNOLOGY

The use of psionics can be hated, feared or be just plain illegal across many universes. However, the sheer impact psionics can have on any dynamic in space, be it battle or trade, is too great to ignore. High technology is therefore used to degrade or enhance psionicists in space.

Psionic Capacitor (TL18)

Through a combination of exotic matrices and carefully engineered crystalline technologies, the psionic capacitor is an effective though artificial storage system for psionic energies, which can be drawn upon by any psion on board the ship.

A psion must succeed at an Average (8+) PSI check (free action) to gain access to the capacitor every time he wishes to draw PSI points from it. The psion can then use any amount of PSI points present in the capacitor for any psionic power used in the same round.

A psionic capacitor costs MCr10 per ton and consumes 10 Power per ton. It can hold a maximum number of PSI points equal to ten times its tonnage, and automatically regenerates 1 PSI point per ton every hour, so long as it has sufficient Power available.

Psion Stateroom (TL12)

This stateroom is equipped with psionically-calibrated mood-calming environment sensors, that promote peace and relaxation. This allows the psion greatly increase the regeneration of his powers after great mental exertion.

A psion stateroom is identical to a normal stateroom in every way, but a psion will increase their PSI regeneration rate by +50%.

A psion stateroom consumes 4 tons and costs MCr2.

Psionic Shielding (TL12)

Incorporating exotic metals as a matrix embedded within the hull of a ship can make it extremely difficult for clairvoyants and telepaths to use their powers. While this technology is difficult to employ and of limited effect, any edge can be worthwhile if a captain wishes to protect himself against psionicists.

Psionicists using Clairvoyance or Telepathy powers suffer a penalty within this ship or upon its occupants. However, the shielding is most effective on small vessels, and larger vessels tend to develop 'holes' that a cunning psionicist can exploit.

The penalty for Clairvoyance and Telepathy powers is DM-4 for ships of 300 tons or less, and DM-2 for ships of 500 tons or less. Ships of less than 100 tons are completely impenetrable.

Psionic shielding consumes 1% of the total tonnage of the ship and costs Cr500000 per ton.

At TL16, advanced psionic shielding becomes available. This consumes no tonnage and costs MCr1 per 100 tons, or part of, of the ship being shielded.

BELT MINING

Asteroids are primordial objects left over from the formation of star systems. In some systems they are the remains of devastating planetary collisions during the earliest years of the system's birth, but generally asteroids are the leftover rocky matter that never successfully coalesced into a planet.

Most asteroid belts are found in an orbit between a system's star and its closest gas giant. The typical orbital circumference of an asteroid belt can be billions of kilometres – a vast orbital area that requires considerable resources and logistics to accurately survey and exploit.

The density of the belt varies throughout its circumference. Certain areas – called clusters – are densely packed, numbering tens of thousands of objects varying in size. Elsewhere, the density is considerably less, with great distances separating substantial objects, but still filled with small particles and dust.

However, given the immense circumference of asteroid belts, even in the densest clusters, individual asteroids can be tens of thousands of kilometres from their nearest neighbour. Collisions between major asteroid bodies occur, on average, every 10 million years, which, by astronomical standards at least, is quite frequent. Where general human visitation is concerned, even in the most concentrated clusters, hitting an asteroid 'accidentally' is nigh-on impossible, and it requires careful navigation to isolate and approach any given major body. The image of a whirling cloud of deadly debris is largely mythical, although when collisions between major bodies take place, clouds of dangerous, high velocity debris and dust can pose a threat to any ship unlucky enough to be caught in its wake.

ASTEROID COMPOSITION

Planet dwellers consider asteroid belts to be the junkyards of the star system; the dumping ground for material that never made it into a worthwhile planet. Belters see asteroid belts as a frontier packed with riches and opportunity.

The types of asteroids commonly found in a typical belt vary considerably, but tend to fall into three classes:

Silicates (S class), Metals (M class) and Carbonaceous (C class). The distribution of these three classes is smooth across the entire composition of most asteroid belts, but for those interested in exploiting these riches, three distinct zones can usually be differentiated.

N Zone
The inner belt. This band contains predominately M class planetoids and debris, usually with a high concentration of nickel-iron, hence the N designation.

M Zone
The mid belt. A zone of transition between the N and C zones, here the asteroids and planetoids are a mixture of M class and C class.

C Zone
The outer belt. C class asteroids and planetoids predominate; figure on 90% of the material being carbonaceous.

Trojan Clusters
These are asteroid clusters found in the Trojan points of gas giants, if present. Trojan points are empty areas of space that exert their own gravitational influence due to the gravitational forces of two larger celestial bodies – such as a gas giant and its parent star. An object in a Trojan point remains in place as long as no other force is brought to bear. Trojan points are remarkably stable points in a solar system and tend to collect C class asteroids and planetoids. These are found in the same orbit as the gas giant, but 60-degrees ahead of and behind the planet.

ASTEROID TYPES
The material found in an asteroid belt falls into one of four categories or classes.

S Class: silicate based. Anything from a floating pebble through to a mountain-like chunk of rock, but lacking in any mineable metals or precious ores. S class material is found widely throughout all the zones of an asteroid belt.

M Class: Metallic-based. Usually nickel-iron, but with the potential to yield precious and heavy metals depending on the location within the belt. M class asteroids are reasonably dense in composition, containing high-grade

16 Psyche

As an example of the value of M class asteroids, an average earth-sized world of TL6 or 7 has an average iron ore production value in excess of 1,000 million metric tons. Compare this with an M class asteroid with a mean diameter of just 1 kilometre: at this size and density, a 1-kilometre M class asteroid could yield in excess of 2,000 million metric tons of iron-nickel ore, which is two to three times the annual production requirements for the planet. In our own asteroid belt, the asteroid 16 Psyche is believed to contain 1.7×10^{19} kilograms of iron-nickel, enough to satisfy present iron ore production requirements on Earth for several *million* years.

sources of metal, along with exotic elements such as radioactives and super-dense metals. This makes them valuable for manufacturing industries and larger examples can be turned into starship hulls at any orbital A class starport or similar grade of dockyard. M class asteroids are most common in the N zone of the belt and are targets for most prospectors.

C Class: Carbonaceous asteroids are the most common across the belt but with the highest concentrations in the M and C zones (though with little tangible presence in the N zone). Consequently, they have the lowest monetary value but often high utility depending on the materials present: hydrogen, oxygen, and other elements, including organic compounds, can be exploited for fuel refining and tend to be of particular value to belt habitats where water is a precious, imported commodity.

Ice: 'Dirty snowballs' containing water, ammonia, methane and other, frozen volatiles, ice chunks are a source of hydrogen for fuel and compounds necessary for water extraction. Ice chunks tend to be of greatest value in systems that have no gas giant exploitation programme, and to asteroid habitats where water is a valued commodity.

None of the four classes of asteroid are, in themselves, highly valuable, although belters can make a decent living from exploiting the basic commodities each type possesses. The real value is generally hidden, especially in M class material. Precious metals such as gold, platinum, iridium and various exotics and radioactives are where the largest pay cheques are to be found, and once a belter has conducted a standard composite scan of an asteroid, the real work lies in determining what additional materials are present, in what quantities, and how easy they are to exploit. Some asteroids have configurations and compositions valuable for research purposes, rather than industrial utility, and so belters are always on the look-out for unusual shapes and sizes, and may even be commissioned to hunt for specific configurations of interest to a particular scientific research project.

Of course, there is always the chance of encountering something truly unique; ancient, alien artefacts, for example, left over from long-gone civilisations such as the Ancients; the lost remains of an early system probe; the wreckage of an unfortunate belt-born collision. Veteran belters are masters of spotting the potential value of anything found in the enormity of an asteroid belt and figuring out how to get their find to yield its secrets.

PROSPECTING

Prospectors intent on mining an asteroid body first need to determine its composition. This requires careful scanning and study of the results to identify components, quantities, accessibility and likely yield values.

Scanning takes time and patience. Sensors need to be focused in the right areas and multiple readings taken, over an appreciable length of time, for an accurate assessment of an asteroid's properties to be formed. Every belter has hours-worth of anecdotes about those who, in a rush to stake a claim, miscalculated a sensor reading and ended-up towing home a lump of useless iron slag instead of the diamond-encrusted windfall they thought they had. Good belters are *patient*.

Prospecting Process

The standard process for any prospecting mission is as follows:

The Belter sets his ship into an orbit that will carry the vessel through the desired part of the belt, with an Average (8+) Pilot check (1D hours, DEX). Once the orbit is established, drives are cut because constant acceleration would take the ship through the belt too quickly for sensor data to be accurately processed. The aim is to pitch the ship's speed to just above that of the material in the section of the belt being traversed.

Then scanning begins. This is the most laborious of processes and is usually split into watches of 6 hours. If the belter is a solo independent, then good discipline calls for two 6 hour watches, separated by a two-hour break, and eight hours of sleep.

An Average (8+) Electronics (sensors) check (6 hours, INT) is made for every six-hour watch, up to a maximum

of four rolls in any 24-hour period. DMs to this check are listed on the Prospecting table. A successful check indicates that something of *potential* value has been identified, but there is no guarantee that the initial readings are accurate. Once the potential has been identified, detailed surveying and logistics is needed to determine the true possibilities.

The time, in 6 hour watches, required to fully survey an object depends on its size. See the Asteroid Size and Yield table.

Prospecting

Situation	DM
Mineral Detection Suite being used	+4
Scanner operator has worked the scan for 6 hours or more	–2
Ship is undergoing acceleration	–2
Within a cluster identified as having existing yields	+1
Within a heavily mined cluster or region	–2
Within Trojan cluster	+1
Within planetary rings	–1

If the check is successful, indicating a potential find, roll on the Scan Potential table to determine the likely nature of the composition.

Scan Potential

	Belt Location			
2D	N Zone	M Zone	C Zone or Trojan	Planetary Rings
2	D	D	D	D
3	D	D	D	C
4	D	D	C	C
5	C	C	C	C
6	C	C	C	C
7	D	C	C	C
8	C	C	C	C
9	C	C	C	C
10	D	D	C	C
11	D	D	C	C
12	E	E	E	E

C = Crystalline materials (including ice)
D = Dense materials (including metals). Apply DM+1 to the Resource Yield check.
E = Exotics

A roll of 12 yields an Exotic result. Roll on the Exotics table to determine the nature of the yield.

Exotics

2D	Exotic
2	Singular, valuable, stone (diamond, amethyst, ruby, and so forth): DM+2 when rolling for Resource Yield.
3	Singular precious metal (gold, platinum, aluminium, silver): DM+2 when rolling for Resource Yield.
4	Strange configuration/shape/size with a pleasing aesthetic value.
5	C class material with very high concentration of organic compounds – DNA and RNA building-blocks: DM+1 when rolling for Resource Yield.
6	C class material with very high concentration of organic compounds – DNA and RNA building-blocks: DM+2 when rolling for Resource Yield.
7-8	Radioactives (plutonium, uranium, iridium, and so on). Apply DM-1 to the Resource Yield check.
9	C class material with very high concentration of organic compounds – DNA and RNA building-blocks: DM+1 when rolling for Resource Yield.
10	Strange configuration/shape/size with a pleasing aesthetic value.
11	C class material with very high concentration of organic compounds – DNA and RNA building-blocks: DM+2 when rolling for Resource Yield.
12	Artefact – Roll 1D. 1-2: Old starship, probe or satellite debris with a traceable origin 3-4: Old starship, probe or satellite debris with no traceable origin 5: Old, out-of-system technological debris. Tech Level equals 1D+6 6: Old, out-of-system technological debris. Tech Level equals 1D+8

DETAILED SURVEY AND LOGISTICS

Once an interesting rock has been identified, the referee needs to determine, secretly, if the potential translates into a realistic find.

- Determine the asteroid's composition (the asteroid's class – M, C or Ice) using the Composition Table
- Determine if the resource is present using the Resource Presence table. Cross reference the Composition of the material from the Composition table with the Resource indicated on the Scan Potential table. The result is the target number for a roll of 2D indicating the resource type is actually present.

- Determine the size of the asteroid and its yield using the Size and Yield table. This table also indicates the number of watches it takes to fully survey the asteroid.

Composition

2D	Belt Location			
	N Zone	M Zone	C Zone or Trojan	Planetary Rings
2	C	C	M	C
3	C	M	I	C
4	M	I	C	C
5	M	C	C	I
6	M	C	C	I
7	M	C	C	I
8	M	C	C	I
9	M	C	C	I
10	M	M	C	I
11	M	M	I	M
12	I	M	M	M

Resource Presence

Resource	Asteroid Composition		
	C	M	I
C	8+	10+	9+
D	12+	9+	-
R	12+	11+	-
E	10+	10+	11+

ASTEROID SIZE AND YIELD

Roll 2D twice: once for the object's size, and again for the object's Resource Yield. The Resource Yield indicates the percentage of the object's mass that has been determined in the Resource Presence table. Remember to apply any DMs for Dense materials or Exotics.

STAKING THE CLAIM

Once a body with an appreciable yield has been identified, belters need to stake a claim. Only registered belters are allowed to do this; claims from unregistered prospectors are generally unrecognised by the belt's governing secretariat.

The most common way to stake a claim is to plant a Claim Beacon either on the body's surface or place it in orbit around the body. Claim Beacons are typically half a metre in diameter and emit a constant sensor signal that transmits the identity of the claimant, his registration number, the date of the claim and any other pertinent information the claimant needs or wishes to

Planetoids

These are large asteroids that exhibit planetary characteristics but which are too small to be considered planetary bodies in their own right (Ceres, in our own solar system, is the ideal example). Planetoids may, but are not guaranteed to, exhibit some or all of the following characteristics:

- Be spherical
- Possess magnetic monopoles
- Have weak gravity
- Have a trace atmosphere

The key importance for planetoids, as far as Travellers are concerned, is their suitability as a stellar habitat. Given the right Tech Level (TL8+), money and resources, planetoids can be rendered habitable simply by hollowing-out the inside, installing atmosphere generators or sealed life support systems akin to those found on ships, and then either installing gravitic generators or increasing the planetoid's spin artificially (with surface-mounted thrusters, perhaps) to impart gravity. A body the size of Ceres, with a diameter of 950 kilometres, could, if rendered habitable in this way, support a population of several millions in relative comfort.

communicate. The deliberate destruction or removal of an existing Claim Beacon will result in a MCr1 fine and the revocation of any prospecting licence. It is up to every prospector to ensure a Claim Beacon is in position; without one, the body can be legally claimed by any other prospector who happens upon it.

To counter claim jumping by individuals removing beacons, placing their own and then using faster craft to register their claim, most Claim Beacons will send a signal direct to the relevant authorities, although this is not always the case in some systems. The use of broadcasting Claim Beacons and other methods to prevent tampering has led to claim jumping becoming very rare in most systems.

Once a claim has been staked, it takes time for the claim to be verified and released to the claimant. Until the verification goes through, the asteroid cannot be exploited in any way. Usually the verification formality does not prevent belters from preparing whatever operations they need to begin exploiting the yield and some, confident the claim will not be rejected, might even start operations whilst waiting for the verification to come through. However, there is always the chance that

2D	Size/Extent (Tons)	Survey Time (Watches)	Object Radius	Resource Yield
2	1	0	-	1D %
3	10	1	-	2D %
4	100	1	-	3D %
5	1000	2	-	4D %
6	10,000	3	-	4D %
7	1,000,000	3	-	4D %
8	Small Planetoid	4	2D x 100 metres	4D %
9	Small Planetoid	5	2D+1 x 100 metres	6D+10 %
10	Small Planetoid	5	2D+2 x 100 metres	6D+20 %
11	Large Planetoid	10	2D-1 kilometres	6D+30 %
12	Large Planetoid	10	Roll 1D. 1: 2D kilometres 2: 3D kilometres 3: 5D kilometres 4: 10D kilometres 5: 10D x 5 kilometres 6: 10D x 10 kilometres	6D+60 %

a claim might not be recognised – because a particular corporation uses its influence to secure the claim ahead of an independent, perhaps, or because the claim has already been registered and the Claim Beacon has been destroyed or removed.

This verification requires a Very Easy (4+) Admin check (1D+1 weeks).

If a claim is not worked upon for five years it becomes dormant, and a new claim has to be filed with the authorities. If a claim is constantly resubmitted, but no work is carried out, then after twenty years the original claim holder will relinquish all rights to it.

REALISING A CLAIM

With a successful claim, belters must decide whether or not to mine the claim personally or sell it to someone else (usually a corporation or a Free Company). The decision is going to be based on the costs and logistics involved in exploiting the yield – and many asteroids are simply not worth the trouble of an independent or Free Company attempting to mine it.

Mining
Mining requires some or all of the following equipment:

- Ship-mounted laser drill (see page XX)
- Dedicated asteroid drilling equipment
- Mining drone (see page XX)
- Vacc Suits, with harnesses and tether lines

This equipment is an obvious cost to any belter, and often beyond the scope of lone operators. Mining is therefore the province of Free Companies and corporations although some solo belters have managed to develop effective, solo mining operations that are both profitable and efficiently executed, extracting the maximum yield from a seemingly inauspicious lump of rock. Solo miners tend to have patience, whilst Free Companies and corporations work to deadlines and within a variety of operating constraints to minimise risk.

The yield from an asteroid that can be gained is dependent on the equipment used, as shown on the Yields table.

Yields

Method	Yield	Per…
Manual Mining	2 + STR DM tons	6 hours
Mining Drone	1D tons	Day, per drone
Laser Drill	2D tons	6 hours

During every 6 hours of mining, an Average (8+) check is needed to avoid an incident. The type of check depends on the type of mining being conducted.

Manual Mining: Athletics (dexterity) check (6 hours, END) or Profession (belter) check (6 hours, END or INT)
Laser Drilling: Gunner (turret) check (6 hours, DEX)
Mining Drones: Electronics (remote ops) check (6 hours, INT)

If an incident occurs, roll on the appropriate column of the Mining Incident table to determine the outcome.

Mining Incident

2D	Manual Mining	Laser Drilling/Mining Drones
2	Fall, collision or other catastrophe ruptures Vacc Suit or life support. Traveller sustains 4D damage.	Machinery mysteriously fails or malfunctions. Requires 2D hours to the diagnose problem and a further 2D hours to get working again.
3	Tether-line damaged or severed. Traveller must make an Average (8+) Athletics (dexterity) check (DEX) to gain the safety of his vessel. If failed, and if no back-up harness or tether is available, the Traveller tumbles into space.	Tethering, guidance or grav generators on the equipment fail causing it to tumble into space. To retrieve equipment, the Traveller must either make an Average (8+) Athletics (dexterity) check (DEX) to follow the tumbling equipment into the vacuum, or use some other means (such as a drone or small craft) to retrieve it. If the attempt fails, the equipment is lost.
4	Sprain or pulled muscle halves the yield mined by the Traveller for the next 1D watches	Equipment overheats. Yield halved for this watch. Requires a rest of one full watch to cool down to operating temperature.
5	Rip or tear to Vacc Suit forces the Traveller to return to ship for repairs. Roll 1D to determine how many hours into the watch the accident occurred.	Equipment becomes trapped in a fissure. Requires an Average (8+) Mechanics check (1D hours, STR or INT)
6	Manual mining equipment malfunctions. Repair can be done in situ if the Traveller succeeds at an Average (8+) Mechanics check (1D hours, INT). If the repair fails, the Traveller is forced to return to his ship to make repairs.	As above, but the machine is severely trapped. Requires a Difficult (10+) Mechanics check (1D hours, STR or INT)
7	Drilling strikes an undiscovered pocket of gas which is released with explosive force. The Traveller must make an Average (8+) Athletics (dexterity) check (DEX) to avoid effects of the explosion. Otherwise result is as for entry 3.	Drilling strikes an undiscovered pocket of gas which is released with explosive force. The mining equipment is damaged on a 2D roll of 8+. If damaged, roll 1D to assess severity. 1: Can be repaired in 1 hour 2-4: Can be repaired in 1D+1 hours 5: Needs specialist repair at a properly outfitted workshop 6: Equipment destroyed
8	A vital piece of equipment is dropped or damaged, causing it to tumble into space. To retrieve the equipment, the Traveller must either make an Average (8+) Athletics (dexterity) check (DEX) to follow the tumbling equipment into the vacuum, or use some other means (such as a drone or small craft) to retrieve it. If the attempt fails, the equipment is lost.	Vital piece of equipment is damaged, causing it to tumble into space. To retrieve the equipment, the Traveller must either make an Average (8+) Athletics (dexterity) check (DEX) to follow the tumbling equipment into the vacuum, or use some other means (such as a drone or small craft) to retrieve it. If the attempt fails, the equipment is lost.
9	The Traveller's limb becomes trapped in a fissure in the body's surface. Freeing the Traveller requires an Average (8+) Survival check (1D hours, STR). The Traveller is unable to free himself.	Remote operations software fails aboard the spacecraft, requiring an Average (8+) Electronics (computers) check (1D hours, INT) to fix. Equipment has to be shut-down manually whilst software link is fixed.
10	Loose debris from the body flies out and damages the spacecraft's sensors or avionics. The damage is not extreme, but requires 1D hours to repair.	Drilling equipment strikes a super-hard or super-dense outcrop of material. The mining equipment may continue mining on a 2D roll of 8+. If not, then the outcrop is too difficult to mine and operations must be suspended for 1D hours whilst the equipment is moved to an easier mining location.
11	Mining proves to be far more arduous than anticipated owing to the density and composition of the asteroid. The yield extracted this watch is halved.	Dust and fine debris clogs the equipment's sensitive mechanical parts. Output or production is reduced to a quarter and machinery overheats. Requires 2 full watches to be cleaned and cooled.
12	Roll twice on this table.	Roll twice on this table.

Once an asteroid has been exploited to the belter's satisfaction, the resulting ore can then be traded.

TRADING A CLAIM

How a claim is sold depends on the relationship the belter has with those who would buy the material. Also the asteroid's yet-to-be-mined ore is of a lesser value to fully processed material, so the base price in any negotiation is 10% the value of the commodity.

With an Average (8+) Admin check (1D days, SOC) the belter can establish a sales channel with a nominated corporation. The belter must provide the estimated market value of the yield and the corporation will conduct a cursory check of the detailed survey analysis. It then offers the belter 1D + 7% (that is, 8% - 13%, with an average of 10%) of the claim's value as an immediate cash realisation. This is increased by +1% for every level the belter has in the Broker skill.

Belters can instead go to the open market. The trade rules for selling goods on page 210 of the *Traveller Core Rulebook* apply here, but use the prices outlined on the Commodity Prices table here.

Brokers can be used, functioning exactly as described on page 210 of the *Traveller Core Rulebook*.

Artefact prices are very difficult to quantify owing to their potential diversity. Wrecks can usually be sold as scrap or to an official salvage channel (see page XX), but alien or ancient technology is going to attract the attention of the system's government.

As an abstract rule of thumb, use the Artefact Value table.

Artefact Value

2D	Value
2-5	Worthless for any purpose
6	Moderate value (salvage interest, for spare parts, scientific interest, and so forth)
7	Scrap: Cr100 per ton
8	Salvage: 1D x 10% of original value
9-11	Historical artefact (up to 500 years old): Cr1000 per ton
12	Something Unique. Archaeological artefact (500 years old +): System government sets price paid to the belter, usually 20% of the artefact's actual value. Artefact of the Ancients: Priceless. Keeping such items might be in the belter's own interests, although if word leaks out, it will doubtless attract the attention of the authorities and other, less-reputable, collectors.

Commodity Prices

Type	Basic Value per ton	Sale DMs
Crystals	Cr20000	Industrial +3, Rich +2
Dense Metals	Cr50000	Industrial +2, Rich +3, High Tech +1
Radioactives	MCr1	Industrial +3, High Tech +1, Non-Industrial –2, Agricultural –3
Carbonaceous Material	Cr75	Asteroid +3
Nickel Iron Ore	Cr1000	Industrial +3, Non-Industrial +1
Nickel Iron Planetoids	Cr400	Starport A or B –3
Uncommon Ore	Cr5000	Industrial +3, Non-Industrial +1
Ice	Cr75	Asteroid +5, Fluid Oceans -6, Gas Giant Present –3

Salvaging

Belt mining is by no means the only way to make money in space. Many Travellers have earned themselves a good few Credits by salvaging derelict spacecraft.

Normally, when a ship reaches the end of its long life, it is sold to a wrecker who demolishes it for scrap. Most ships reach the century mark before being retired, and some are far, far older. There are Free Traders plying the star lanes that were built before the Third Imperium was founded, and First Imperium warships are still in ceremonial service on some core worlds.

Alternatively, if a ship cannot make it to the wrecker yards, it is scavenged for parts. This commonly occurs when the ship breaks down in a system without a wrecker yard. The dying ship cannot jump, but still contains valuable parts. The scavengers swoop in, strip the ship and leave the hulk floating in space or grounded upon some convenient rock. This also happens in the aftermath of a crash or pirate attack.

Shipwreck Salvage
An intact ship can be sold to a wrecker yard for $1/10^{th}$ of its purchase price. A wrecked ship or a wrecked ship's location can be sold to a scavenger for $1/20^{th}$ of its purchase price, though this subject to the condition of the wreckage (a sphere of expanding debris is not a wreck, it is a sphere of expanding debris…).

Hulks
Hulks are *old* ships, vessels so old that they may have been drifting through space for hundreds of years. Some are survivors of old battles where the crew was wiped out by radiation or forced to abandon ship; others are the result of misjumps, where the ship ended up jumping into empty space. When a deep-space hulk is detected, scavengers may attempt to salvage it.

By definition, a hulk is a ship where the entire crew died under circumstances that left the ship unrecoverable. These circumstances may never be discovered by the salvage team – the strange case of the *Annic Nova* is a classic example – but they may also still pose a threat. If the crew were wiped out by radiation from a faulty reactor, then switching back on the reactor without checking the safety seals will be fatal for the scavengers. Alien parasites, lethal viruses, automated hunter-killer robots, malignant shipboard defence systems that interpreted their own crew as threats, these and many other potential dangers lurk on board hulks.

If the scavenger is able to recover the hulk, of course, the rewards are usually worth it. In addition to the scrap value, some hulks are invaluable archaeological finds. A five-thousand-year old scout ship from the dawn of the First Imperium might only be worth a few thousand Credits in scrap, but it belongs in a museum. The vacuum of space preserves what it takes.

Hulk Salvage
When sold for scrap, hulks sell for less than modern designs ($1/20^{th}$ the purchase price or less) because it is more difficult to salvage spare parts from old designs. However, the value of a hulk may be greatly increased if it is of archaeological significance or can be repaired.

CREATING DECK PLANS

Traveller has a long and proud history of not only bringing ships of every shape and description into galaxies beyond counting, but also providing deck plans. Deck plans work on so many levels, from simply allowing Travellers to visualise where everything in a ship is likely to be (and provide endless arguments over who gets which stateroom!), to being used as a tactical map during boarding actions where every bulkhead and iris valve can become an important objective as ruthless invaders forge yjeir way into the most vital areas of a ship.

In short, whenever you design a new ship in *High Guard*, it is always worth considering creating a deck plan to go with it.

Designing a deck plan can seem a daunting task at first, as if it were some sort of secret knowledge passed on only between clans of highly specialised naval architects. However, as this chapter will demonstrate, it is nothing of the sort, and even the most artistically challenged, armed with nothing but graph paper and a pencil, can quickly produce convincing deck plans suitable for play.

VITAL POINTS TO REMEMBER

- All components that consume tonnage should be represented on the deck plan with the exception of Armour, Reinforced Bulkheads, and Hull.
- Remember that ships can have more than one deck.
- Ships with more than one deck require access to each deck, either through hatches in the floor/ceiling or lifts.
- If a deck or other large area of a ship contains nothing but fuel, there is usually no need toput it on the deck plan. However, you must remember it is there when sketching out the exterior of the ship!
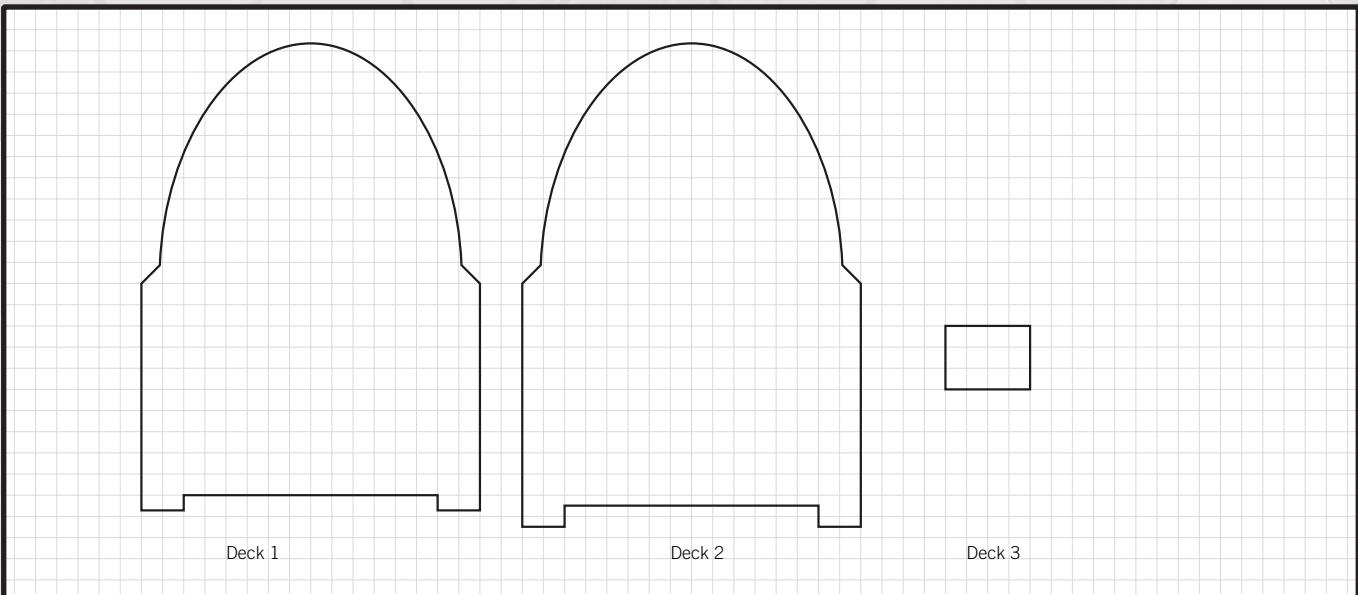
AND BEAR IN MIND...

- Ammunition storage should be located near its weapon system. After all, when that forward torpedo bay runs out of ammunition, do you really want to run back to the rear ammunition store and somehow lug a two and a half ton torpedo up to the front of the ship before you can fire again?
- Anything that needs access to the outside (airlocks, vessels carried on board, escape pods, re-entry capsules, launch tubes, recovery hangars, probe drones and so forth) can gain that access from above or below, not just the side...
- Screens could be considered to be integrated throughout the hull and not appear on the deck plan or, alternatively, they could be located in one centralised area.
- Common areas will vary, depending on the ship and its role, but a ratio of perhaps one square for every two staterooms is a good start.
- Not all the tonnage allocated to a stateroom necessarily goes to the stateroom itself; some can be used for corridors and similar spaces.
- Staterooms contain freshers but you may want to locate some additional ones in different areas of the ship, included as part of common areas.
- Try to minimise excess corridor space as much as you can. Ship architects are going to squeeze as much space as possible into other areas such as cargo. If the ship has space enough to have, say, a single corridor that only leads to a fresher, that space can be better utilised elsewhere (such as cargo!).
- Take advantage of the options available in digital tools if you are using any, such as Grid (used to help determine the size of areas), Snap and Alignment (can help with the placement of items), Copy/Paste or Symbol Libraries (handy for common items such as drives, staterooms, and so forth), and Replication/Duplication (for quickly placing multiples of an item).
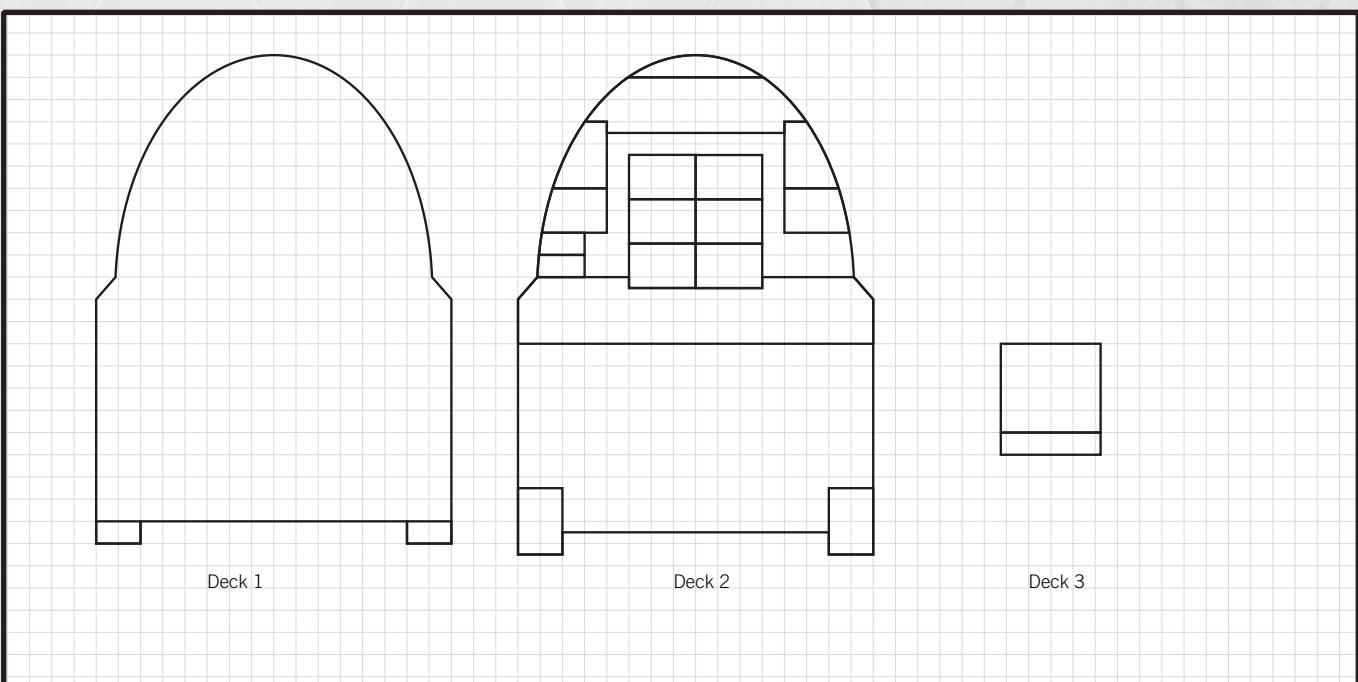
CREATING A DECH PLAN

So, now we will go through a step-by-step guide on how to construct a deck plan - we are going to put together a 400-ton Fleet Courier.
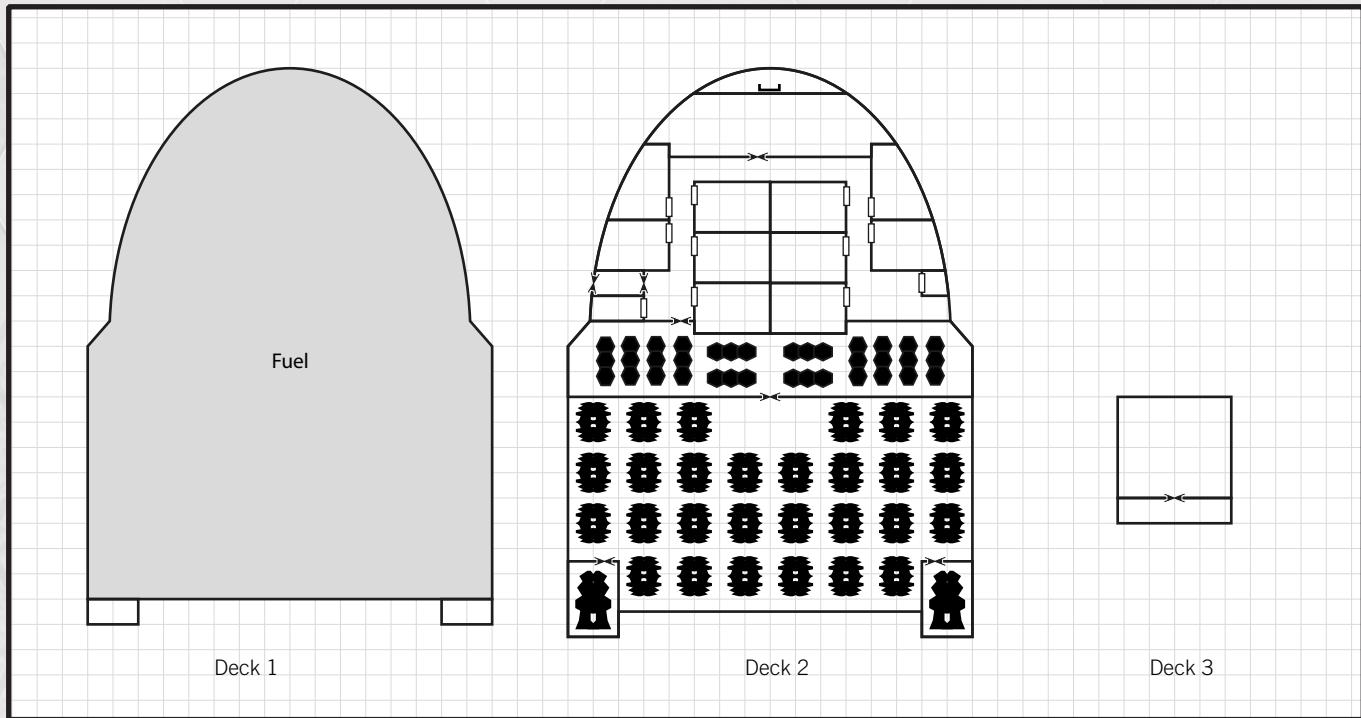
STEP ONE: Sketch a general impression of the exterior shape of the ship. This will give you an idea for the design of the interior deck plan.

Deck 1   Deck 2   Deck 3
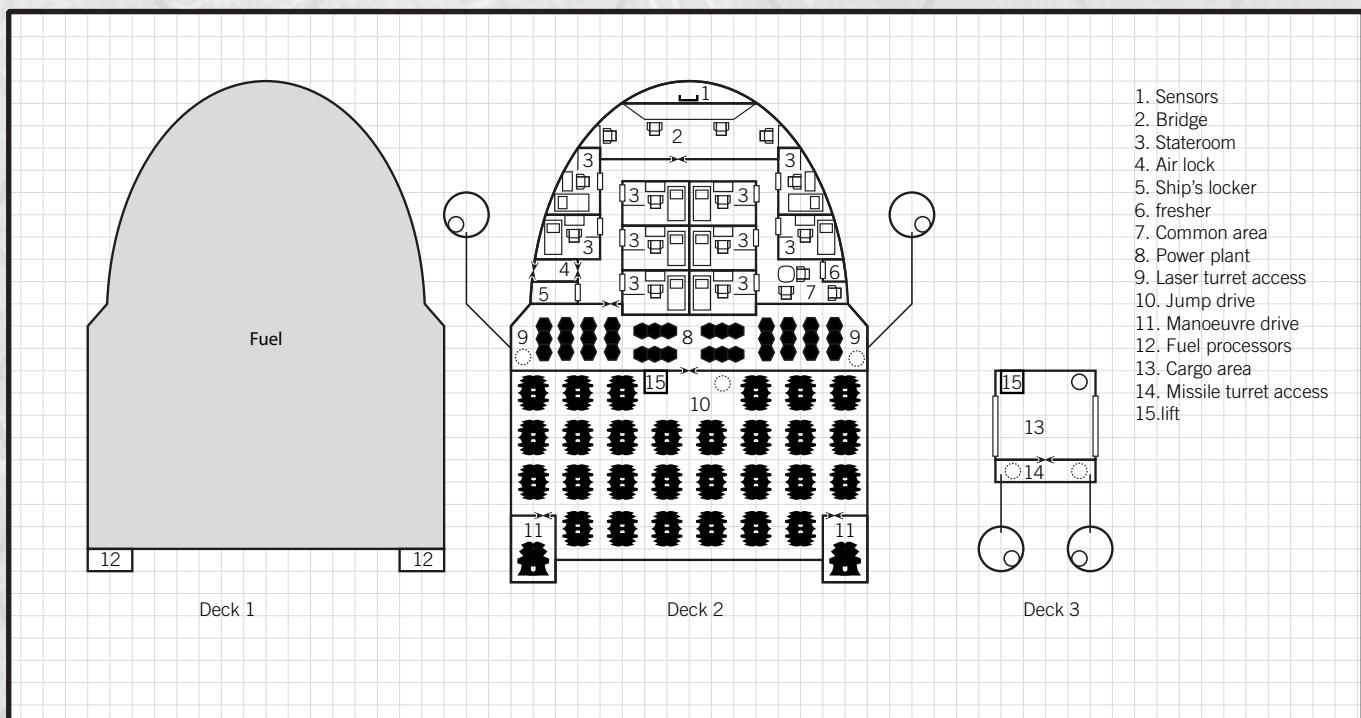
STEP TWO: Check the overall tonnage of the ship. Each ton is usually represented by 2 squares on a deck plan (very large ships may use a different scale to produce deck plans that will fit on a page). You can vary this by up to +/- 10% as spacecraft will differ in the amount of space consumed by corridors, lifts, computer systems, life support, machinery and other items not included in the overall design system.

Deck 1   Deck 2   Deck 3

STEP THREE: Note the tonnage of the components will dictate how many squares they will need on the deck plan. Start with the Power Plant, Jump Drive and Manoeuvre Drive; each ton on all components will require 2 squares on the deck plan (so one square equals a half ton).

Fuel

Deck 1   Deck 2   Deck 3

STEP FOUR: Staterooms typically use 6 squares, even though they are 4 tons each – it is assumed that the extra tonnage goes into corridors and access areas.

Fuel

Deck 1   Deck 2   Deck 3

1. Sensors
2. Bridge
3. Stateroom
4. Air lock
5. Ship's locker
6. fresher
7. Common area
8. Power plant
9. Laser turret access
10. Jump drive
11. Manoeuvre drive
12. Fuel processors
13. Cargo area
14. Missile turret access
15. lift

STEP FIVE: Once you have located all the components that consume tonnage on the deck plan, you are ready to go! It helps if you label each component, especially if you have not used symbols to represent them. Now you are ready to take to the space lanes and use your deck plan in it's first boarding action!

FIGHTERS

The popular image of the space superiority fighter pilot is of a maverick, care-free hotshot, who bucks authority to complete the mission. The reality is altogether more professional and while the real strength of any interstellar navy will rest in its cruisers and battleships, fighter squadrons are an important supporting element for any fleet.

This chapter introduces some new rules that will allow a referee to bring fighters to the fore in his campaign, extending both the capabilities of fleets and the role of the fighter pilot in adventures.

For the purposes of these rules, a fighter is generally considered to be an armed small craft of no more than 50 tons and with a Thrust score of at least 5. However, the referee might find it useful to extend this definition to cover specific craft. For example, a 'torpedo bomber' might be a 60 ton, Thrust 4 craft, but the referee might find it useful to classify it as a fighter within his own universe.

SQUADRONS

Fighters rarely travel alone, and are commonly flown in pairs (a lead and a wingman) for mutual protection and support. In larger conflicts, these pairs will be combined into larger groups – officially, they may be called sections, flights, squadrons or wings but, for the purposes of Traveller, we will term any cohesive group of fighters a squadron.

Fighter squadrons can be used to lighten the burden on a referee during a game, treating several fighters as a single unit for the purposes of movement and attacks – in effect, a squadron is treated in the same way as a single ship, and uses the Ship Record Sheet found on page 79.

A squadron can be created from any number of fighters that are all within Adjacent or Close range with each other (within 10km), are all able to communicate with one another and, of course, are willing to co-operate and be led in a common goal.

Note that individual fighters can join or leave the squadron at any time, though this will force the referee or Travellers to recalculate the capabilities of the squadron as shown below.

Also, be aware that these squadron rules are intended for use with a maximum of perhaps 12 fighters. If you use more, take a look at Captial Ship Battles on Page 78.

Hull Points

The Hull points for every fighter in the squadron is totalled – this then becomes the total Hull score for the entire squadron.

However, while large ships can absorb at least some damage before suffering adverse effects, fighters are a lot more fragile, typically built for performance rather than durability. The referee should divide the total Hull points by the number of fighters in the squadron.

Every time the squadron loses this many Hull points, a random fighter within the squadron is destroyed.

A squadron will also lose a random fighter every time it suffers a critical hit – there is no need to roll for the effects of the critical hit, simply remove a fighter.

Performance

While most squadrons will comprise the same model of fighter, there is no reason why this need be the case. Indeed, there are stirring tales across the galaxy of ragged bands of rebels gathering every high-performance small craft they could find to form ad hoc squadrons to fight a larger aggressor, and even fully-equipped navies may find it beneficial to form mixed squadrons to achieve specific tasks.

In terms of Tech Level, Armour, Thrust, software, and skill levels, the squadron will always operate at the level of the worst performing fighter within it. So, for example, if you have a squadron of high-performance Thrust 9 space superiority fighters that are joined by a Thrust 6 missile fighter, the whole squadron will act with Thrust 6.

However, in terms of sensors, always use the highest quality (taking into account both actual sensors and the skill of the operator) within the squadron.

Combat

Every fighter in the squadron must perform the same pilot action every round. However, if the fighters have additional crew members, those crewmen *can* use separate actions, in the same way as crew on board a ship can.

All weapons of the same type within a squadron make a single attack roll, gaining DM+1 to the attack roll for

every fighter after the first in the squadron, resolve damage as you would for a missile salvo; rolling once for damage, applying any armour and screens, and then multiplying by the effect.

Note: The referee is at liberty to allow squadrons to spilt their attacks between different targets within range, reducing the bonuses accordingly for each attack. However, be aware that this will greatly increase the workload of the referee and is not recommended for anything other than special circumstances!

DOGFIGHTING

When two or more squadrons meet in space, battle can quickly devolve into a swirling furball that relies on equal parts technology, reactions, situational awareness and luck.

Squadrons use the dogfighting rules detailed on page 162 of the *Traveller Core Rulebook* as normal, treating the entire squadron as a single ship. However, do not total the tonnage of the fighters within the squadron when applying modifiers to the dogfighting roll. Instead, use the average tonnage of the fighters within the squadron (this will not apply unless the referee allows the use of fighters above 50 tons).

Squadrons can engage in dogfights with much larger ships as normal, using their small size and large numbers to evade attacks and deliver devastating strikes against their lumbering enemy.

A dogfight can be initiated as soon as a craft ends its manoeuvre step within Close or Adjacent range of an enemy, and is ended when a craft moves beyond close range.

Firing Into Dogfights

Dogfights can rapidly devolve into massive furballs compacted into tiny areas of space, a nightmare for those pilots involved and a tense situation for craft further away who are attempting to attack targets within. Picking out individual targets without accidentally hitting a fast-moving friendly craft can be extremely difficult!

Ships not involved in a dogfight can attempt to attack targets that are engaged within it, but do so with DM-4 to their attack rolls.

If the referee permits it, such attacks can be attempted without this penalty but before the attack roll is made, roll 1D. If the result is even, the attacker selects the target as normal. If the result is odd, then the defender can select any craft involved in the dogfight to be the target, even if it is friendly to the attacker!

Needless to say, employing this kind of free-fire tactic is not standard Imperial Navy policy...

POINT DEFENCE

While the common perception of a fighter is as an attack platform or a 'barrier' to incoming enemies, they are often employed in a defensive role when missiles are flying through space, providing another layer of point defence to a fleet.

Any fighter or squadron equipped with pulse or beam lasers may use the Point Defence action (see page 160 of the *Traveller Core Rulebook*) to defend either themselves or any ship being attacked by missiles that is within Adjacent or Close range.

If the referee deems a fighter or squadron to be suitably placed and they have a Thrust score higher than that of the missile salvo, fighters may perform the Point Defence action against any missile salvo while it is travelling to the target – this can be many thousands of kilometres away from the salvo's target.

Because space is very large, the chances of a fighter being in the right place to intercept fast-moving missiles is slim unless the salvo was expected before it was launched. The referee may insist on Travellers announcing that they are ordering their fighters to position themselves between fighting ships specifically to intercept missiles, or he may allow them to break off an attack on an enemy ship to intercept missiles it has just launched.

RECOVERY

Fighter pilots tend to be well-trained and regularly exercise the recovery of their craft on board a mother ship under simulated combat conditions. Merely docking with their mother vessel is a simple enough task for a skilled pilot but wing commanders often insist the pilot docks at high velocity, as may be required when the carrier needs to depart a combat zone quickly.

On board carriers equipped with a recovery deck, a fighter may safely dock with an Average (8+) Pilot check (1D minutes, DEX).

DM-1 is applied to this check for every point of Thrust expended by the fighter or the carrier in the round in which it is recovered.

This is commonly done when the fighters come in 'hot' from combat and need to be recovered quickly, or when the carrier itself is forced to take evasive manoeuvres.

In addition, a further DM-1 is applied to the check for every additional fighter that attempts to land in the same round, unless they are all part of the same squadron.

Failure will result 1D damage, multiplied by any Thrust expended by fighter or carrier. However, any armour possessed by either will not reduce this damage in any way. Recovery decks are internal to ships and so are not properly armoured, and the armour mounted on fighters is designed to protect it from incoming fire, not clumsy pilots!

CAPITAL SHIP BATTLES

Most clashes in the depths of space involve just a handful of ships, typically of low tonnages – actions featuring battleships or even cruisers are devastating but very rare except in times of total war. However, unleashing the full power of a massive dreadnought against an entire fleet can serve as a fitting culmination to a long adventure and can change the destiny of empires.

Using the normal space combat rules for battles involving giant ships and whole fleets is possible… but will take a long time.

When the referee wants to introduce a battle involving capital ships and fleets, he is normally best-served by deciding the outcome beforehand and concentrating purely on the actions of the Travellers and the events that happen close to them. However, if the Travellers are in positions of command, their decisions may directly affect the course of the battle and so the referee may feel it appropriate to play through each attack. This chapter will help you do that quickly and easily using the Fleet Combat System.

This chapter will show you how to take any ship in Traveller and transform its characteristics into a streamlined form that will allow you to handle the largest dreadnought, space station, or entire fleet with just a few rolls every round.

STREAMLINED SHIPS

This kind of battle uses a vastly streamlined system based on, but separate from, the space combat rules detailed in the *Traveller Core Rulebook*.

The first thing to do is to take every ship involved in the forthcoming battle and convert it for use in the Fleet Combat System. This is very easy and will just take a minute or two for every ship, each of which uses the Fleet Combat Roster, as shown below.

Name and Class: This is simply the name and type of ship the Fleet Combat Roster is representing.

Crew Skill: The average skill level of the crew across all duties and positions. For the sake of simplicity, referees can assume a skill level of 0 or 1 represents a green or inexperienced crews, skill level 2 represents trained

or experienced crew, while skill level 3 is suitable for veterans. Skill levels of 4 or higher should be extremely rare – while it is certainly possible for individuals to be this highly skilled, finding enough such exceptional Travellers to crew a ship would be exceedingly difficult.

Thrust and Jump: This is simply a reminder of the Thrust available to the ship and its maximum jump score. If there are any changes likely, these are noted in parentheses.

Hull: As with the normal space combat rules, the Fleet Combat System uses Hull points to track the damage sustained by vessels, and when this is reduced to 0, the ship breaks up and is destroyed. Simply take the ship's Hull score and divide it by 10, rounding up. This is the Hull score used in the Fleet Combat System.

Armour: Simply multiply the ship's Armour score by 3. This then becomes the percentage of damage the ship will ignore when attacked in the Fleet Combat System.

Fleet Traits: Some construction options grant ships additional capabilities. These are discussed under Fleet Traits.

Defence: This is an overall score that represents several different factors involved in the defensive capabilities of the ship. It is calculated as follows.

- Start with half the Crew Skill score of the ship rounded up.
- Add the rating of any Evade software.
- Add +1 if the ship is TL12-14, and +2 if it is TL15.

Salvo Defence: This is an additional Defence score applied to incoming salvoes of missiles and torpedoes. It is calculated as follows.

- Add +4 for every Type I Point Defence Battery.
- Add +8 for every Type II Point Defence Battery.
- Add +12 for every Type III Point Defence Battery.
- For every single beam or pulse laser turret, add the Crew Skill score of the ship. Add an additional +1 for each double turret, and +2 for each triple turret.

Screen Defence: This is a score applied to weapons affected by meson screens and nuclear dampers. It is calculated as follows.

FLEET COMBAT ROSTER

NAME: Impala | **CLASS:** Gazelle Close Escort

CREW SKILL: 2 | **THRUST:** 6 | **JUMP:** 5

HULL: 17
ARMOUR: 9%
FLEET TRAITS: —

DEFENCE: +4
SALVO DEFENCE: +8
SCREEN DEFENCE: +0/+0

WEAPONS	ATTACK BONUS	DAMAGE
Turrets	+4	6
Barbettes	+4	30
Bays	+0	—
Ion Weapons	+0	—
Large Bays	+0	—
Spinal (Meson)	+0	—
Missiles		—
Torpedoes		—
No Squadrons		—

- Add +5 for every nuclear damper and meson screen the ship possesses, and then multiply this by the Crew Skill score. Nuclear dampers and meson screens are calculated separately, giving two scores for Screen Defence.

Weapons: This is a list of all the offensive weaponry the ship possesses, along with the characteristics these weapons use in the Fleet Combat System. All weapons on board a ship are grouped into specific types; turrets, barbettes, bays, large bays, ion weapons, spinal mounts, and missiles and torpedoes. So, regardless of the weapons actually mounted, all turrets are grouped together as one weapon system, while all large bays are grouped into another.

Each weapon system has its performance determined by two scores, Attack and Damage.

Attack is the DM applied to every attack roll the weapon system makes, and is determined as follows.

- Start with the Crew Skill score of the ship.
- If all weapons that form the system have the Accurate advantage, add +1.
- If Advanced Fire Control software is present, add its rating.
- Add +1 if the ship is TL12-14, and +2 if it is TL15.
- If the weapon system is a spinal mount and Fire Control software is present, add its rating instead of that for any Advanced Fire Control software.

To determine the amount of Damage delivered by a weapon system, consult the Fleet Weapon Damage table, totalling the Damage all the weapons within the weapon

system (so, if you have ten triple beam laser turrets, you would count that as a total of 30 beam lasers), then divide the total by 10, rounding down. The result is the Damage score for that weapon system.

Note that if you have weapon systems with different maximum ranges, you should calculate damage at each of the ranges possible (as shown on the example ship opposite.

Missiles and Torpedoes are dealt with in salvoes, but you only need record the number of missiles or torpedoes within a salvo.

Note that some weapons have additional special rules when used in the Fleet Combat System. These are covered further on.

Fleet Traits
The Fleet Traits table lists all the special rules used in the Fleet Combat System, and how a ship qualifies to gain the trait on its roster.

Squadrons
When cruisers and battleships are duking it out within a star system, small ships and fighters have a much reduced survival rate. In order to mitigate this and provide a threat to larger vessels, smaller ships can mass together in squadrons.

A squadron is any collection of ships that work and operate together in formation. They need not be fighters, but often are, and any similar-sized ships can be combined into a squadron.

Each squadron uses a single Fleet Combat Roster and is treated as if it were a single ship in the Fleet Combat System. A squadron is created in the same way as a ship is in the Fleet Combat System, with the following changes.

A squadron comprising purely small craft gains DM+2 to all attack rolls made against ships of 100 tons or more.

Crew Skill: The referee should determine an average of Crew Skill across the entire squadron.

Fleet Weapon Damage

Weapon System	Weapon	Damage	Weapon System	Weapon	Damage
Turrets	Beam Laser	1	Bays	Small Fusion	100
	Pulse Laser	4		Small Mass Driver	100
Barbettes	Fusion	25		Small Particle	35
	Particle	15		Small Railgun	35
	Plasma	15		Small Tachyon	40
	Tachyon	20		Medium Fusion	200
Ion Weapons	Barbette	10		Medium Mass Driver	200
	Small Bay	60		Medium Particle	65
	Medium Bay	80		Medium Railgun	100
Large Bays	Fusion	220		Medium Tachyon	65
	Mass Driver	220	Spinal Mounts	Meson	10,000 per DD
	Particle	70		Particle	10,000 per DD
	Railgun	100		Railgun	10,000 per DD
	Tachyon	75			

Trait	Required	Effect
Antirad	Radiation Shielding	The ship ignores all Radiation damage.
Black Globe	Black Globe Generator	The ship can choose to reduce 20-80% of all incoming damage ever round, at a proportional cost of DM-1 to -4 to its own attack rolls and Thrust. If the amount of damage reduced in a single round is greater than its maximum capacitor valve divided by 100, the ship will be immediately destroyed.
Fleet Defence	Point Defence software	The ship may share its Salvo Defence score with one other ship within Close range.
Hardened	At least 75% of systems that use Power are Hardened	The ship ignores all damage from ion weapons.
Reflec	Reflec Armour	Increase Armour against turret weapons by +10%.

Thrust and Jump: Use the lowest scores of any ship in the squadron for both – in effect, the squadron travels at the speed of its slowest member.

Hull: Total the Hull scores of all ships within the squadron.

Armour: The referee should determine an average of Armour across the entire squadron.

Fleet Traits: A squadron will only have a trait if the majority of its members qualify for it.

Defence: Use the rating of the lowest Evade software within the squadron, and the lowest TL.

Weapon Attack: Determine this as for a single ship. If Fire Control software is present, add the rating of the lowest in the squadron.

When a squadron is reduced to 75% of its Hull, DM-2 is applied. When reduced to 50% of its Hull, this is changed to DM-4, and when reduced to 25% of its Hull, the penalty is increased to DM-6.

Weapon Damage: Total up all weapons present in the squadron, as if they were on board a single ship.

As a squadron engages in battle and sustains losses, it gradually becomes less coherent and effective. At the referee's option, a squadron can spend a combat round reforming. During this time, it may not move, take any actions or make any attacks but its roster can be recalculated to revise its characteristics. This will mean it will be able to sustain less damage and make weaker attacks than when it started the battle (due to the losses it has received), but any penalties to its attack rolls will be removed.

COMBAT

When ships fight using the Fleet Combat System, they follow a similar procedure to the normal rules for space combat (see page 154 of the *Traveller Core Rulebook*), but it is greatly streamlined. There is no combat manoeuvring and crew do not take specific actions – the Fleet Combat System assumes ships will be operating to the best of their capabilities without Travellers having to worry about the details.

Initiative

Initiative is rolled for each ship and squadron involved in the battle, using the following.

2D + the ship's Crew Skill + the ship's Thrust score

Attack Rolls

Each weapon system on board a ship can make one attack every round, against any target within range. A ship with multiple weapon systems can attack a different with each, if it wishes.

To make an attack, use the following.

2D + the weapon system's Attack – the target's Defence

DM-2 is applied if attacking a target at Long range, which changes to DM-4 if the target is at Very Long range.

DM-2 is applied if attacking a target (or squadron of targets) who are each less than 100 tons in size with any weapon other than turrets or barbettes.

DM-2 is applied if attacking a target of less than 100 tons with a ship of at least 100 tons, if both are in the same sector.

The result is then compared to the Fleet Damage table, and the weapon system's Damage is modified as shown.

Note: An individual weapon system cannot attack a target beyond its maximum range. This may mean the damage a ship can deal will alter with range.

Fleet Damage

Attack Roll	Damage Modification
2 or less	0%
3	5%
4	10%
5	20%
6	35%
7	50%
8	60%
9	80%
10	90%
11 or more	100%

This total is then further reduced by the Armour of the target, and the remainder is deducted from the target's Hull score.

Salvoes

Missiles and torpedoes attack in salvoes, much as they do in the *Traveller Core Rulebook*. However, use the following.

- A ship's Salvo Defence is regarded as a 'pool' that is automatically refilled at the start of every round.
- When a salvo reaches its target, deduct the target's Defence score from the number of missiles within the salvo.
- The salvo can be further reduced by a chosen amount from the Salvo Defence 'pool'. However, once this pool is reduced to zero, Salvo Defence cannot be used again for the rest of the round!
- Against torpedoes, Defence is deducted as normal but any applied Salvo Defence is halved, rounding down).

- Multiply this total by the Damage score shown on the Fleet Missile/Torpedo Damage table, then divide by ten.
- Deduct the target's Armour as with any other attack, and then apply damage as normal.

Note that squadrons multiply their Defence score by the number of ships in the squadron against salvoes only (and they do not multiply their Salvo Defence scores).

Fleet Missile/Torpedo Damage

Missile	Damage	Torpedo	Damage
Advanced	10	Advanced	35
Anti-matter	50	Anti-matter	65
Fragmentation	5	Anti-matter Bomb-pumped	50
Jump-breaker	-	Antiradiation	25
Long Range	5	Bomb-pumped	10
Multi-warhead	10	EMP	40
Nuclear	25	Multi-warhead Antimatter	200
Ortillery	65	Multi-warhead Standard	30
Shockwave	-	Multi-warhead Nuclear	75
Standard	10	Nuclear	50
		Ortillery	200
		Plasma	110
		Standard	25

Screen Defence

A target's Screen Defence score is deducted from the damage caused by any weapon that has the word meson or fusion in its title (such as a meson spinal mount).

However, like Salvo Defence, Screen Defence is a 'pool' that gets replenished every round. So, if an amount of Screen Defence is applied against an attack, the 'pool' is reduced for the rest of the round. Multiple attacks may therefore overwhelm a ship's Screen Defence.

Special Weapons

Some specific weapons have special effects in the Fleet Combat System beyond their normal damage-dealing capabilities. These cases are explored here.

Antiradiation Torpedo: A target's Defence score will be halved against this salvo.

Bay Weapons: All bays suffer DM-2 when attacking targets of less than 2,000 tons. Large bays gain DM+4 when attacking targets of more than 3,000 tons.

Ion Weapons: Ion weapons do not deduct their damage from the Hull of a target. Instead, they impose DM-1 to a target's Defence and attack rolls for every 50 points of damage that would normally have been dealt to the target. This penalty lasts for one full round.

Meson Weapons: These weapons do not have their damage reduced by a target's Armour.

Multi-warhead Missiles/Torpedoes: Reduce the target's Salvo Defence by -20% against this weapon.

Ortillery Missiles/Torpedoes: These weapons suffer DM-6 to their attack rolls when used against targets that have a Thrust score greater than 0.

Spinal Mounts: All spinal mount weapons suffer DM-4 to attack rolls when targeting ships of less than 10,000 tons, and DM-8 when attacking ships of less than 5,000 tons. They cannot attack targets of less than 2,000 tons at all.

Very High Yield/Intense Focus Weapons: If every weapon in a system has either of these advantages, increase its Damage by +10%.

FLEET MANOEUVRES

While not often necessary, a referee can use the Fleet Combat System with the rules in this section to plot to movement of ships, squadrons and entire fleets around a star system. This uses the Fleet Manoeuvre Chart, as shown opposite.

When using the Fleet Manoeuvre Chart, the referee needs to determine a 'fixed' point in space around which all ships and squadrons will manoeuvre. This may be a convenient planet or moon, a space station, or perhaps a convoy travelling at a fixed velocity. This fixed point is assumed to be right in the centre of the chart.

Each ring around the fixed point represents a Range Band, allowing you to plot the distance of any ship in relation to the fixed point.

The chart is divided into quadrants, and each Range Band within a quadrant is divided into sectors (not to be confused with the sector maps used to chart star

FLEET MANOEUVRE CHART

A

B

C

D

DISTANT VERY LONG LONG MEDIUM CLOSE

A1D A2D A3D A4D A5D
A1VL A2VL A3VL A4VL
A1L A2L A3L
A1M A2M
A1C

B5D B4D B3D B2D B1D
B4VL B3VL B2VL B1VL
B3L B2L B1L
B2M B1M
B1C

C1D C2D C3D C4D C5D
C1VL C2VL C3VL C4VL
C1L C2L C3L
C1M C2M
C1C

D1D D2D D3D D4D D5D
D1VL D2VL D3VL D4VL
D1L D2L D3L
D1M D2M
D1C

systems!). These allow you to plot the position of ships relative to the fixed point and one another.

For example, a cruiser has entered a system with orders to track down and destroy a squadron of corvettes. The cruiser is in C Quadrant, Sector 3, at Distant range (you could abbreviate this to C3D). The squadron of corvettes is on the other side of the system in A Quadrant, Sector 1, at Medium Range (A1M).

Movement
To move around the Fleet Manoeuvre Chart, a ship may either change its Range Band (moving inwards or outwards from the fixed point) or move around the fixed point within the same Range Band.

Ships may change Range Bands by expending Thrust as normal, following the rules detailed on page 156 of the *Traveller Core Rulebook*. So, if a ship were at Very Long Range, it could expend 25 Thrust to change its range to either Long or Distant.

Ships may move to an adjacent Sector in the same Range Band by expending the same amount of Thrust.

For example, the squadron of corvettes we met before are currently at Medium range in Sector 1 of the A Quadrant. They could expend 5 points of Thrust to move to either Close or Long range in the A Quadrant (moving to either Sector 1 or 2 at Long range, as both are adjacent to their starting position), or they could expend 5 points of Thrust to move around the fixed point, to either Sector 2 at Medium range, or Sector 2 at Medium range in the B Quadrant.

Attacks
Attacking another ship or squadron using the Fleet Manoeuvre Chart is done in the same way as normal for the Fleet Combat System. However, the Fleet Manoeuvre Chart allows you to work out the range to a target. This will be determined by the position of the attacking ship relative to its target, as shown here.

Target in same Sector: The target will be at adjacent range.

Target in adjacent Sector: The target is assumed to be at a range equal to the lowest Range Band either ships is in (so, if the target is at Long range and the attacker is in an adjacent sector at Very Long range, the range to the attack will be made at Long range).

Otherwise, an attack will be made at a Range equal to the highest Range Band of either ship.

Missile Salvoes
It will not have escaped the attention of the discerning referee that the Fleet Manoeuvre Chart can easily be employed to track the movement of missile and torpedo salvoes as they race across a star system.

Salvoes can be tracked and moved as if they were ships, albeit with a lot more Thrust to move across the chart. Referees should assume they will always move by the path that requires the least amount of Thrust.

HYBRID FLEET COMBAT
While it will not be supported in any future official Traveller books, referees might like to experiment with a combination of the Fleet Combat System and the Space Combat chapter in the *Traveller Core Rulebook* when using capital ships.

Referees may find this speeds up combat between big ships, while retaining a solid level of detail, by applying the following changes to the normal space combat rules.

- Make one attack for each unique weapon type separately. For example, group all triple pulse laser turrets into one attack, all double beam laser turrets into another, and so on.
- Instead of performing Evasive Action against a handful of attacks, apply half the Crew Skill of the target (rounding up) to *every* attack.
- Make one attack roll for every type of weapon, and then use the Damage Modification column of the Fleet Damage table to determine what percentage of the individual weapons within that group actually hit.
- Roll for damage as normal (or you might simply assume 3.5 points of damage per damage dice!), and subtract the target's Armour score.
- Multiply this total by the number of weapons that actually hit the target, as previously determined.
- Deduct this from the target's Hull score, and move onto the next attack!
- Use the salvoes rules to determine the amount of missiles and torpedoes evaded and eliminated by point defence, roll for damage as usual (subtracting armour) and multiply by the remaining missiles. Apply screen defence if appropriate.

JAYNE'S GUIDE

TO SPACECRAFT
OF THE THIRD IMPERIUM
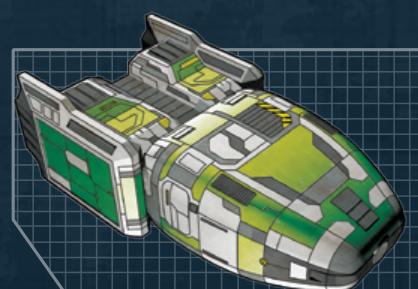
LIGHT FIGHTER

TL12		TONS	COST (MCʀ)
Hull	10 tons, Streamlined	-	0.6
Armour	Crystaliron, Armour: 2	2.5	0.06
M-Drive	Thrust 6	2	4
Power Plant	Fusion, Power 15	1	1
Fuel Tanks	4 weeks operation	1	-
Bridge	Cockpit	1.5	0.01
Computer	Computer 5	-	0.03
Sensors	Military Grade	2	1
Weapons	Fixed Mount (Pulse Laser)	-	-
Software	Fire Control/1	-	2
	Library	-	-
	Manoevre/0	-	-
Cargo		1.4	-

TOTAL: MCʀ 9.6

CREW
PILOT

RUNNING COSTS

MAINTENANCE COST:
Cr 800/month

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PURCHASE COST:
MCr9.6

POWER REQUIRMENTS

6	2	2
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS	SENSORS

4
HULL POINTS

8
HULL POINTS

CREW
PILOT

RUNNING COSTS

MAINTENANCE COST:
Cr561/month

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PURCHASE COST:
MCr6.732

POWER REQUIRMENTS

14	4
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

GIG

TL12		TONS	COST (MCʀ)
Hull	20 tons, streamlined		1.1
Armour	Armour: 0	-	-
M-Drive	Thrust 7	1.4	2.8
Power Plant	Fusion, Power 30	2	2
Fuel Tanks		1	-
Bridge	Bridge	3	.05
Computer	Computer 5	-	0.03
Sensors	Basic	-	-
Weapons	Single Turret, Empty	1	0.2
Systems	Cabin Space x2	3	0.1
	Airlock	2	0.2
	Fuel Scoops		1
Software	Library	-	-
	Manoeuvre/0	-	-
Cargo		6.6	-

TOTAL: MCʀ 6.732
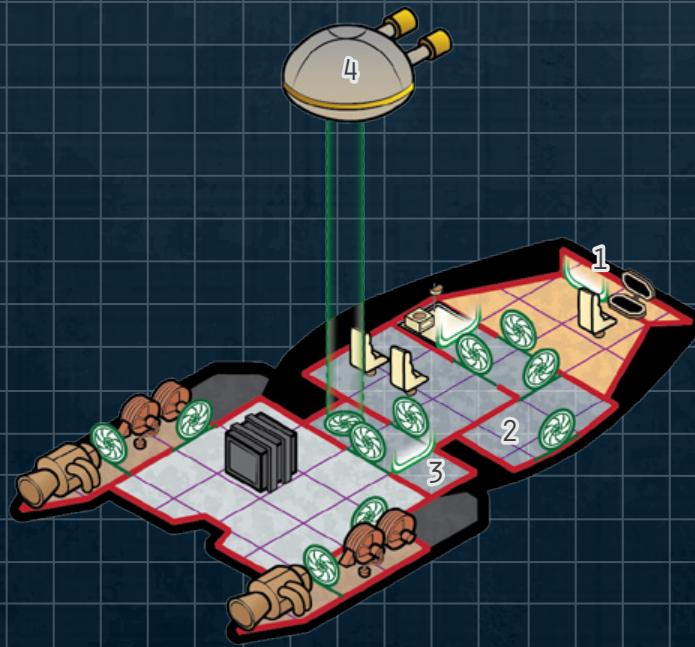
1. AVIONICS
2. FUEL TANKS

Consisting of little more than a power plant and pulse laser with a pilot strapped to the top, the light fighter is a small, fast and highly manoeuvrable craft designed to make high-speed runs on enemy ships and destroy other small craft. Designed to adhere to a strict budget, the light fighter allows even the poorest worlds a chance at self-defence.

This tech level 12 gig is an often encountered institution at starports throughout the Imperium. Technically a vessel of the Imperial Navy, it is crewed by local starport personnel and used to perform
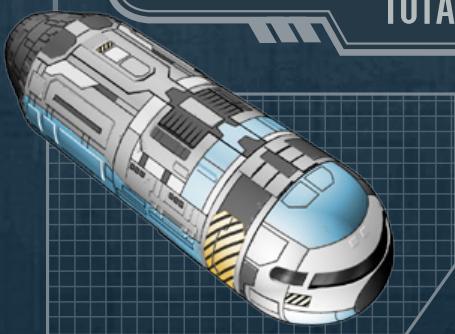
1. AVIONICS
2. AIRLOCK
3. LOCKER
4. TURRET

LAUNCH
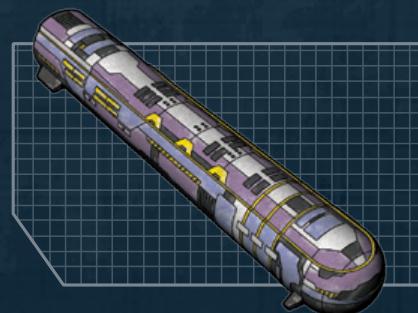
TL12		TONS	COST (MCr)
Hull	20 tons, Streamlined	-	1.2
Armour	Armour: 0	-	-
M-Drive	Thrust 1	2	4
Power Plant	Fusion, Power 10	1	.5
Fuel Tanks	4 weeks operation	1	-
Bridge		3	0.5
Computer	Computer 5	-	0.03
Sensors	Basic	-	-
Weapons		-	-
Systems			
Software	Library	-	-
	Manoevre/0	-	-
Cargo		13	-

TOTAL: MCr 5.607

8 HULL POINTS

10 HULL POINTS

CREW

PILOT

RUNNING COSTS

MAINTENANCE COST:
Cr562/month

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PURCHASE COST:
MCr6.75

POWER REQUIRMENTS
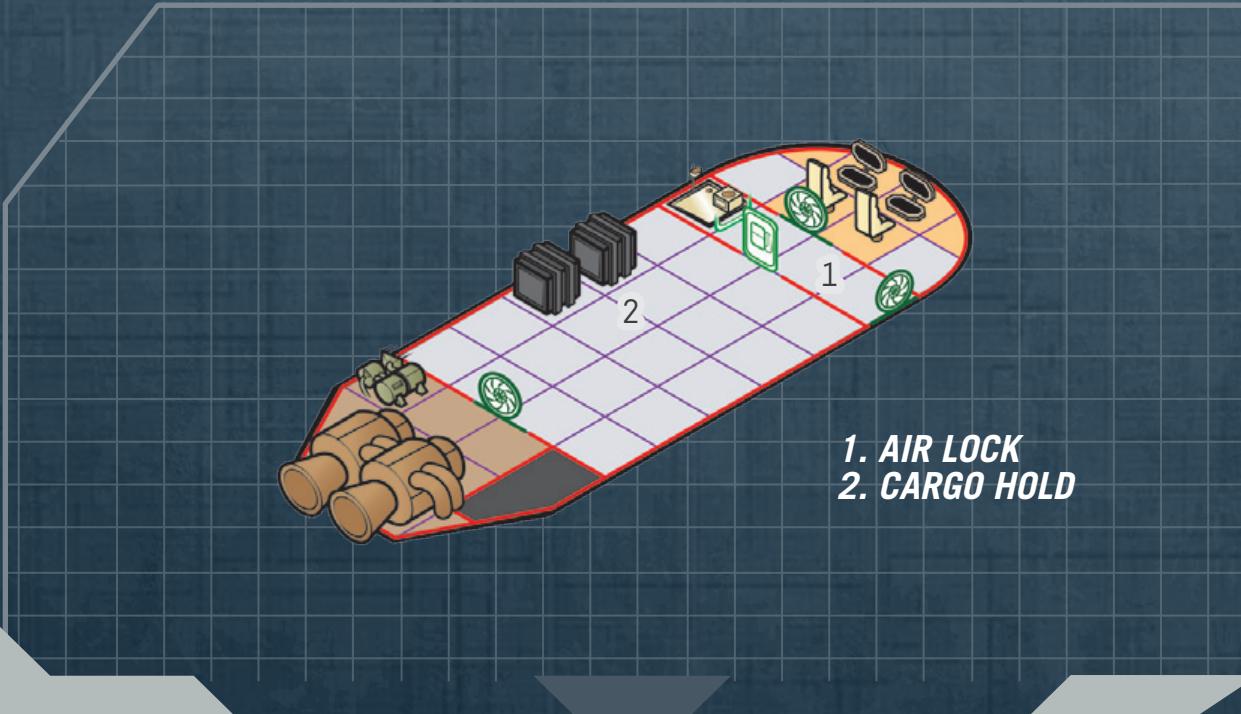
5		5
MANOEUVRE DRIVE	1 SENSORS	BASIC SHIP SYSTEMS

PEBBLE

TL12		TONS	COST (MCr)
Hull	25 tons, streamlined		1.5
Armour	Armour: 0		
M-Drive	Thrust 2	0.5	1
Power Plant	Fusion, power 15	1	1
Fuel Tanks	4 weeks of operation, 9 tons storage	10	-
Bridge		3	0.5
Computer	Computer 5	-	0.03
Sensors	Civilian Grade	1	3
Systems	Psionic Shielding	.25	0.13
Acceleration Seat	5 passengers	2.5	0.15
Software	Library	-	-
	Manoeuvre/0	-	-
Cargo		4.75	-

TOTAL: MCr 6.75

1. AIR LOCK
2. CARGO HOLD
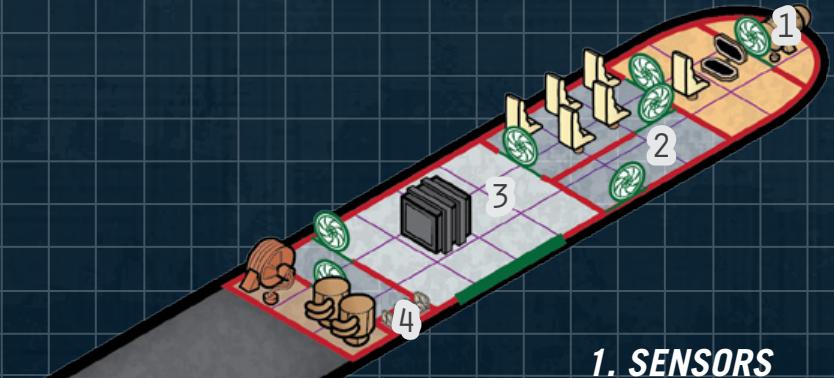
Also called a life boat, due to one of its expected roles, this craft uses a 20-ton hull and can easily be flown by a single skilled individual. A launch can be configured to engage in a wide variety of roles, but ambitious schemes will find themselves limited by the small hull and weak power plant. However, for the price, the launch provides a means to very cheap space travel.

The 25-ton ship's boat for Rock is a standard cylindrical small craft with a control and passenger compartment forward, a centrally located cargo hold, and maneuver drives aft.

Typical for this type of small craft, it mounts maneuver drives for acceleration and simple slow flight over world surfaces. The boat is capable of 1G acceleration. Underwater operation is possible after only a slow transition phase from atmosphere to underwater. The craft must settle into the water carefully; a fast dive into water will run the risk of buckling the hull.

1. SENSORS
2. AIR LOCK
3. CARGO HOLD
4. PSIONIC SHIELDING

SHIP'S BOAT
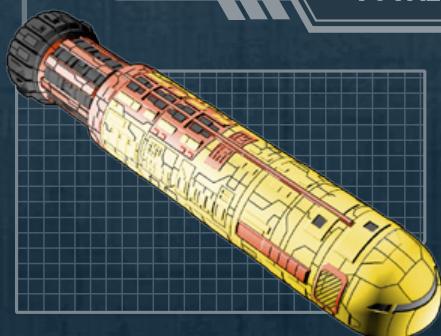
TL12		TONS	COST (MCʀ)
Hull	30 tons, Streamlined	-	1.8
Armour	Armour: 0	-	-
M-Drive	Thrust 5	0.6	1.2
Power Plant	Fusion, Power 30	2	2
Fuel Tanks	4 weeks operation	1	-
Bridge	Bridge	3	0.5
Computer	Computer 5	-	0.03
Sensors	Basic	-	-
Weapons	Fixed Mount	-	0.1
Systems	Cabin Space x 6	9	0.45
	Airlock	2	0.2
Software	Library	-	-
	Manoeuvre/0	-	-
Cargo		11	-

TOTAL: MCʀ 8.192

12 HULL POINTS

CREW

PILOT

RUNNING COSTS

MAINTENANCE COST:
Cr683/month

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PURCHASE COST:
MCr8.192
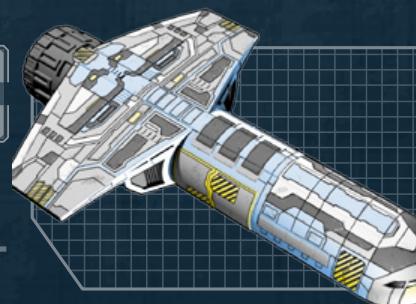
POWER REQUIRMENTS

15	6
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

12 HULL POINTS

CREW

PILOT

RUNNING COSTS

MAINTENANCE COST:
Cr568/month

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PURCHASE COST:
MCr6.822

POWER REQUIRMENTS

9	6
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

SLOW BOAT

TL12		TONS	COST (MCʀ)
Hull	30 tons, Streamlined	-	1.8
Armour	Armour: 0	-	-
M-Drive	Thrust 3	0.9	1.8
Power Plant	Fusion, Power 30	2	1
Fuel Tanks	4 weeks operation	1	-
Bridge	Bridge	3	0.5
Computer	Computer 5	-	0.03
Sensors	Basic	-	-
Weapons	Fixed Mount	-	0.1
Systems	Cabin Space x 2	3	0.15
Software	Library.	-	-
	Manoevre/0	-	-
Cargo		19	-

TOTAL: MCʀ 6.822
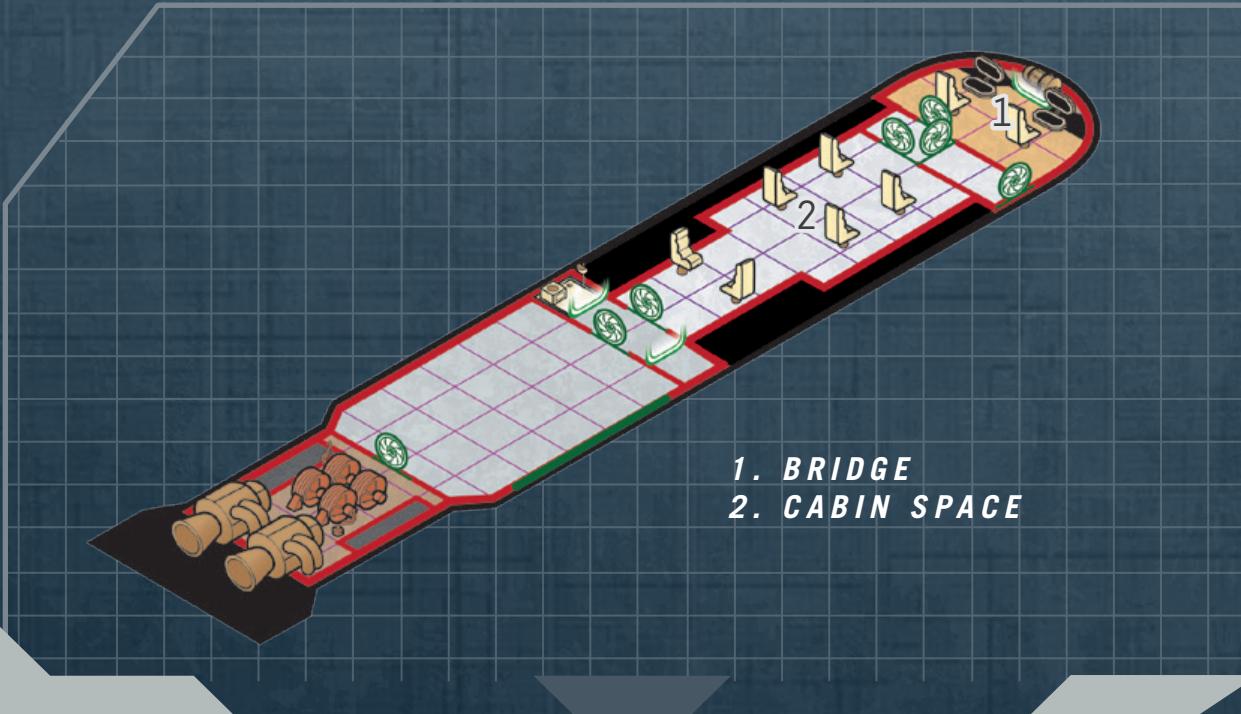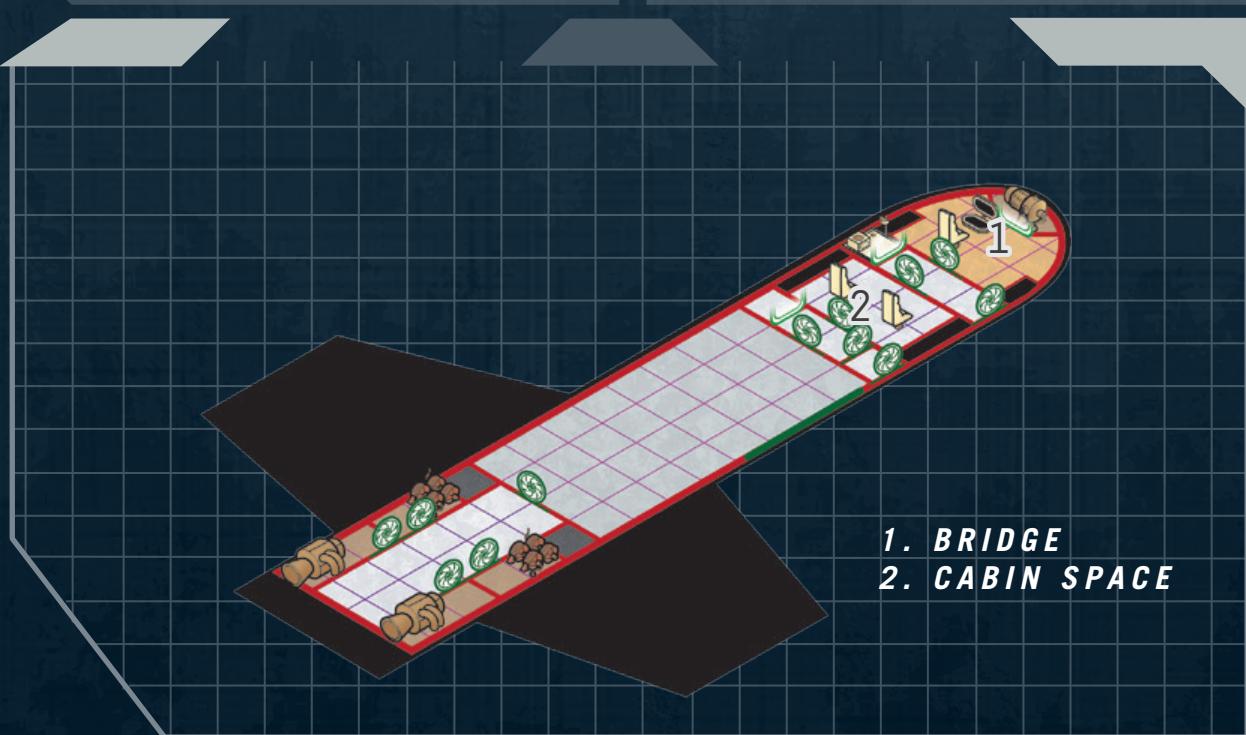
1. *BRIDGE*
2. *CABIN SPACE*

The ship's boat is both fast and versatile, making it a popular choice for auxiliary craft. While most commonly seen hauling small cargo and passenger loads between ships and worlds, in smaller militaries the ship's boat is also used as a boarding craft by marine assault teams.

The slow boat appears either as an early design of the ship's boat, before power plants and manoeuvre drives become more efficient, or as an intentional throttling back of the ship's boats performance. Either way, the slow boat is comparable to the ship's boat but it trades speed for increased cargo space.

1. *BRIDGE*
2. *CABIN SPACE*

PINNACE
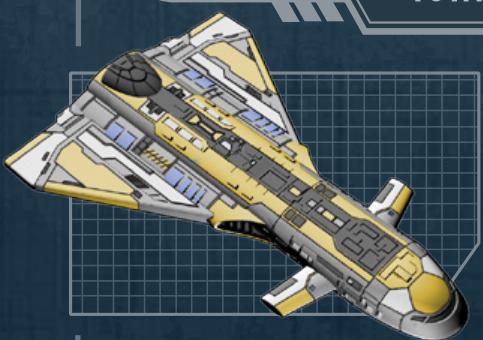
TL12		TONS	COST (MCʀ)
Hull	40 tons, Streamlined	-	2.4
Armour	Armour: 0	-	-
M-Drive	Thrust 5	2	4
Power Plant	Fusion, Power 30	2	2
Fuel Tanks	4 weeks operation	1	-
Bridge	Bridge	3	0.5
Computer	Computer 5	-	0.03
Sensors	Basic	-	-
Weapons	Fixed Mount	-	0.1
Systems	Cabin Space x 6	9	0.45
	Airlock	2	0.2
Software	Library	-	-
	Manoeuvre/0	-	-
Cargo		21	-

TOTAL: MCʀ 8.732

PILOT

RUNNING COSTS

MAINTENANCE COST:
Cr728/month

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PURCHASE COST:
MCr8.732

POWER REQUIRMENTS

20	8
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

16
HULL POINTS

16
HULL POINTS

CREW

PILOT

RUNNING COSTS

MAINTENANCE COST:
Cr602/month

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PURCHASE COST:
MCr7.227

POWER REQUIRMENTS

12	8
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

SLOW PINNACE

TL12		TONS	COST (MCʀ)
Hull	40 tons, Streamlined	-	2.4
Armour	Armour: 0	-	-
M-Drive	Thrust 3	0.8	1.6
Power Plant	Fusion, Power 20	2	1
Fuel Tanks	4 weeks operation	1	-
Bridge	Bridge	3	0.5
Computer	Computer 5	-	0.03
Sensors	Basic	-	-
Weapons	Fixed Mount	-	0.1
Software	Library	-	-
	Manoevre/0	-	-
Cargo		32	-

TOTAL: MCʀ 7.227

1. BRIDGE
2. CABIN SPACE
3. CARGO HOLD
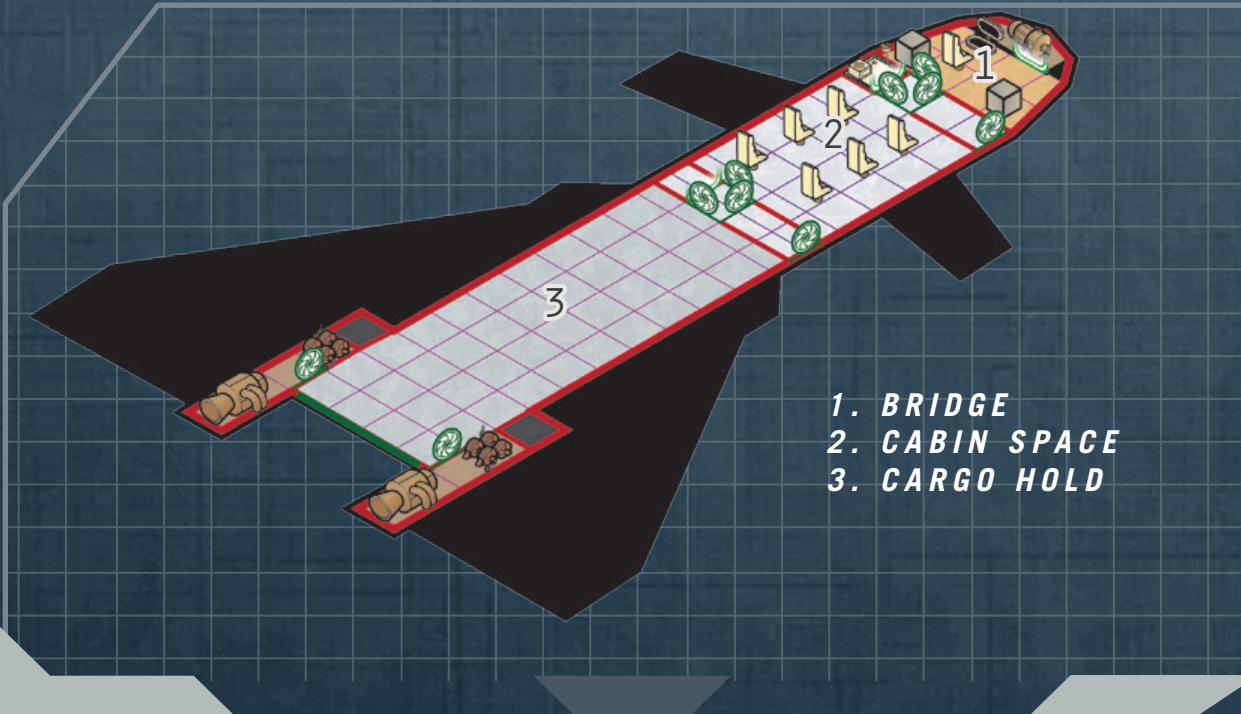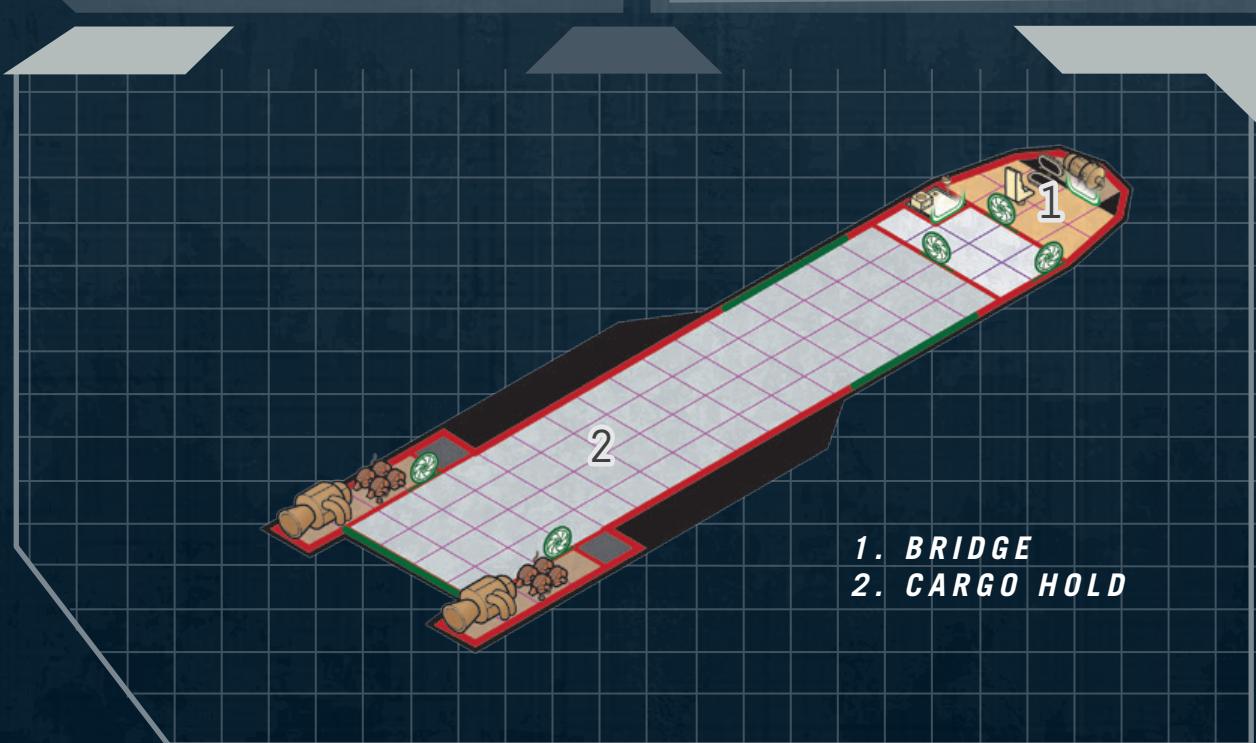
The pinnace is a popular choice as an auxiliary vessel for adventuring or exploratory ships, as it has the speed, range and cargo capacity to support extended missions. It combines a generous cargo hold with a speed that leaves most star ships trailing far behind, and can be configured for light combat operations with the addition of weaponry to its fixed mount.

Like the slow boat, the slow pinnace trades speed and raw performance for increased cargo space, though this craft is based on the traditional pinnace. As a larger hull, it provides even more cargo carrying capacity than a slow boat, and many are customised to become troop or vehicle transports, or to serve as fuel skimmers for larger ships.

1. BRIDGE
2. CARGO HOLD

MODULAR CUTTER

TL12		TONS	COST (MCr)
Hull	50 tons, Streamlined	-	3
Armour	armour 0	-	-
M-Drive	Thrust 4	2	4
Power Plant	Fusion, Power 30	3	1.5
Fuel Tanks	4 weeks operation	1	-
Bridge		3	0.5
Computer	Computer 5	-	0.03
Sensors	Basic	-	-
Weapons	Fixed Mount	-	0.1
Systems	Modular Hull	30	1.8
	Cabin Space x 4	6	0.3
	Airlock	2	0.2
Software	Library	-	-
	Manoeuvre/0	-	-
Cargo		2	-

TOTAL: MCr 10.287

RUNNING COSTS

MAINTENANCE COST:
Cr857/month

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PURCHASE COST:
MCr10.287

POWER REQUIRMENTS

20	10
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

20
HULL POINTS

22
HULL POINTS

CREW

PILOT, GUNNER

RUNNING COSTS

MAINTENANCE COST:
Cr4,451.25 month

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PURCHASE COST:
MCr53.415

POWER REQUIRMENTS

45	(4)	10
MANOEUVRE DRIVE	SENSORS	BASIC SHIP SYSTEMS

HEAVY FIGHTER

TL15		TONS	COST (MCr)
Hull	50 tons, streamlined		3.75
	Reinforced		0.75
Armour	Bonded Superdense, armour 15	6	3.3
M-Drive	Thrust 9	4.5	9
Power Plant	Fusion, Power: 75	5	5
Fuel Tanks		1	-
Bridge		3	0.5
Computer		-	30
Sensors	Advanced	5	5.3
Weapons	Firmpoint #1 Beam Laser	-	0.5
	Firmpoint #2 Missile Rack	-	0.75
Ammunition	96 missiles	8	-
Armoured Bulkheads	Power Plant	0.4	0.08
	Manoeuvre Drive	0.45	0.09
	Bridge	0.3	0.06
	Sensors	0.5	0.1
Staterooms		8	1
Software	Manoeuvre/0	-	-
	Evade/2	-	2
	Library	-	-
	Fire Control/4	-	8
Common Area		2	0.2
Cargo		8.5	-

TOTAL: MCr 53.415

1. BRIDGE
2. CABIN SPACE
3. MODULE DOCKING SPACE
4. ATV DOCKING SPACE
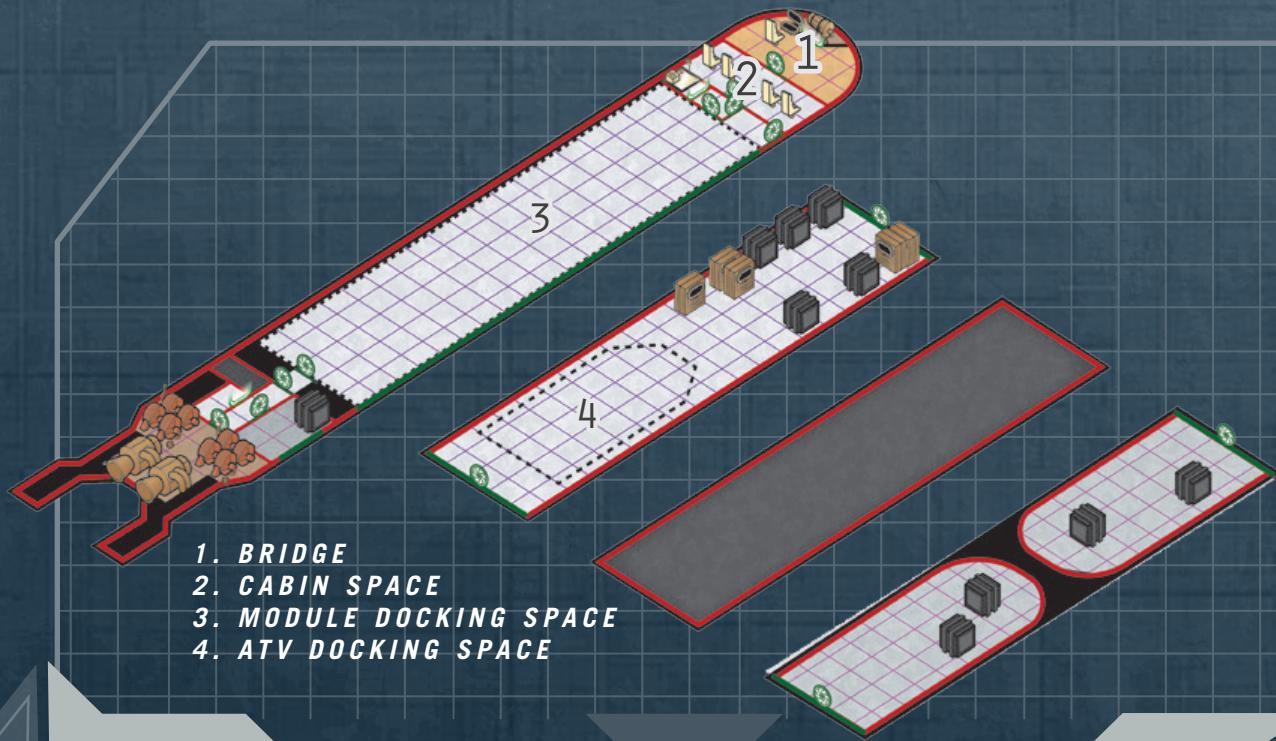
The modular cutter is notable for having 30 tons dedicated to a detachable module; this allows the cutter to quickly and efficiently change roles during a voyage without needing extensive refits at a starport. While there are a great many customised modules available for the cutter, the three most common and routinely available for the cutter are listed below.
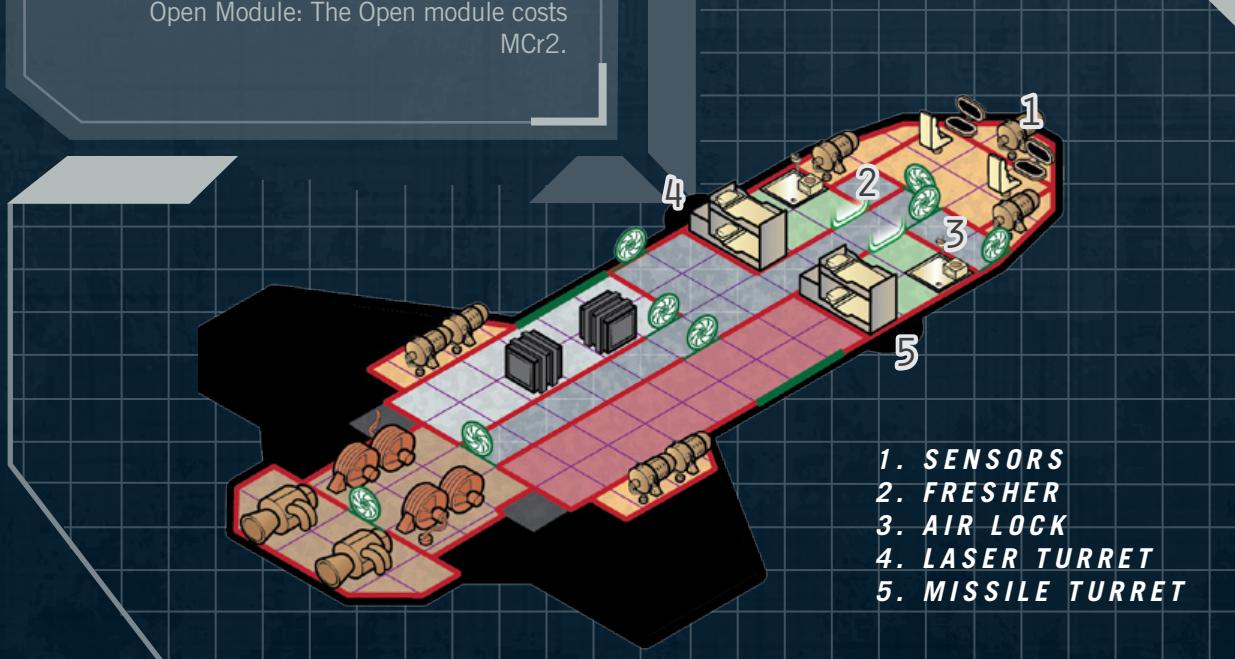
ATV Module: The ATV module costs MCr1.8.
Fuel Module: The Fuel module costs MCr1.
Open Module: The Open module costs MCr2.

The heavy fighter is an attempt to provide a powerful, fast, agile, armoured, and dependable small craft for space superiority. It has bunking arrangements for crew comfort, which allow the craft to remain on station for long periods.

1. SENSORS
2. FRESHER
3. AIR LOCK
4. LASER TURRET
5. MISSILE TURRET

TROOP TRANSPORT

TL15		TONS	COST (MCʀ)
Hull	50 tons, streamlined		2.75
Armour	Bonded Superdense, Armour: 2	0.8	0.44
M-Drive	Thrust 9	4.5	9
Power Plant	Fusion	5	5
Fuel Tanks	4 weeks of operation	1	-
Bridge		3	0.5
Computer	Computer 25	-	10
Sensors	Improved	5	5.3
Weapons	Firmpoint, Sandcaster	-	0.25
	Firmpoint, Missile	-	0.75
Ammunition	Missile Storage (24 missiles)	2	-
	Sandcaster Barrels (40 barrels)	2	-
Accomodations	Acceleration Seat (x50)	25	1.5
Software	Manoeuvre/0	-	-
	Evade/2	-	2
	Library	-	-
	Fire Control/2	-	4
Cargo		1.7	-

TOTAL: MCʀ 33.74

CREW

-

RUNNING COSTS

MAINTENANCE COST:
Cr2,811/month

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PURCHASE COST:
MCr33.74

POWER REQUIRMENTS

45	10	4
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS	SENSORS

20
HULL POINTS

38
HULL POINTS

CREW

PILOT

RUNNING COSTS

MAINTENANCE COST:
Cr1,264/month

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PURCHASE COST:
MCr15.167

POWER REQUIRMENTS

28.5	19
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

SHUTTLE

TL12		TONS	COST (MCʀ)
Hull	95 tons, Streamlined	-	5.7
Armour	Armour: 0	-	-
M-Drive	Thrust 3	2.85	5.7
Power Plant	Fusion, Power 60	4	4
Fuel Tanks	4 weeks operation	1	-
Bridge	Bridge	6	0.5
Computer	Computer 5	-	0.03
Sensors	Basic	-	-
Weapons	Fixed Mount	-	0.1
Systems	Cabin Space x 8	12	0.6
	Airlock	2	0.2
Software	Library	-	-
	Manoevre/0	-	-
Cargo		72.15	-

TOTAL: MCʀ 15.167
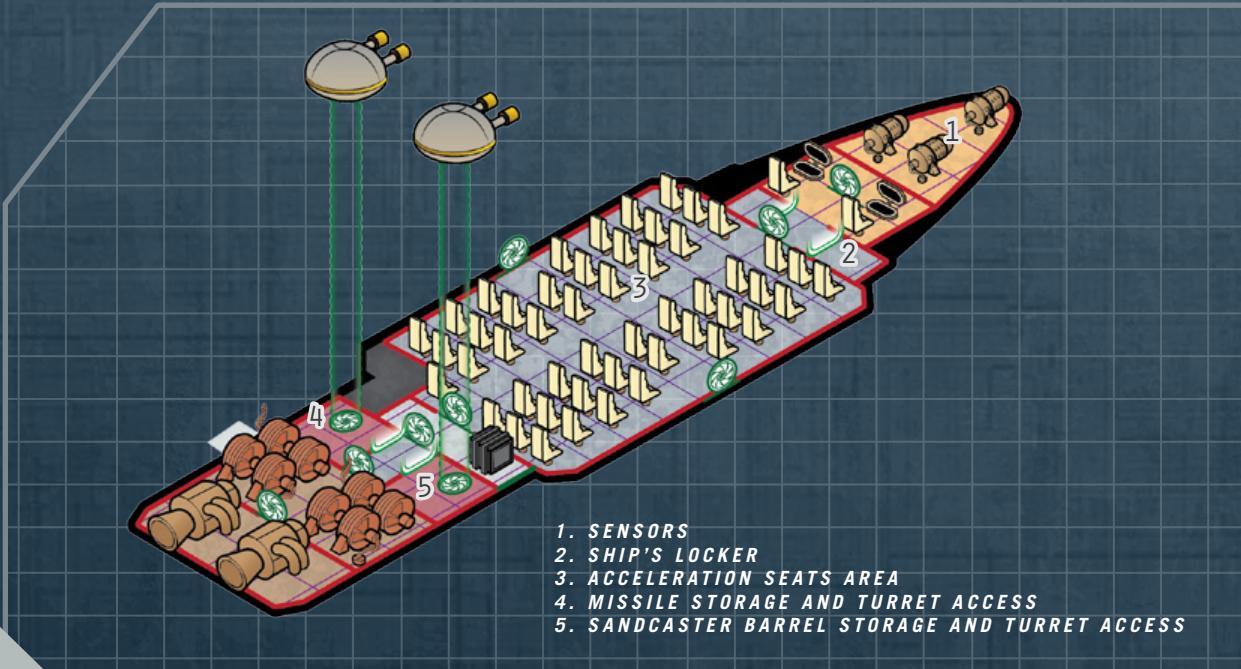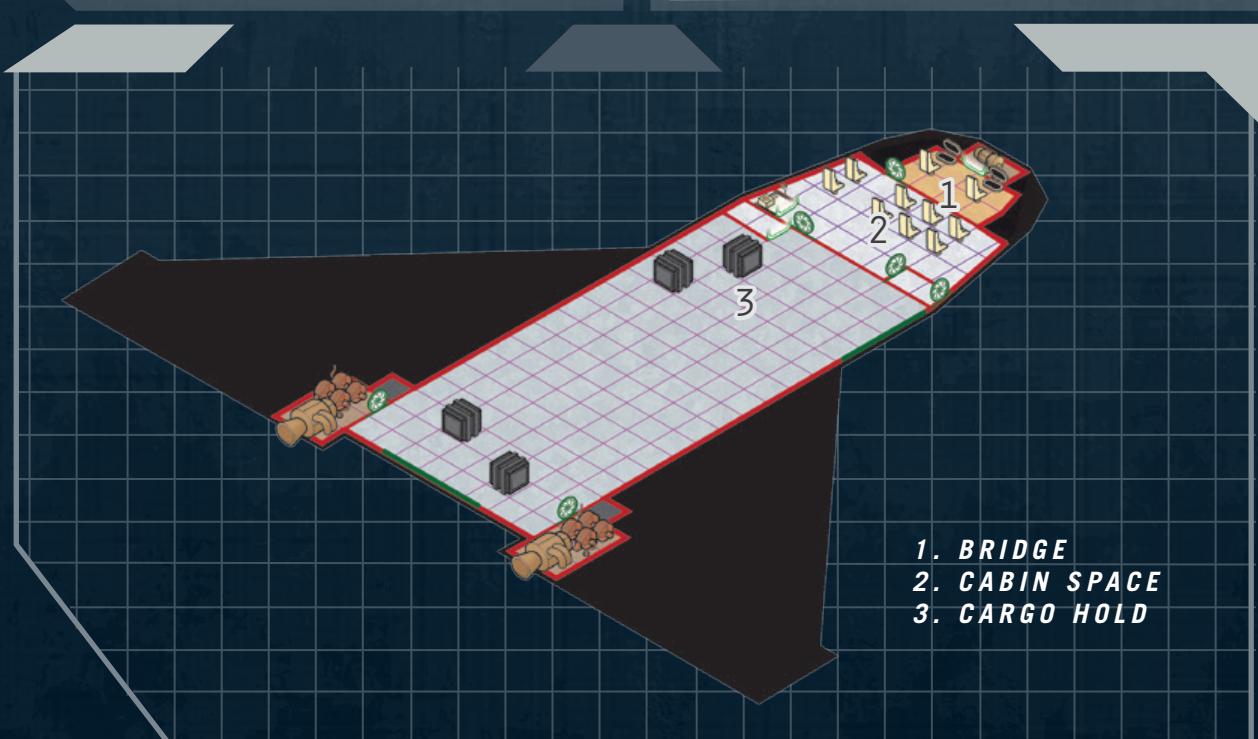
1. SENSORS
2. SHIP'S LOCKER
3. ACCELERATION SEATS AREA
4. MISSILE STORAGE AND TURRET ACCESS
5. SANDCASTER BARREL STORAGE AND TURRET ACCESS

The 50-ton troop transport was designed and produced by the Imperial Navy to meet a long-established need for deployment of troops from orbit to world surface. The 50-ton limit on displacement allows the craft to be deployed on ships possessing standard 50-ton launch tubes.

One of the most common craft seen in space, the shuttle is present throughout the galaxy and becomes a standard vessel for orbital operations as soon as a civilisation makes it first firm steps into space. It is designed to carry passengers and cargo from orbit to surface and back again, as well as act as an interplanetary transport.

1. BRIDGE
2. CABIN SPACE
3. CARGO HOLD

PASSENGER SHUTTLE

PILOT, CO-PILOT

TL9		TONS	COST (MCR)
Hull	95 tons, streamlined		5.7
M-Drive	Thrust 1	0.95	1.9
Power Plant	Fusion (TL8), power: 30	3	1.5
Fuel Tanks	4 weeks of operatoin	1	-
Bridge		6	0.5
Computer	Computer 5	-	.03
Sensors	Civilian Grade	1	3
Acceleration Bench	X60	60	30
Systems	Airlock	2	0.2
Common Areas		8	0.8
Software	Library	-	-
	Manoeuvre/0	-	-
Cargo		13.3	

TOTAL: MCR 39.69

RUNNING COSTS

MAINTENANCE COST:
Cr338/month

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PURCHASE COST:
MCr39.69

POWER REQUIRMENTS

10	1	19
MANOEUVRE DRIVE	SENSORS	BASIC SHIP SYSTEMS

38
HULL POINTS

1. SENSORS
2. AIR LOCK
3. CARGO AREA

Intended for routine passenger transport this shuttle fills the need at a reasonable price point. Capable of carrying up to 240 passengers.

The shuttle has a small cargo bay, passenger area and crew section separated by internal bulkheads. Normally only the passenger area is accessible to non-crew, and operations are sufficiently routine that no stewards are carried. Nor do the crew interact with the passengers except to pass on announcements when necessary.

EXPRESS BOAT

TL13		TONS	COST (MCᵣ)
Hull	100 tons, standard		5
Armour	Armour: 0		
J-Drive	Jump 4	15	22.5
Power Plant	Fusion (TL8)	2	1
High Efficiency Battery	Holds 40 power	1	0.1
Fuel Tanks	20 weeks operation, J-4	41	-
Bridge		10	0.5
Computer	Computer 20	-	5
Sensors	Basic	-	-
Systems	Re-entry Capsule	0.5	0.02
Staterooms	Standard	4	0.5
Software	Jump Control/4	-	0.4
	Library	-	-
	Manoeuvre/0	-	-
Cargo		26.5	

TOTAL: MCᵣ 31.16

CREW
-

RUNNING COSTS

MAINTENANCE COST:
Cr2,596/month

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PURCHASE COST:
MCr31.16

POWER REQUIRMENTS

MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
—	20

JUMP DRIVE	SENSORS
40	0

The express boat (x-boat) is the key to the Imperial communication network. The Scout Service maintains an extensive array of designated routes and supporting tenders to allow access to nearly every important system in the empire; the 100-ton xboat is the fast courier that carries data and messages between those points.

The jump drive is powered by the battery, which is recharged during the normal refuelling operations.

40
HULL POINTS

DECK 5

DECK 2

3

2

DECK 4

DECK 3

DECK 2

DECK 1

1. HIGH EFFICIENCY BATTERY
2. RE-ENTRY CAPSULE
3. AIR LOCK

DRIVE

SCOUT/COURIER

TL12		TONS	COST (MCR)
Hull	100 tons, Streamlined	-	6
Armour	Crystaliron, Armour: 4	5	1.2
M-Drive	Thrust 2	2	4
J-Drive	Jump-2	10	15
Power Plant	Fusion, Power 60	4	4
Fuel Tanks	12 weeks operation, J-2	23	-
Bridge		10	0.5
Computer	Computer 5/bis	-	0.045
Sensors	Military Grade	2	4.1
Weapons	Double Turret	1	0.5
Systems	Fuel Scoop	-	-
	Fuel Processors (40/tons a day)	2	0.1
	Probe Drones x 10	2	1
	Docking Space (4 tons)	5	1.25
	Air-Raft	-	0.25
	Workshop	6	0.9
Software	Jump Control/2	-	0.2
	Library	-	-
	Manoeuvre/0	-	-
Staterooms	Standard x 4	16	2
Cargo		12	-

TOTAL: MCR 36.7605

CREW

PILOT, ASTROGATOR, ENGINEER

RUNNING COSTS

MAINTENANCE COST
Cr3063/month

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PURCHASE COST
MCr36.7605

POWER REQUIRMENTS

20	20
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
20	2
JUMP DRIVE	SENSORS

The scout ship is built for exploration, survey, and courier duties, with many thousands in service throughout Charted Space. Despite the small 100 ton hull, the scout is faster than most merchant ships and can jump further too. While multiple crew positions are technically required, it is standard practice for a scout to be crewed by just one or two highly skilled individuals who understand the requirements needed for self-sufficiency.

40
HULL POINTS

DOUBLE TURRET

UPPER DECK

1. OFFICE
2. AIR LOCK
3. WORKSHOP
4. PROBE DRONES
5. SHIP'S LOCKER
6. AIR/RAFT DOCKING SPACE
7. CARGO HOLD

LOWER DECK

SEEKER MINING SHIP

(TYPE-J)

TL12		TONS	COST (MCr)
Hull	100 tons, Streamlined	-	6
Armour	Crystaliron, Armour: 4	5	1.2
M-Drive	Thrust 2	2	4
J-Drive	Jump-2	10	15
Power Plant	Fusion, Power 60	4	4
Fuel Tanks	4 weeks operation, J-2	21	-
Bridge		10	0.5
Computer	Computer 5/bis	-	0.045
Sensors	Military Grade	2	4.1
Weapons	Double Turret	1	0.5
Systems	Fuel Scoop	-	-
	Fuel Processors (20/tons a day)	1	0.05
	Mining Drones x 5	10	1
Software	Jump Control/2	-	0.2
	Library	-	-
	Manoeuvre/0	-	-
Staterooms	Standard x 2	8	1
Cargo		26	-

TOTAL: MCr 33.655

CREW

PILOT, ASTROGATOR, ENGINEER

RUNNING COSTS

MAINTENANCE COST:
Cr2804/month

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PURCHASE COST:
MCr33.655

POWER REQUIRMENTS

20	20
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
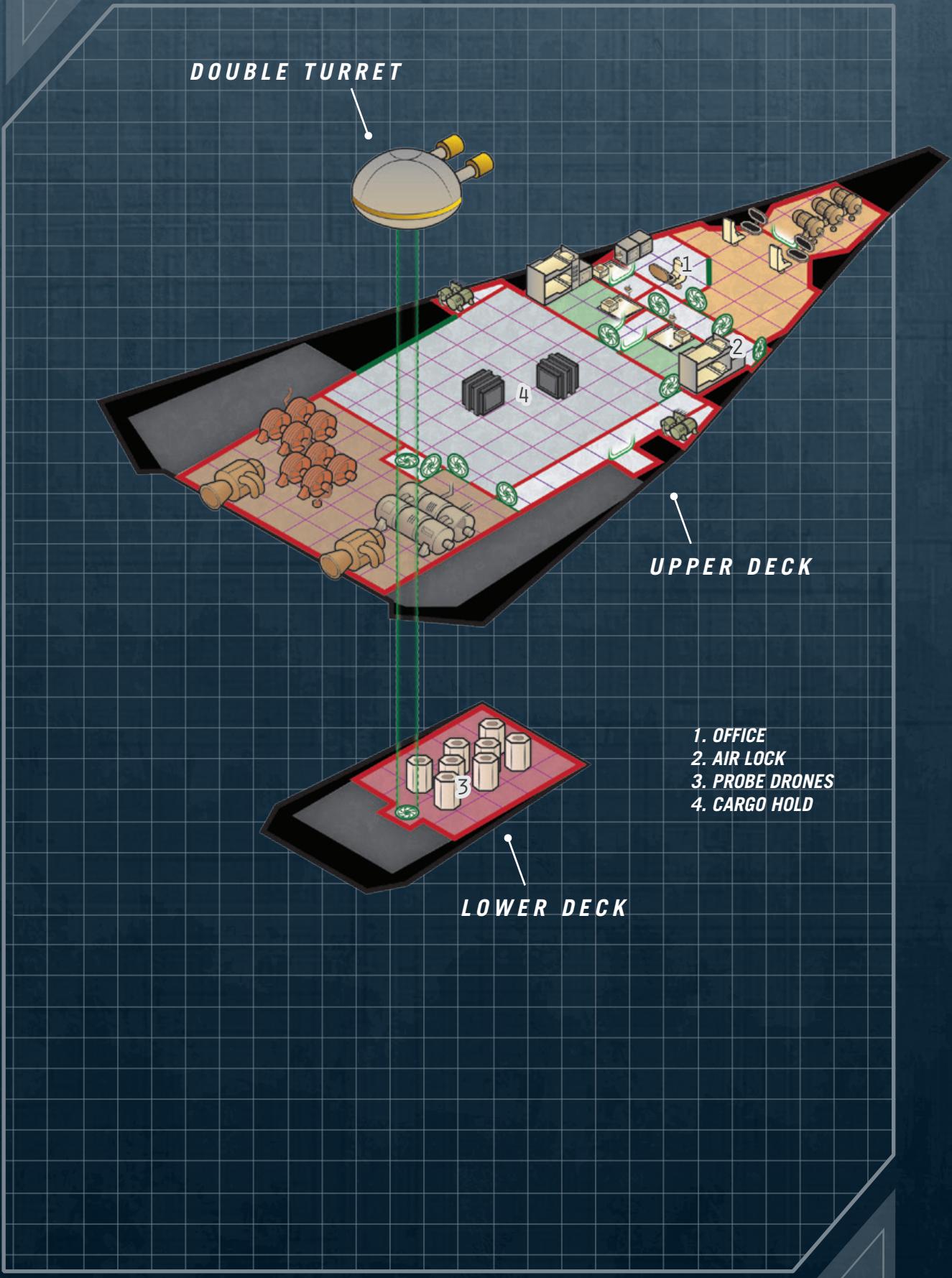
20	2
JUMP DRIVE	SENSORS

40

HULL POINTS

A variation on the traditional scout/courier, the seeker is occasionally produced in this configuration by shipyards but it is far more common for it to be created by re-fitting an old scout retired from active service. A seeker has fewer staterooms and a smaller fuel tank, but its larger cargo bay and mining drones allow a single well-skilled prospector to scavenge asteroids and make a living looking for deposits of valuable minerals.

DOUBLE TURRET

UPPER DECK

1. OFFICE
2. AIR LOCK
3. PROBE DRONES
4. CARGO HOLD

LOWER DECK

SCOUT

TL14		TONS	COST (MCʀ)
Hull	100 tons, streamlined		6
	Aerofins	5	0.5
Armour	Crystaliron, Armour: 4	5	1.2
M-Drive	Thrust 2	2	4
J-Drive	Jump-2	10	15
Power Plant	Fusion, Power 60	4	4
Fuel Tanks	8 weeks operation, J-2	22	-
Bridge		10	0.5
Computer	Computer 5/bis	-	.045
Sensors	Military Grade, Live Scanner Analysis Suite	3	8.1
Weapons	Double Turret (empty)	1	0.5
Systems	Advanced Probe Drones x10	2	1.6
	Docking Space (4 tons)	5	1.25
	Air/Raft	-	0.25
	Fuel Processor (40/tons day)	2	0.1
	Workshop	6	0.9
Staterooms	Standard x4	16	2
Common Area		1	0.1
Software	Jump Control/2	-	0.2
	Library	-	-
	Manoeuvre/0	-	-
Cargo		6	-

TOTAL: MCʀ 157.45

CREW

PILOT, ASTROGATOR, ENGINEER

RUNNING COSTS

MAINTENANCE COST:
Cr3,468/month

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PURCHASE COST:
MCr41.62

POWER REQUIRMENTS

20	20
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
20	4
JUMP DRIVE	SENSORS
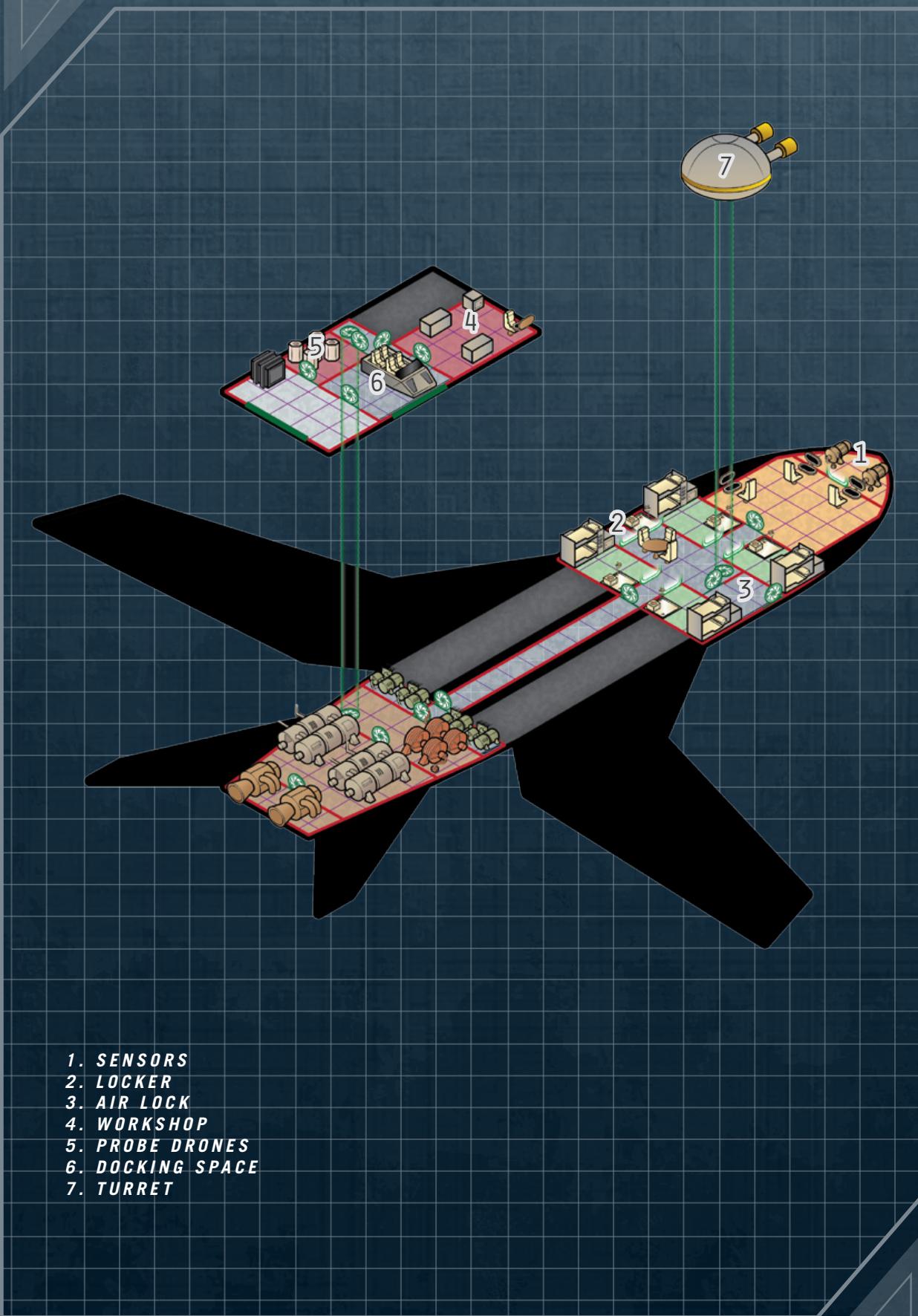
100
HULL POINTS

Similar to the performance of the venerable Type-S, the *Serpent*-class features better aerodynamic performance and some technological advances. The *Serpent*-class ships are highly sought after and usually allotted to senior scouts with records of exemplary service.

Names reported in use for the *Serpent*-class include *Asp*, *Cobra*, *Deceiver*, *Eel*, *Python*, *Reptile*, *Snake* and *Viper*.

1. SENSORS
2. LOCKER
3. AIR LOCK
4. WORKSHOP
5. PROBE DRONES
6. DOCKING SPACE
7. TURRET

FAR TRADER

TL12		TONS	COST (MCr)
Hull	200 tons, standard	-	10
	Streamlined	-	2
Armour	Armour: 0		
M-Drive	Thrust 1	2	4
J-Drive	Jump-2	15	22.5
Power Plant	Fusion, Power 90	6	6
Fuel Tanks	1 J-2, 4 weeks of operation	41	-
Bridge		10	1
Computer	Computer 5/bis	-	0.045
Sensors	Civilian Grade	1	3
Weapons	Double Turret (beam laser) x2	2	1.5
Craft	Air/Raft	5	1.5
Systems	Low Berth x4	2	0.2
	Fuel Processor (40/tons day)	2	0.1
	Loading Belt	1	.003
	Cargo Airlock x2	6	0.6
Staterooms	Standard x10	40	5
Software	Jump Control/2	-	0.2
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		10	1
Cargo		57	-

TOTAL: MCr 52.7832

CREW

PILOT/ASTROGATOR, ENGINEER, MEDIC, STEWARD, GUNNERS X2 (AS NEEDED).

RUNNING COSTS

MAINTENANCE COST:
4,398/month

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PURCHASE COST:
MCr52.7832

POWER REQUIRMENTS

20	40
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

40	1
JUMP DRIVE	SENSORS

2
FUEL PROCESSOR
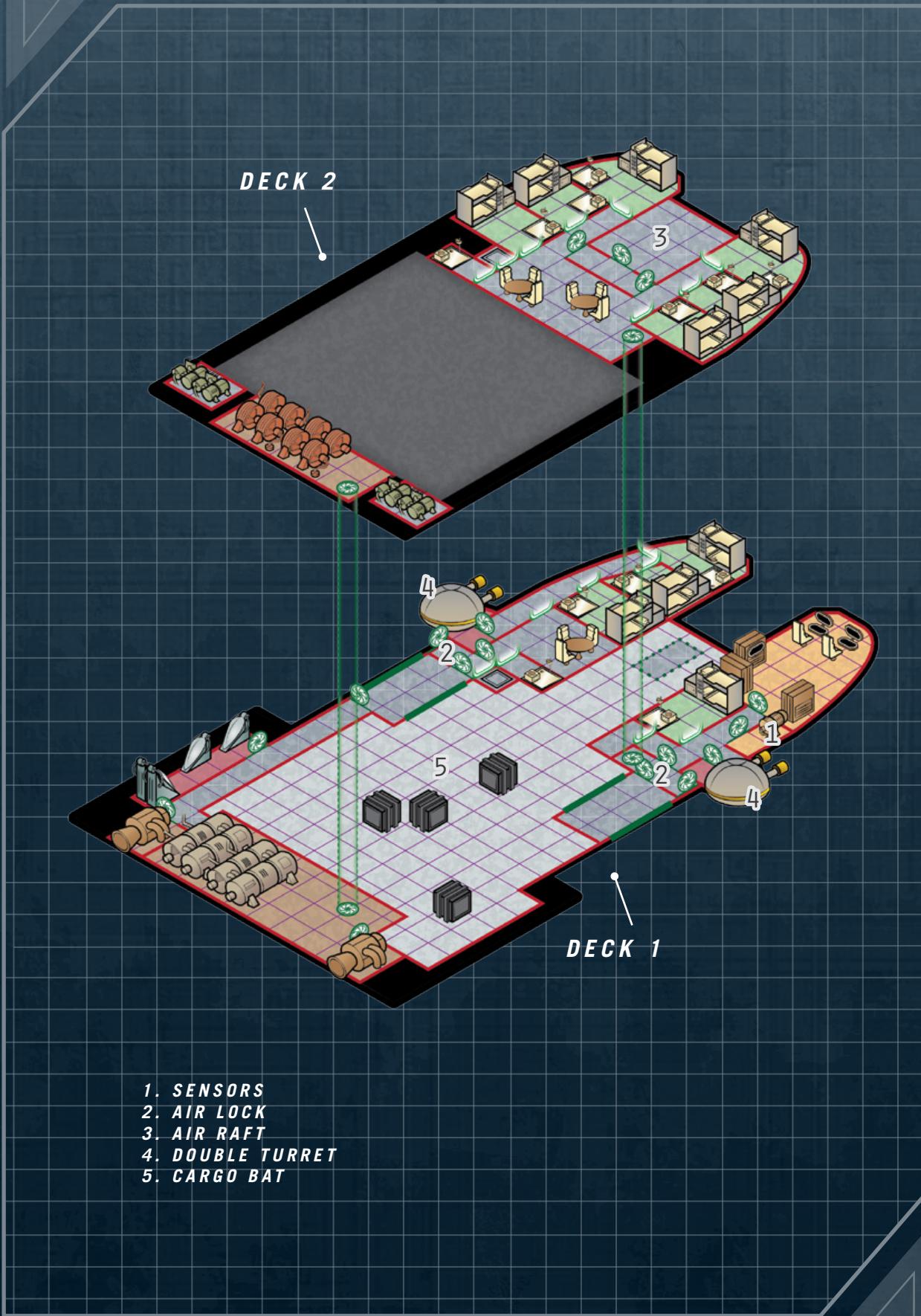
The far trader can be encountered anywhere in the Imperium. It ranges far and wide, and deals with every world it finds. Even amber zones and red zones are not considered off limits by its captains, provided there is profit to be made and the risk of being caught is slight.

80
HULL POINTS

DECK 2

DECK 1

1. SENSORS
2. AIR LOCK
3. AIR RAFT
4. DOUBLE TURRET
5. CARGO BAT

FAR TRADER

TL12		TONS	COST (MCʀ)
Hull	200 tons, Streamlined	-	12
Armour	Crystaliron, Armour: 2	5	1.2
M-Drive	Thrust 1	2	4
J-Drive	Jump-2	15	22.5
Power Plant	Fusion, Power 75	5	5
Fuel Tanks	4 weeks operation, J-2	41	-
Bridge		10	1
Computer	Computer 5/bis	-	0.045
Sensors	Civilian Grade	1	3
Weapons			
Systems	Fuel Scoop		
	Fuel Processors (40/tons day)	2	0.1
	Cargo Crane	3	3
Staterooms	Standard x 10	40	5
	Low Berths x 6	3	0.3
Software	Jump Control/1	-	0.1
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		9	0.9
Cargo		64	-

TOTAL: MCʀ 52.2405

CREW

PILOT, ASTROGATOR, ENGINEER, MEDIC, STEWARD

RUNNING COSTS

MAINTENANCE COST:
Cr4353/month

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PURCHASE COST:
MCr52.2405

POWER REQUIRMENTS

40	20
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

40	1
JUMP DRIVE	SENSORS

80
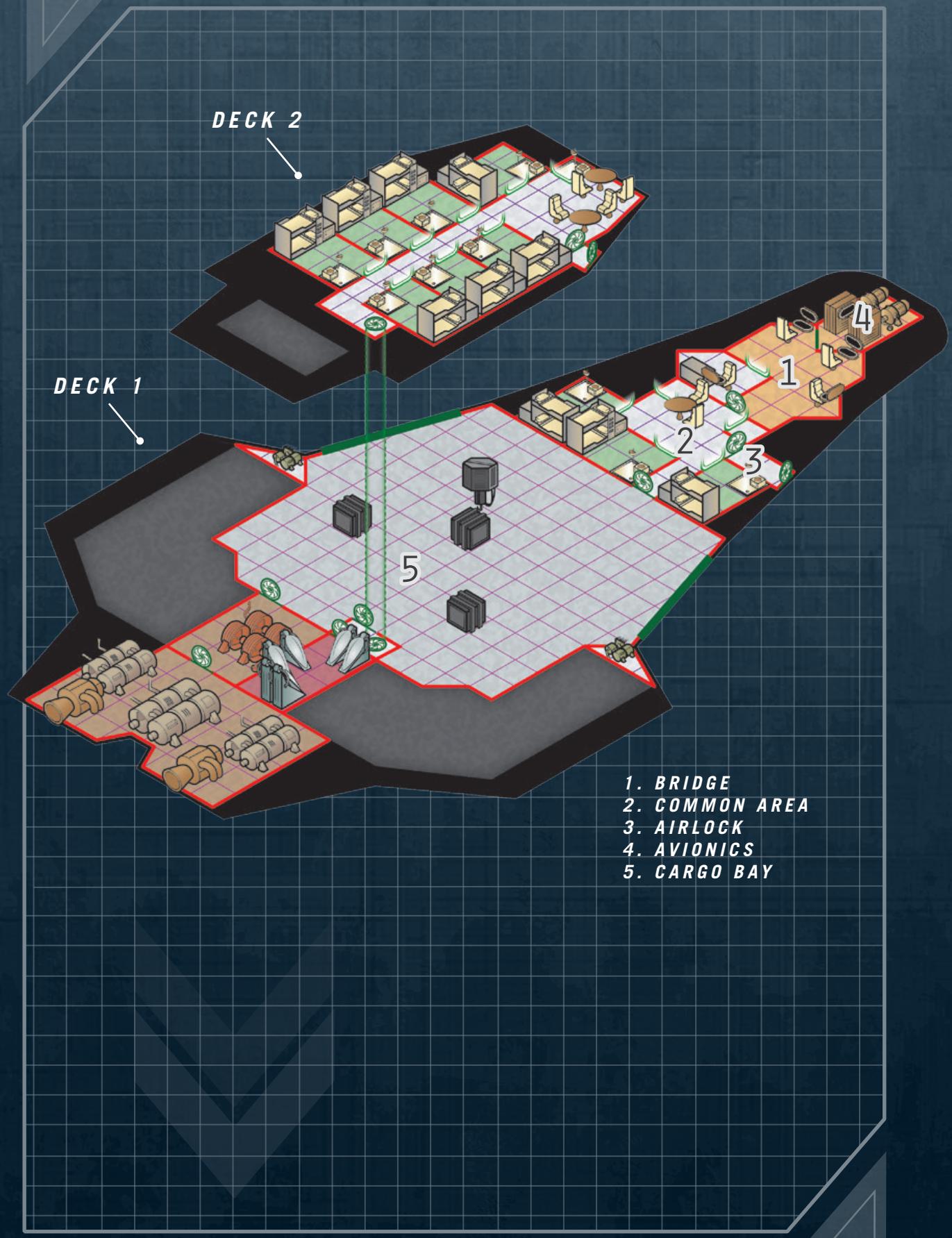
HULL POINTS

While nominally a modified free trader, the far trader has a series of modifications that have become accepted as standard, and many free traders are either modified to this specification or are built this way from new. The far trader swaps cargo space and low berths for a larger jump drive and fuel tank, allowing it to reach systems a basic free trader cannot travel to. While less cargo can mean less profits, the ability to reach further systems or to travel between stars at a faster rate can more than make up for this in the hands of a clever captain.

DECK 2

DECK 1

1. BRIDGE
2. COMMON AREA
3. AIRLOCK
4. AVIONICS
5. CARGO BAY

FREE TRADER

TL12		TONS	COST (MCʀ)
Hull	200 tons, Streamlined	-	12
Armour	Crystaliron, Armour: 2	5	1.2
M-Drive	Thrust 1	2	4
J-Drive	Jump-1	10	15
Power Plant	Fusion, Power 60	4	4
Fuel Tanks	4 weeks operation, J-1	21	-
Bridge		10	1
Computer	Computer 5	-	0.03
Sensors	Civilian Grade	1	3
Weapons			
Systems	Fuel Scoop Fuel Processors (20/tons day)	1	0.05
	Cargo Crane	3	3
Staterooms	Standard x 10	40	5
	Low Berths x 20	10	1
Software	Jump Control/2	-	0.2
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		11	1.1
Cargo		82	-

TOTAL: MCʀ 45.342

CREW

PILOT, ASTROGATOR, ENGINEER, MEDIC, STEWARD

RUNNING COSTS

MAINTENANCE COST
Cr3778/month

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PURCHASE COST
MCr45.342

POWER REQUIRMENTS

20	20
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
40	**1**
JUMP DRIVE	SENSORS

80
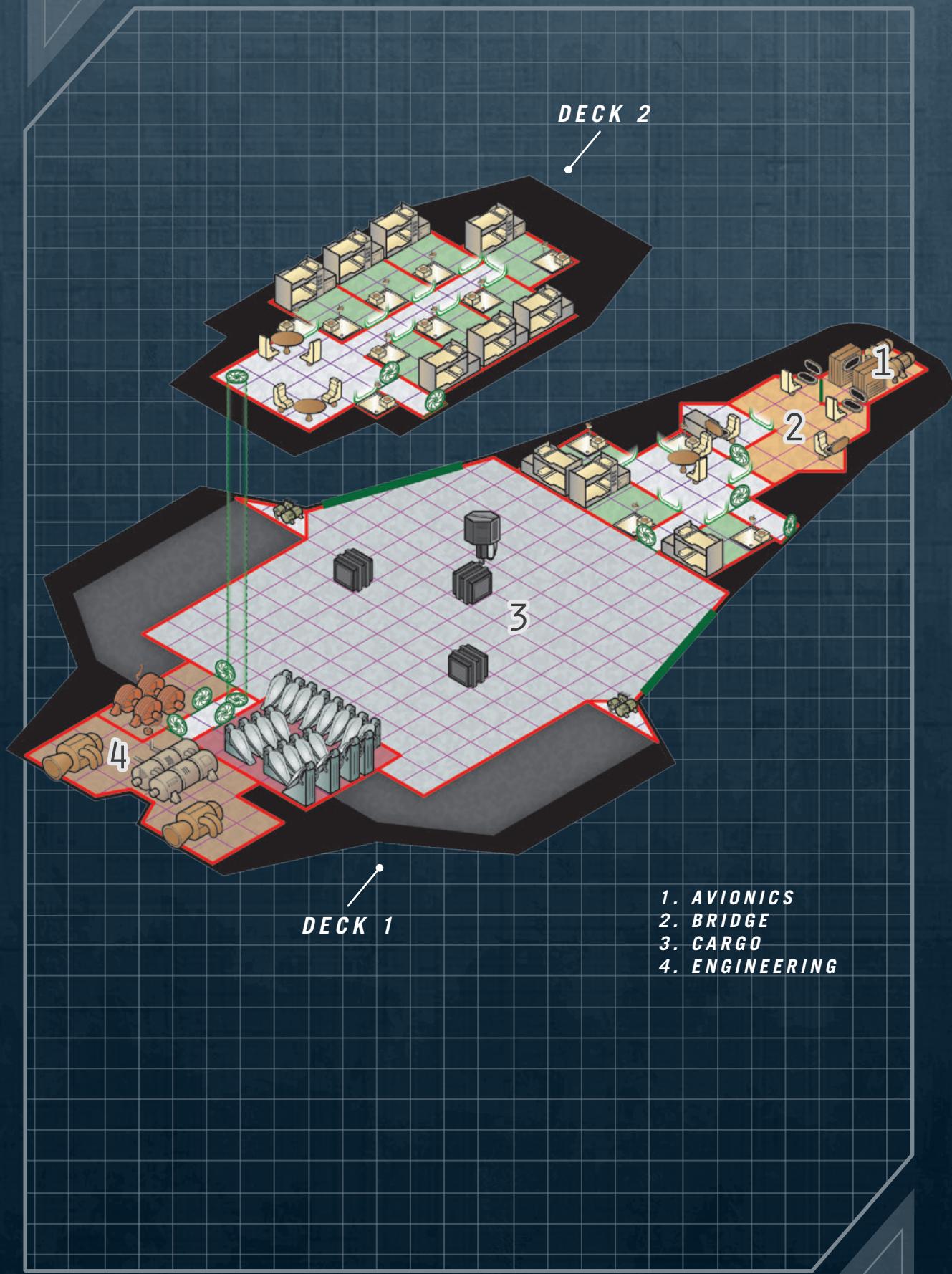
HULL POINTS

Using a 200-ton hull, the free trader is an elementary interstellar merchant ship designed to ply the space lanes while carrying a mixture of cargo and passengers. It is the archetypal tramp freighter and common among adventuring groups and mercenary bands, often retrofitted with turrets, weapons and other 'special' modifications. As such, actual specifications can vary wildly, often being proportional to the age of the ship, but the free trader presented here is typical of a vessel fresh out of the shipyard.

DECK 2

DECK 1

1. AVIONICS
2. BRIDGE
3. CARGO
4. ENGINEERING
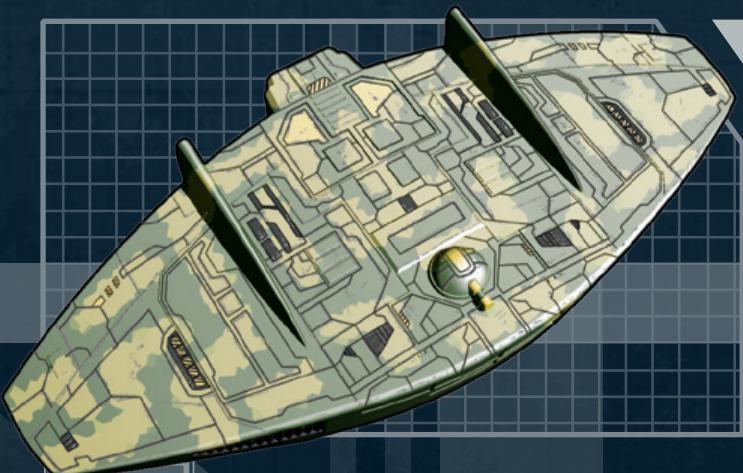
SAFARI SHIP

TL12		TONS	COST (MCr)
Hull	200 tons, Streamlined	-	12
Armour	Armour: 0	-	-
M-Drive	Thrust 1	2	4
J-Drive	Jump-2	15	22.5
Power Plant	Fusion, Power 105	7	7
Fuel Tanks	4 weeks operation, J-2, plus Launch	49	-
Bridge		10	1
Computer	Computer 5/bis	-	0.045
Sensors	Civilian Grade	1	3
Weapons	Double Turret	1	0.5
Systems	Docking Space (20 tons)	22	5.5
	Launch	-	5.607
	Docking Space (4 tons)	5	1.25
	Air/Raft	-	0.25
	Fuel Scoop	-	-
	Fuel Processors (40/tons a day)	2	0.1
	Multi-Environment Space	8	0.5
	Multi-Environment Space	8	0.5
	ATV (on launch)	-	0.155
Staterooms	Standard x 11	44	5.5
Software	Jump Control/2	-	0.2
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		13	1.3
	Trophy Lounge	7	0.7
Cargo		6	-

TOTAL: MCr 64.2672

CREW

PILOT, ASTROGATOR, ENGINEER, MEDIC, STEWARD

RUNNING COSTS

MAINTENANCE COST
Cr5355/month

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PURCHASE COST
MCr64.2672

POWER REQUIRMENTS

20	40
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
40	1
JUMP DRIVE	SENSORS

80
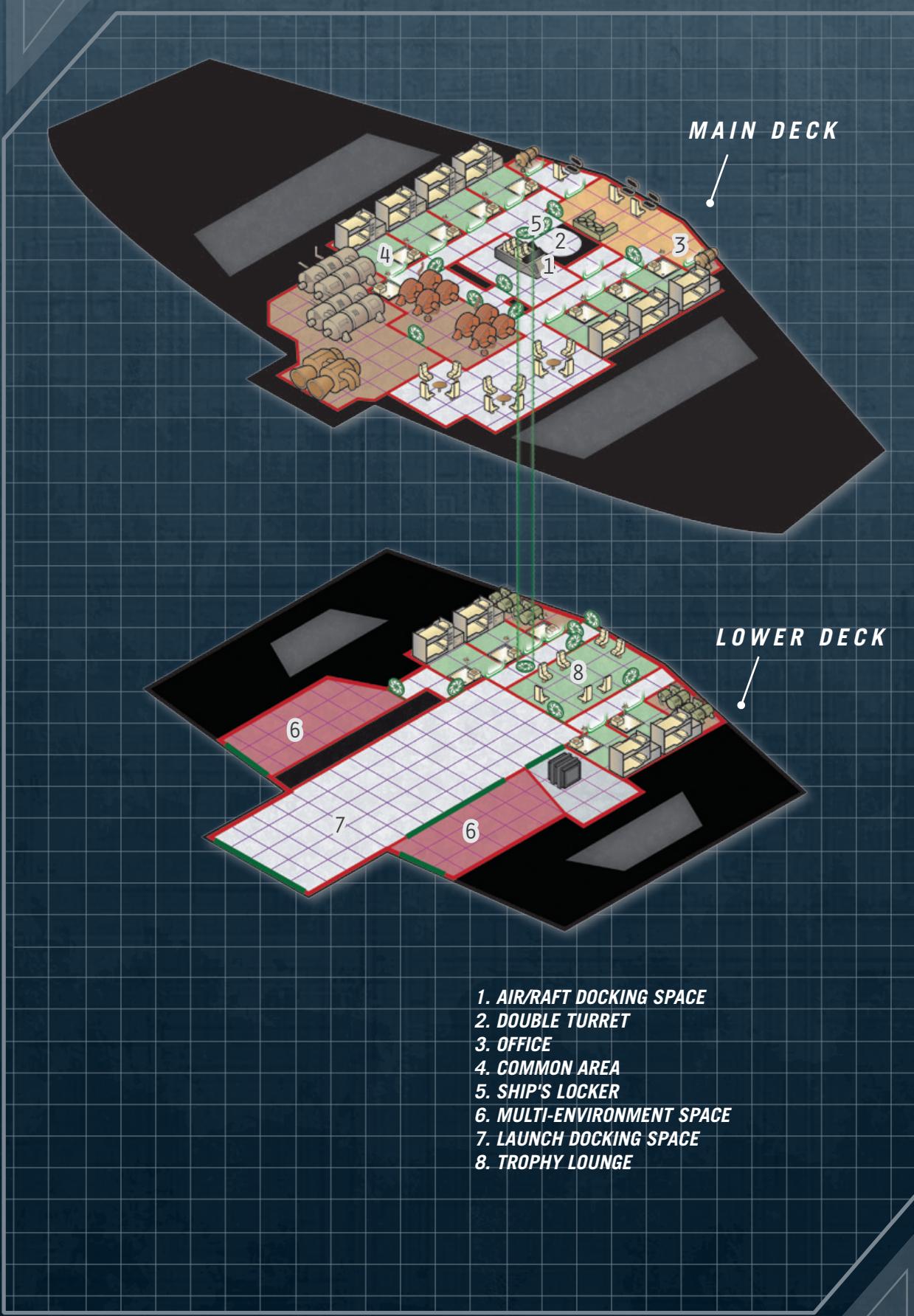
HULL POINTS

Though at first appearance uniquely specialised, the safari ship is relatively common throughout the galaxy. It is primarily designed as an excursion vessel, capable of conducting trophy-taking expeditions (photographic or real) to distant worlds, all in a high degree of comfort. Indeed, some owners will outfit their safari ship to higher standards of luxury than many yachts. Included within the hull are two holding tanks with variable environments for live specimens, and a trophy lounge which makes for a very comfortable mess area for passengers and crew. While the ship is streamlined and can land planetside, a launch and ATV permit expeditions across a planet's surface without requiring the whole vessel to leave orbit.

MAIN DECK

LOWER DECK

1. AIR/RAFT DOCKING SPACE
2. DOUBLE TURRET
3. OFFICE
4. COMMON AREA
5. SHIP'S LOCKER
6. MULTI-ENVIRONMENT SPACE
7. LAUNCH DOCKING SPACE
8. TROPHY LOUNGE

SYSTEM DEFENCE BOAT

TL15		TONS	COST (MCR)
Hull	200 tons, standard		10
	Reinforced		5
Armour	Crystaliron, Armour: 13	33	9.75
M-Drive	Thrust: 9	18	36
Power Plant	Fusion, Power: 240	16	16
Fuel Tanks	12 weeks of operation	6	
Bridge		10	1
Computer	Computer 35	-	30
Sensors	Improved, Countermeasures	5	8.3
Weapons	Triple Turret (Beam Laser)	1	2.5
	Triple Turret (Missile)	1	3.25
Ammunition	Missile Storage (144 missiles)	12	-
Armoured Bulkheads	Bridge	1	0.2
	Manoeuvre Drive	1.8	0.36
	Power Plant	1.6	0.32
	Sensors	.5	.01
Systems	Repair Drones	2	0.4
	Fuel Scoops	-	1
	Medical Bay	4	2
Staterooms	Standard x15	60	7.5
Common Areas		4	0.38
Software	Auto Repair/1	-	5
	Evade/2	-	2
	Fire Control/2	-	4
	Library	-	-
	Manoeuvre/0	-	-
Cargo		23.85	-

TOTAL: MCR 126,95

88
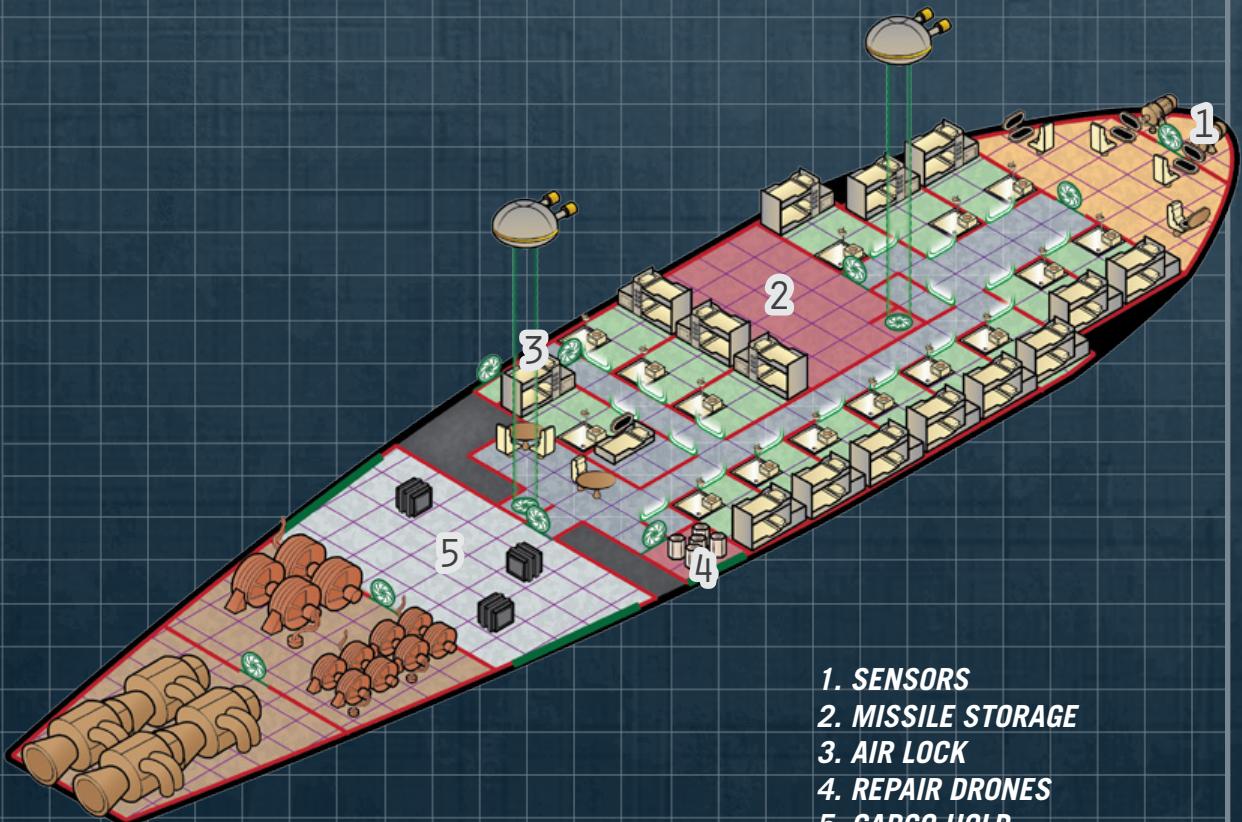
HULL POINTS

The range of possible system defence boat (SDB) configurations is huge, if not actually infinite. This example is typical for Tech Level 15 systems; heavily armoured and equipped with both missile and laser weaponry. Its function is to operate within a star system and defend it from invading forces. SDBs can be used in space combat against starships, or they may be pressed into service as air and orbital superiority craft in operations against ground forces.

Because SDBs have no jump drives, shifting them from system to system can be a problem. Some have jump shuttles which attach themselves to the boat and provide jump capability. Another method is simple transport in large bulk cargo carriers; the SDBs are loaded into 10,000-ton or 20,000-ton bulk carriers for the multi-parsec journey. This method, of course, is not recommended if immediate combat is expected at the destination.

1. SENSORS
2. MISSILE STORAGE
3. AIR LOCK
4. REPAIR DRONES
5. CARGO HOLD

YACHT

TL12		TONS	COST (MCR)
Hull	200 tons, Standard	-	10
Armour	Armour: 0	-	-
M-Drive	Thrust 1	2	4
J-Drive	Jump-1	10	15
Power Plant	Fusion, Power 90	6	6
Fuel Tanks	4 weeks operation, J-1, plus Ship's Boat	22	-
Bridge		10	1
Computer	Computer 5	-	0.03
Sensors	Civilian Grade	1	3
Weapons		-	-
Systems	Docking Space (4 tons)	5	1.25
	Air-Raft	-	0.26
	Docking Space (30 tons)	33	8.25
	Ship's Boat	-	7.992
	ATV	10	0.054
Staterooms	Standard x 12	48	6
	Luxury x 1	10	1.5
Software	Jump Control/1	-	0.1
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		32	3.2
Cargo		11	-

TOTAL: MCR 60.7824

CREW

PILOT, ASTROGATOR, ENGINEER, MEDIC, STEWARD

RUNNING COSTS

MAINTENANCE COST:
Cr5065/month

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PURCHASE COST:
MCr60.7824

POWER REQUIRMENTS
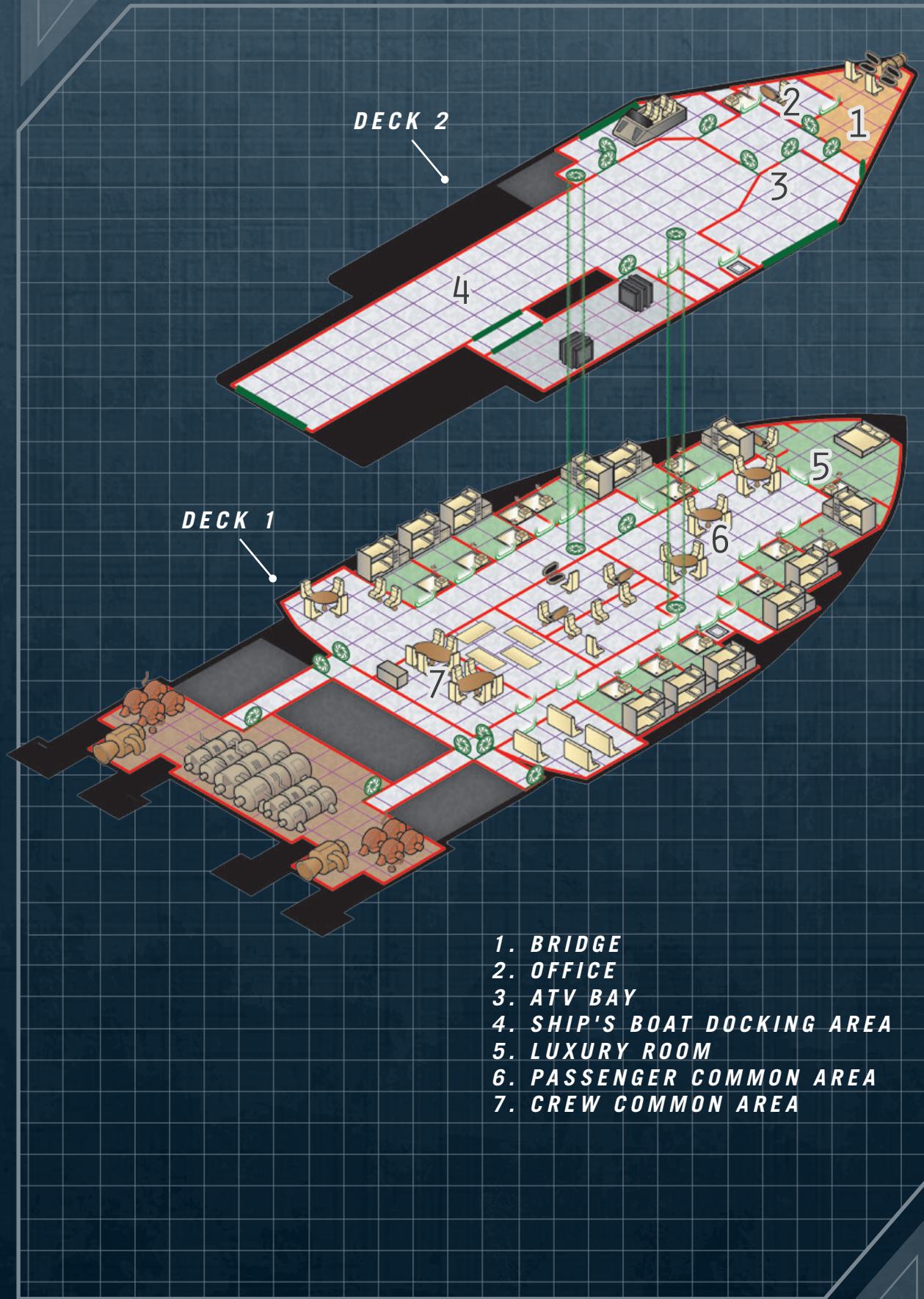
20	40
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
20	1
JUMP DRIVE	SENSORS

The yacht is a noble's plaything, used to entertain friends and undertake political or commercial missions. The staterooms are all well-appointed but even they fail to make the grade in comparison to the luxury stateroom intended for the yacht's owner. The yacht carries an air/raft and a ship's boat within docking compartments; an ATV is also carried, with the ship's boat being used to ferry it from orbit to surface and back again.

80
HULL POINTS

DECK 2

1
2
3
4

DECK 1

5
6
7

1. BRIDGE
2. OFFICE
3. ATV BAY
4. SHIP'S BOAT DOCKING AREA
5. LUXURY ROOM
6. PASSENGER COMMON AREA
7. CREW COMMON AREA

ASTEROID SHIP

TL12		TONS	COST (MCr)
Hull	300 ton, planetoid	60	1.2
Armour	Crystaliron, Armour: 4	15	0.24
M-Drive	Thrust 1	3	6
J-Drive	Jump 1	13	18.75
Power Plant	Fusion	8	8
Fuel Tanks	3 jump-1's, 4 weeks of operation	91	-
Bridge		20	1.5
Computer	Computer 15	-	2
Sensors	Civilian Grade	1	3
Weapons	Pop-Up Triple Turret (Beam laser, Missile, Missile)	2	4
Craft	Pebble	28	13.75
Systems	Fuel Processor (40/tons day)	2	0.1
	Library	4	4
Staterooms	Standard x5	20	2.5
	Evade/1	-	1
	Fire Control/1	-	2
	Jump Control/1	-	0.1
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		7	0.7
Cargo		26.5	-

TOTAL: MCr 61.96

CREW

PILOT, ASTROGATOR, ENGINEER, MAINTENANCE, GUNNER, MEDIC

RUNNING COSTS

MAINTENANCE COST:
MCr 5,163/month

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PURCHASE COST:
MCr 61.96

POWER REQUIRMENTS

30	60
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
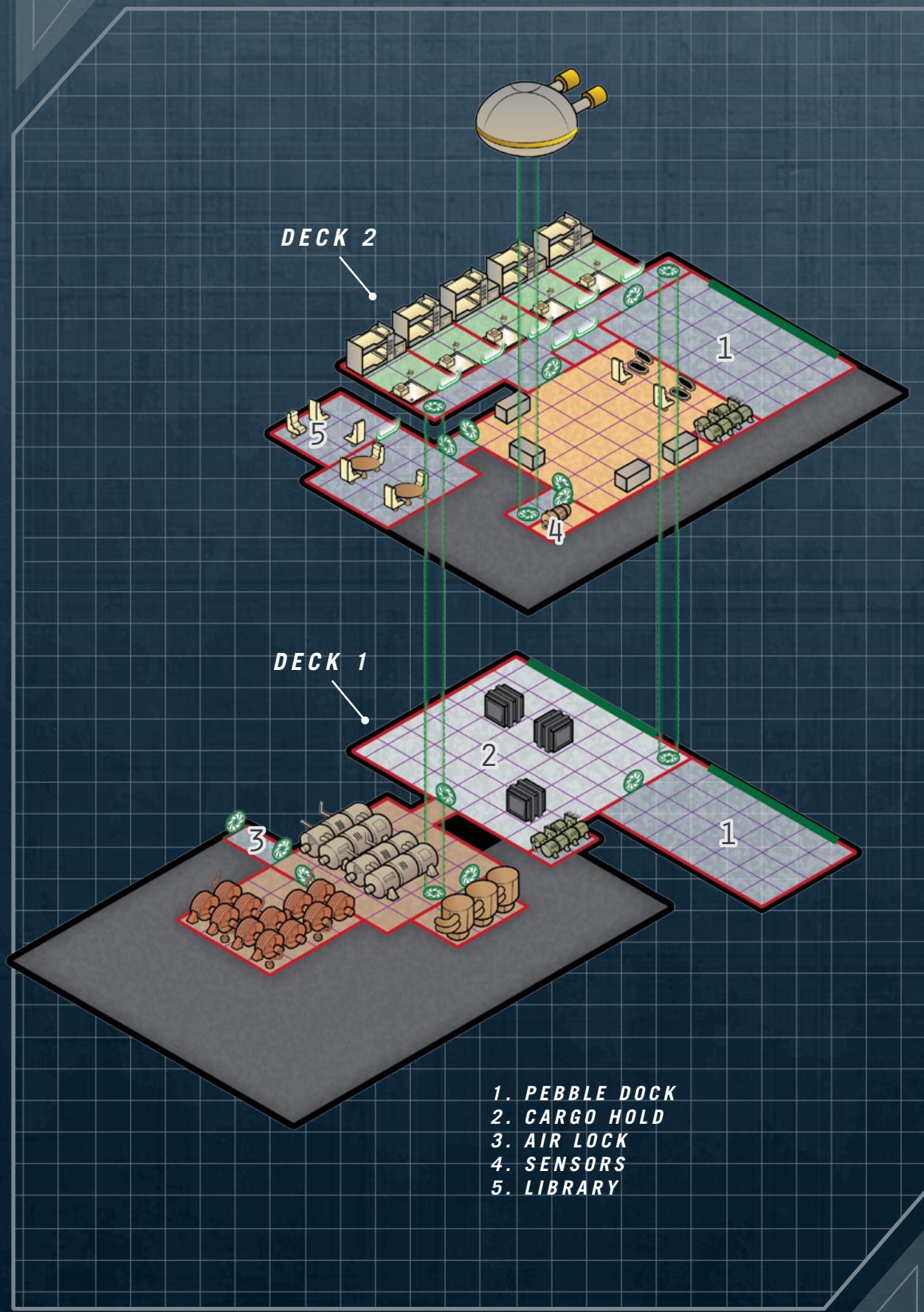
30	1
JUMP DRIVE	SENSORS

Rock is a 300-ton asteroid ship. The vessel is a minimal configuration craft intended as an economical transportation system between stars, and is ideal for the wanderer, the researcher, the casual traveller, and the clandestine observer (this last term translates as spy or agent).
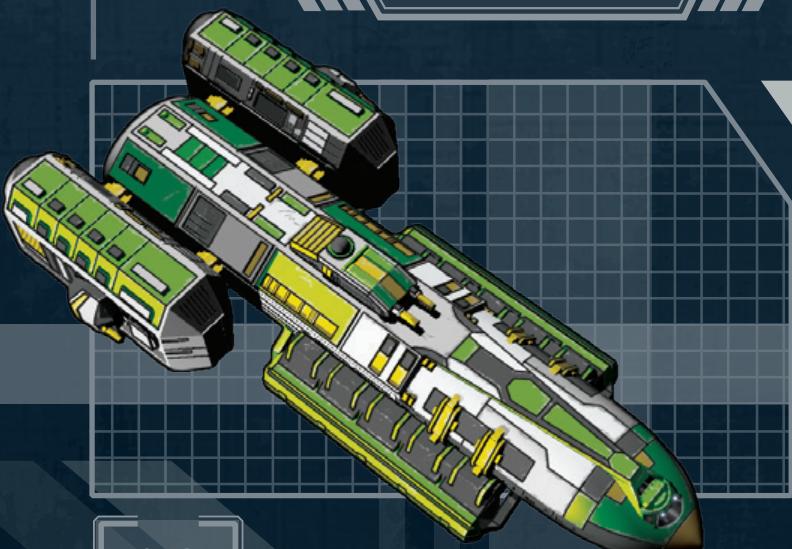
120

HULL POINTS

DECK 2

DECK 1

1. PEBBLE DOCK
2. CARGO HOLD
3. AIR LOCK
4. SENSORS
5. LIBRARY

CLOSE ESCORT

TL15		TONS	COST (MCʀ)
Hull	400 tons, standard		20
	Reinforced		10
Armour	Crystaliron, Armour: 3	15	4.5
M-Drive	Thrust 6	24	48
J-Drive	Jump-5	55	82.5
Power Plant	Fusion, Power 540	36	36
Fuel Tanks	8 weeks operation, J-3	128	-
Bridge		10	2
Computer	Computer 30	-	20
Sensors	Military Grade	2	4.1
Weapons	Barbette (Particle) x2	10	16
	Triple Turret (Beam Laser) x2	2	5
Systems	Drop Tank Mount (80 tons)	0.32	0.16
	Fuel Processor (120 tons./day)	6	0.3
	Armoury	1	0.25
	Fuel Scoops	-	1
Craft	Docking Space (20 tons)	22	5.5
	Gig	-	6.257
Staterooms	Standard x11	44	5.5
Software	Evade/1	-	1
	Fire Control/4	-	8
	Jump Control/5	-	0.5
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		11	1.1
Cargo		33.68	-

TOTAL: MCʀ 249.9

CREW

CAPTAIN, PILOT X3, ENGINEER X4, ASTROGATOR, MEDIC, GUNNER X8, ADMINISTRATOR, MAINTENANCE, OFFICER

RUNNING COSTS

MAINTENANCE COST:
Cr2,082/month

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PURCHASE COST:
Mcr249.9

POWER REQUIRMENTS

240	80
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
200	2
JUMP DRIVE	SENSORS

176
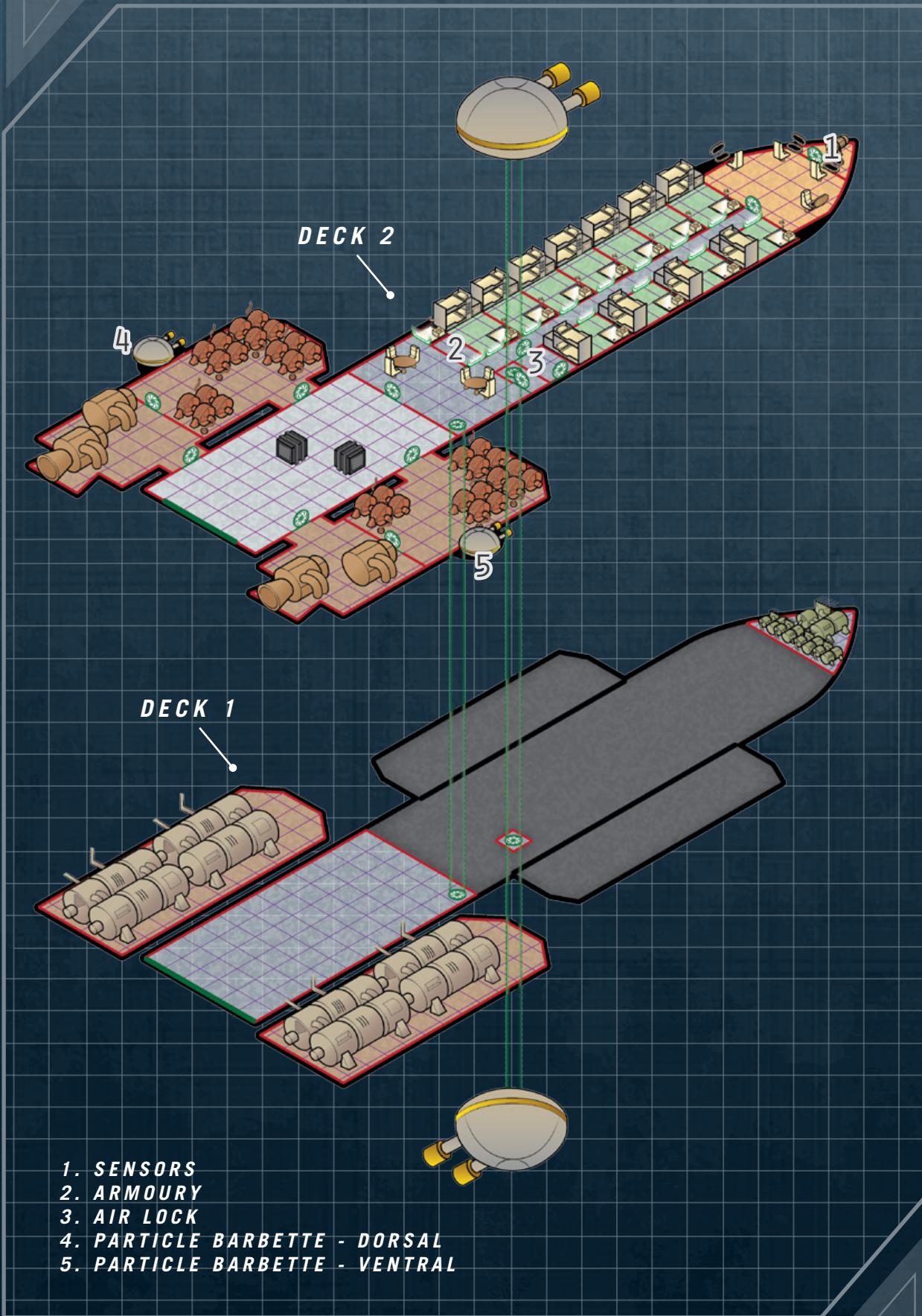
HULL POINTS

Hundreds of *Gazelle*-class close escorts have been built and many remain in service in the Imperial Navy, despite the fact that in a combat situation, they are nearly worthless. The close escort, even when new, was not intended to stand up to combat vessels; rather it was envisioned as an anti-piracy and revenue patrol ship. In that role, it has performed well, but when pressed into combat duties it has invariably suffered disproportionate losses.

With the internal tankage Jump-3 can be achieved, with drop tanks Jump-5, with the drop tanks retained Jump-4.

DECK 2

DECK 1

1. SENSORS
2. ARMOURY
3. AIR LOCK
4. PARTICLE BARBETTE - DORSAL
5. PARTICLE BARBETTE - VENTRAL

FLEET COURIER

TL15		TONS	COST (MCr)
Hull	400 tons, streamlined		24
Armour	Armour: 0		
M-Drive	Thrust: 2 (reduced tonnage x3)	5.6	16.8
J-Drive	Jump-6	65	97.5
Power Plant	Fusion (TL15), Power: 440	22	22
Fuel Tanks	8 weeks operation, J-6	243	-
Bridge	Small	10	1.5
Computer	Computer 30	-	20
Sensors	Military Grade	2	4.1
Weapons	Triple Turret (Beam laser) x2	2	5
	Triple Turret (Missile) x2	2	3.25
Ammunition	Missile Storage (24 missiles)	2	-
Systems	Fuel Processor (40 tons / day)	2	0.1
Staterooms	Standard x10	40	5
Software	Evade/2	-	2
	Fire Control/3	-	8
	Jump Control/6	-	0.6
	Library	-	-
	Manoeuvre/0	-	-
Cargo		9.4	-

TOTAL: MCr 181.13

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X3, MAINTENANCE, MEDIC, GUNNER X4, ADMINISTRATOR, OFFICER

RUNNING COSTS

MAINTENANCE COST:
Cr1,509/month

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PURCHASE COST:
MCr181.13

POWER REQUIRMENTS
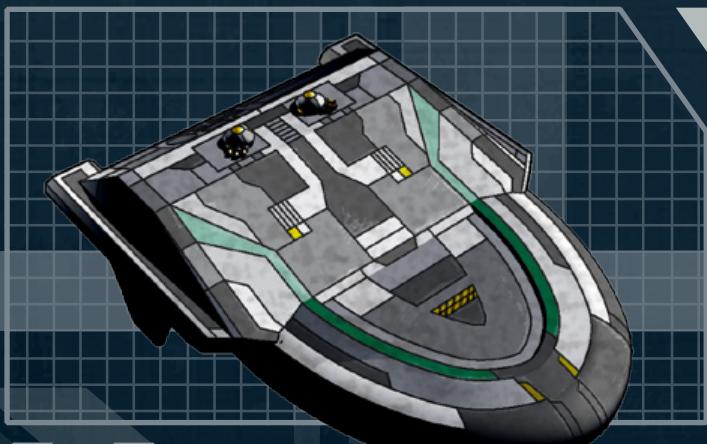
80	80
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
240	2
JUMP DRIVE	SENSORS
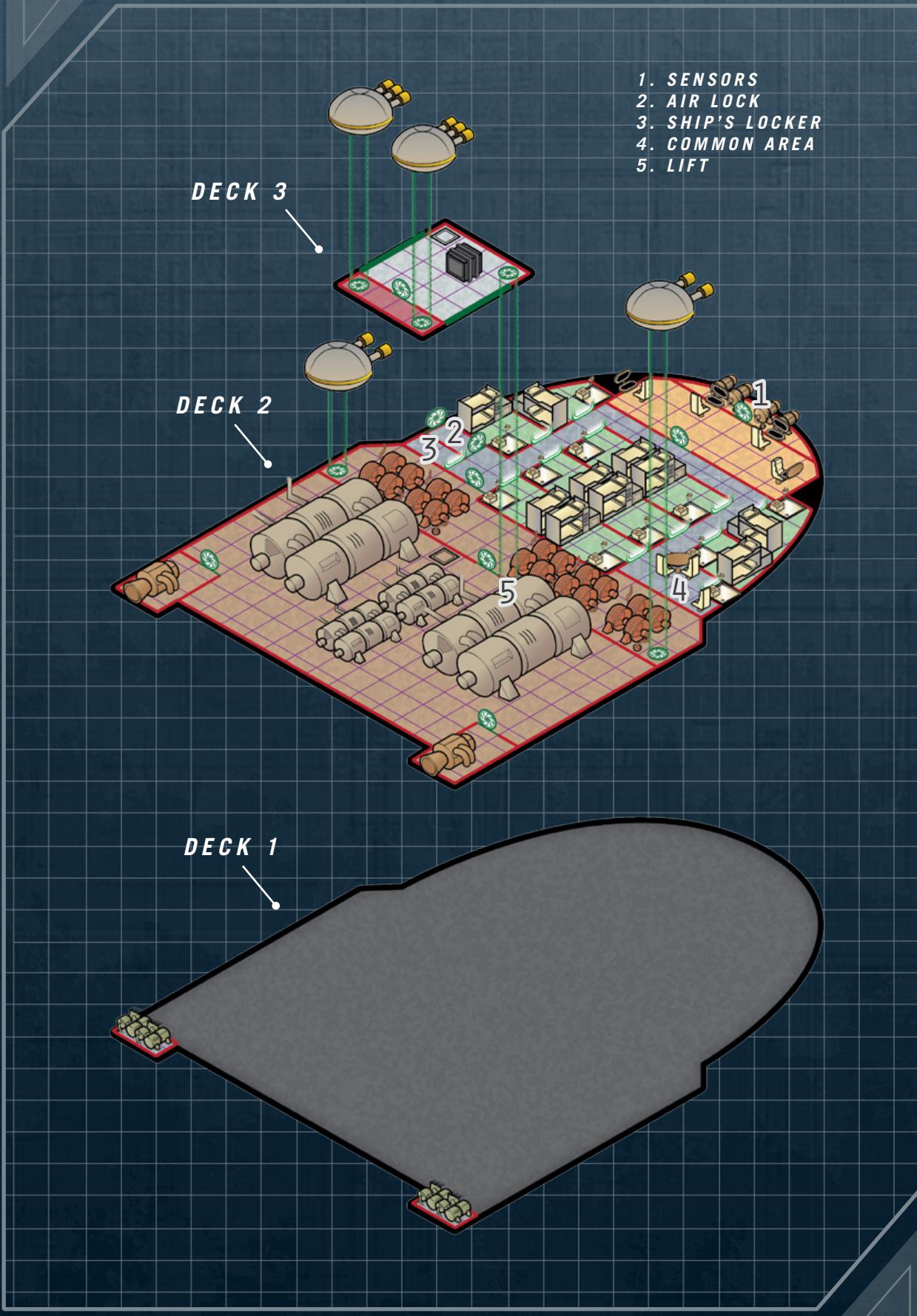
160

HULL POINTS

With communications limited to the speed of jump, the most difficult operational problem confronting fleet commanders is the transmission and receipt of timely intelligence reports and command directives. The fleet courier is intended to provide naval commanders with the capability of transmitting orders and information across subsector distances in relatively short periods of time.

This ship has an extra stateroom for occasions when it may be carrying an important passenger, such as a courier or official.

DECK 3

DECK 2

DECK 1

1. SENSORS
2. AIR LOCK
3. SHIP'S LOCKER
4. COMMON AREA
5. LIFT

LABORATORY SHIP

TL12		TONS	COST (MCR)
Hull	400 tons, Standard	-	20
Armour	Armour: 0	-	-
M-Drive	Thrust 2	8	16
J-Drive	Jump-2	25	37.5
Power Plant	Fusion, Power 180	12	12
Fuel Tanks	4 weeks operation, J-2	82	-
Bridge		20	2
Computer	Computer 10	-	0.16
Sensors	Improved	3	4.3
Weapons			
Systems	Probe Drones x 15	3	1.5
	Docking Space (40 tons)	44	11
	Pinnace	-	8.532
	Laboratories	100	25
	Docking Space (4 tons)	5	1.25
	Air/Raft	-	0.25
	ATV (stored in Pinnace)	-	0.155
Staterooms	Standard x 20	80	10
Software	Jump Control/2	-	0.2
	Library	-	-
	Manoueuvre/0	-	-
Common Areas		15	1.5
Cargo		3	-

TOTAL: MCR 136.0332

CREW

PILOT, ASTROGATOR, ENGINEER, MEDIC

RUNNING COSTS

MAINTENANCE COST
Cr11336/month

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PURCHASE COST
MCr136.0332

POWER REQUIRMENTS
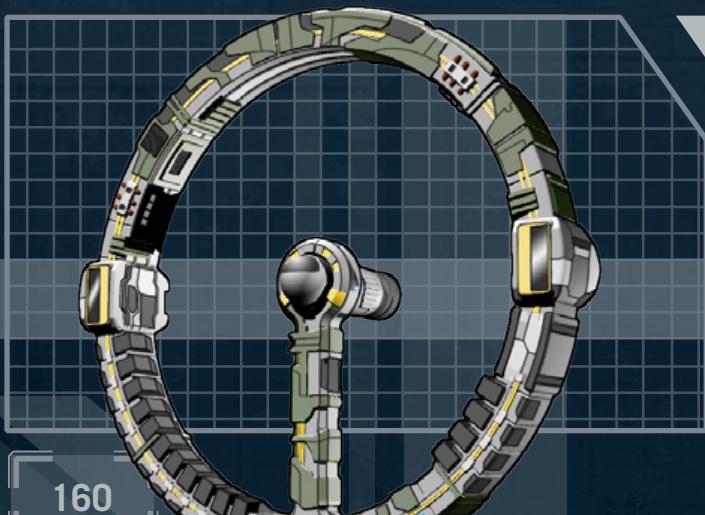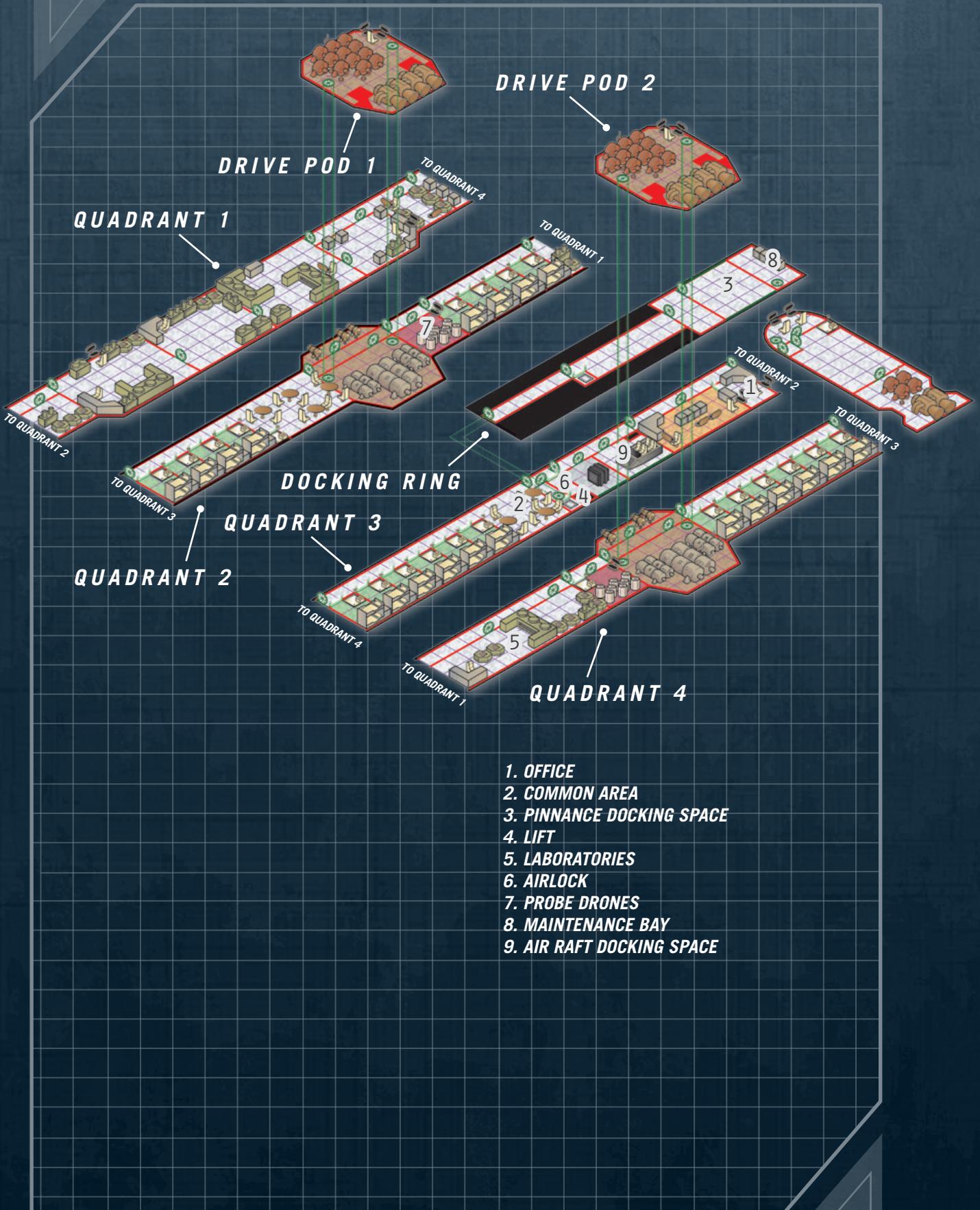
80	80
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
80	4
JUMP DRIVE	SENSORS

160

HULL POINTS

A highly specialised vessel, the laboratory ship is built to transport scientists and their equipment across the stars in order to conduct research, usually in remote locations. The ship itself is fitted with highly advanced sensors, while a pinnace can carry an ATV down to a planet's surface in order to conduct field expeditions. A special feature of this ship is that it is built so internal gravity can be created by spinning the hull. This is done to permit experiments to be carried out that might otherwise be affected by the gravitic plates installed as standard on all ships.

DRIVE POD 1

DRIVE POD 2

QUADRANT 1

TO QUADRANT 4

TO QUADRANT 1

8

3

7

TO QUADRANT 2

TO QUADRANT 3

TO QUADRANT 2

TO QUADRANT 3

DOCKING RING

QUADRANT 3

9

QUADRANT 2

2

6

4

TO QUADRANT 4

5

QUADRANT 4

TO QUADRANT 1

1. OFFICE
2. COMMON AREA
3. PINNANCE DOCKING SPACE
4. LIFT
5. LABORATORIES
6. AIRLOCK
7. PROBE DRONES
8. MAINTENANCE BAY
9. AIR RAFT DOCKING SPACE

PATROL CORVETTE

(TYPE-T)
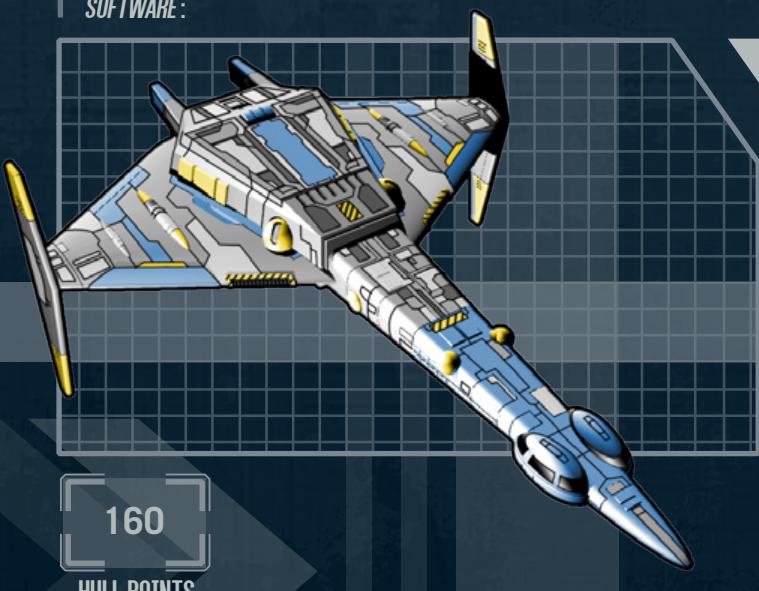
TL12		TONS	COST (MCr)
Hull	400 tons, Streamlined	-	24
Armour	Crystaliron, Armour: 4	20	4.8
M-Drive	Thrust 4	16	32
J-Drive	Jump-3	35	52.5
Power Plant	Fusion, Power 405	27	27
Fuel Tanks	4 weeks operation, J-3, plus Ship's Boat	124	-
Bridge		20	2
Computer	Computer 15	-	2
Sensors	Military Grade	2	4.1
Weapons	Two Triple Turrets (Pulse Lasers)	2	8
	Two Triple Turrets (Missile Racks)	2	6.5
Systems	Docking Space (30 tons)	33	8.25
	Ship's Boat	-	7.992
	Docking Space (8 tons)	9	2.25
	GCarrier	-	5
	Fuel Scoop	-	-
	Fuel Processors (80/tons a day)	4	0.2
Staterooms	Standard x 12	48	6
	Low Berths x 4	2	0.2
Software	Evade/1	-	1
	Fire Control/1	-	2
	Jump Control/3	-	0.3
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		10	1
Cargo		46	-

TOTAL: MCr 174.4128

SOFTWARE :

160
HULL POINTS

CREW

PILOT, ASTROGATOR, 2 ENGINEERS, MEDIC, 4 GUNNERS, 8 MARINES

RUNNING COSTS

MAINTENANCE COST
Cr14534/month

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PURCHASE COST
MCr174.4128

POWER REQUIRMENTS
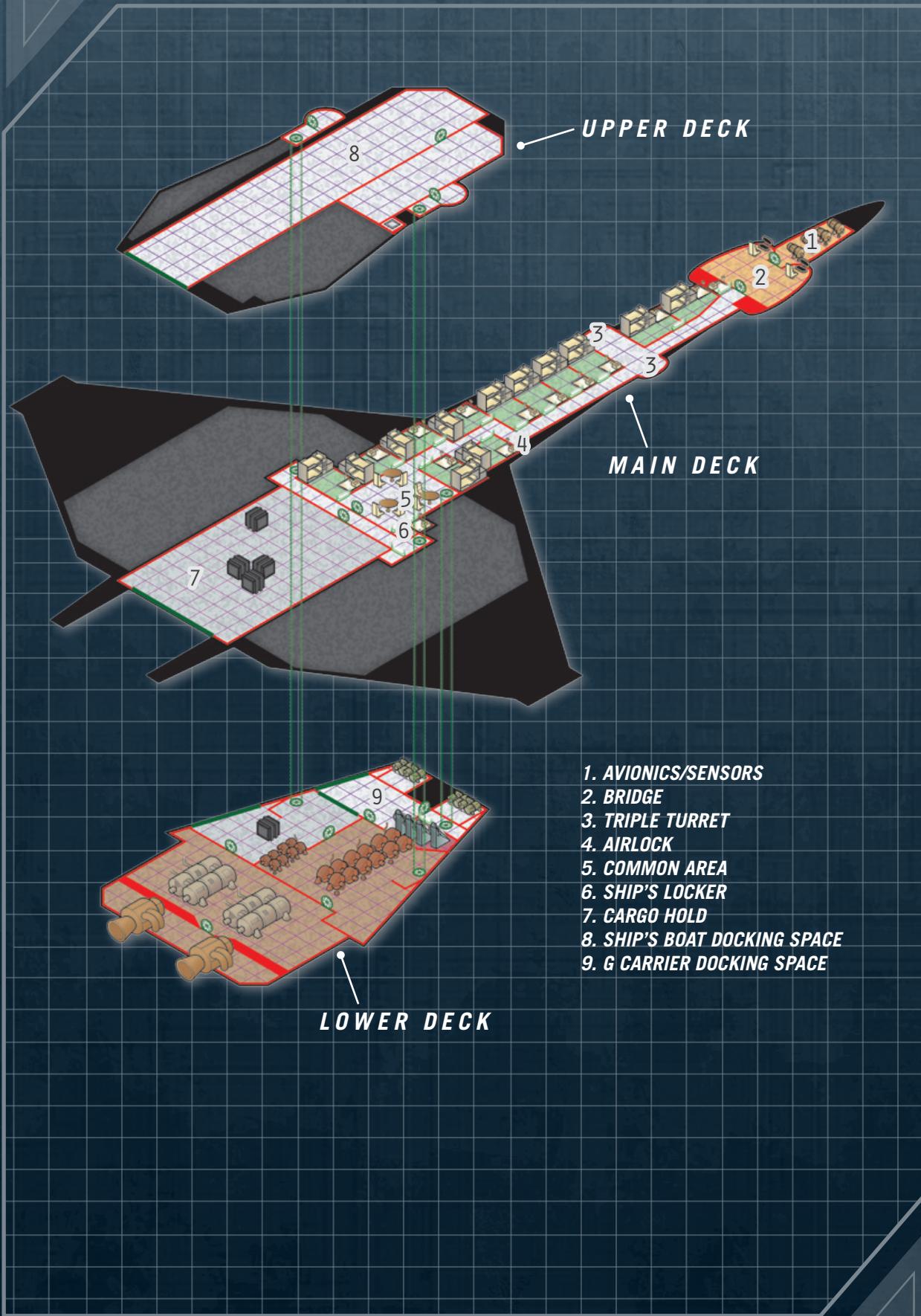
160	**80**
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
120	**2**
JUMP DRIVE	SENSORS

30
WEAPONS

The patrol corvette is used by military organisations as a cheap but effective vessel for customs patrols, anti-piracy work and system defence. Despite being only a 400 ton hull, this corvette remains more than a match for typical pirate vessels of a similar size. The auxiliary ship's boat and Gcarrier on board, combined with a streamlined hull, allow the patrol corvette to pursue targets through atmospheres and down onto planetary surfaces, ensuring there is no escape.

UPPER DECK

MAIN DECK

LOWER DECK

1. AVIONICS/SENSORS
2. BRIDGE
3. TRIPLE TURRET
4. AIRLOCK
5. COMMON AREA
6. SHIP'S LOCKER
7. CARGO HOLD
8. SHIP'S BOAT DOCKING SPACE
9. G CARRIER DOCKING SPACE

SUBSIDISED MERCHANT
(TYPE-R)

TL12		TONS	COST (MCR)
Hull	400 tons, Streamlined	-	24
Armour	Armour: 0	-	-
M-Drive	Thrust 1	4	8
J-Drive	Jump-1	15	22.5
Power Plant	Fusion, Power 135	9	9
Fuel Tanks	4 weeks operation, J-1, plus Launch	43	-
Bridge		20	2
Computer	Computer 5	-	0.03
Sensors	Civilian Grade	1	3
Weapons		-	-
Systems	Fuel Scoop	-	-
	Fuel Processors (20/tons a day)	1	0.05
	Docking Space (20 tons)	22	5.5
	Launch	-	5.607
Staterooms	Standard x 19	76	9.5
	Low Berths x 9	4.5	0.45
Software	Jump Control/1	-	0.3
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		5.5	0.55
Cargo		199	-

TOTAL: MCR 80.2683

CREW

PILOT, ASTROGATOR, ENGINEER, MEDIC, STEWARD

RUNNING COSTS

MAINTENANCE COST:
Cr6689/month

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PURCHASE COST:
MCr80.2683

POWER REQUIRMENTS

40	80
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
40	1
JUMP DRIVE	SENSORS
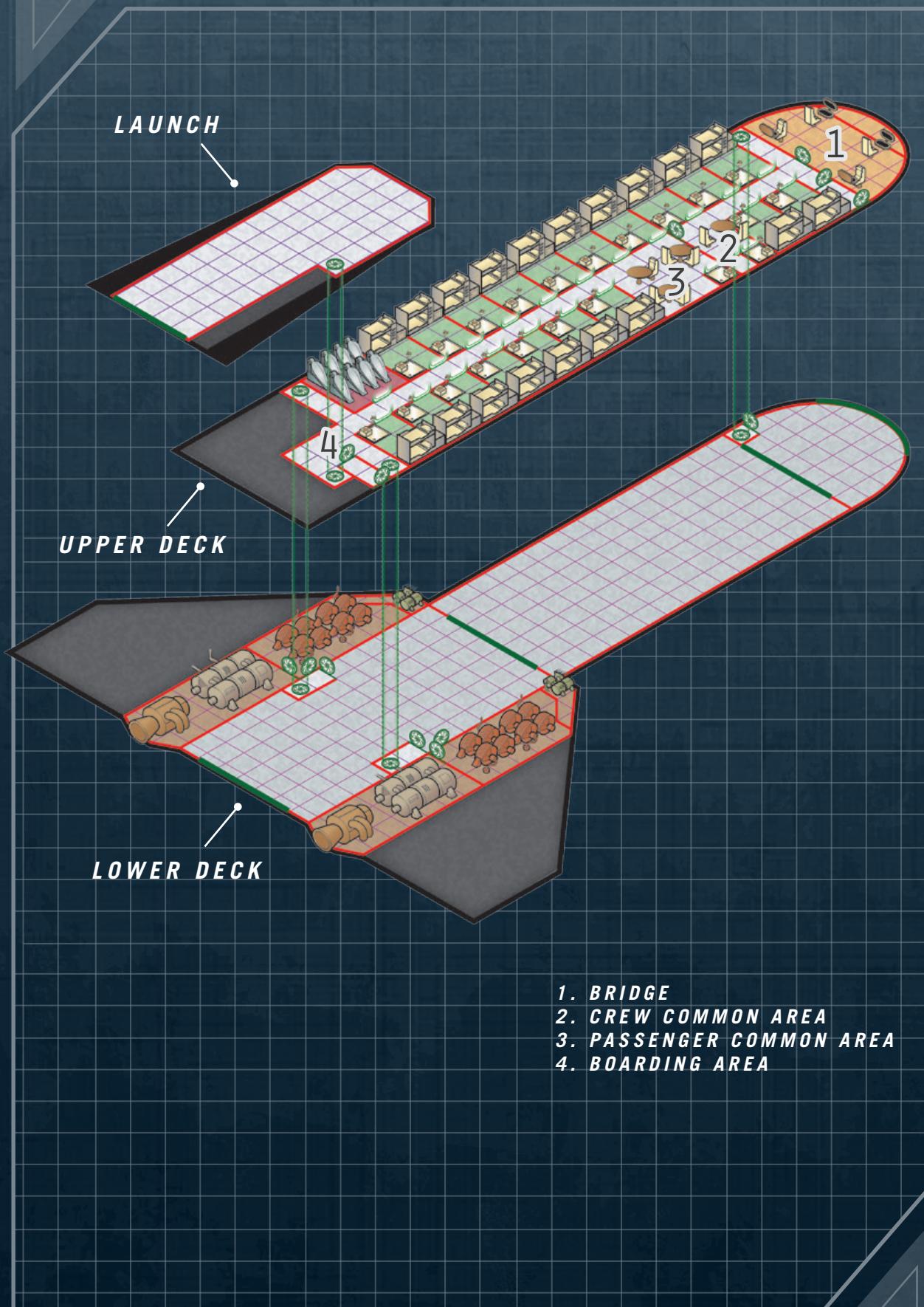
160
HULL POINTS

The subsidised merchant (also called the fat trader) is a trading vessel intended to meet the commercial needs of clusters of worlds. It is twice the size of a free trader but carries cargo far more efficiently with a cavernous cargo bay more than twice the size of that within its little cousin. In fact, if its cargo bay doors were larger, the subsidised merchant could theoretically swallow a free trader whole. This ship normally requires a crew of five, although the pilot also operates the launch, a steward is only necessary if carrying commercial passengers, and gunners may be added to the list if weapons are installed.
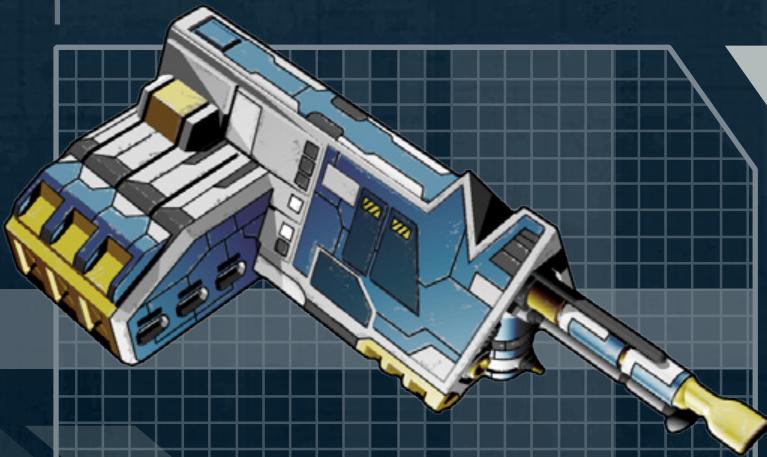
LAUNCH

UPPER DECK

LOWER DECK

1
2
3
4

1. BRIDGE
2. CREW COMMON AREA
3. PASSENGER COMMON AREA
4. BOARDING AREA

SURVEY SCOUT

TL14		TONS	COST (MCr)
Hull	400 tons, standard		20
Armour	Armour: 0		
M-Drive	Thrust 2	8	16
J-Drive	Jump 3 Reduced size x2	28	52.5
Power Plant	Fusion, Power: 210	14	14
Fuel Tanks		124	-
Bridge		3	0.5
Computer	Computer 25	-	10
Sensors	Improved	3	4.3
Craft	Full Hangar (Modular Cutter)	100	30.242
	Docking Space (Extra Module)	33	8.25
	Docking Space (Air Raft x3)	14	4.25
Systems	Workshop	6	0.9
	Advanced Probe Drones	3	3.2
	Fuel Processor	6	0.3
Staterooms	Standard x5	20	2.5
Common Areas		4	0.5
Software	Jump Control/3	-	6
	Library	-	-
	Manoeuvre/0	-	-
Cargo		15	-

TOTAL: MCr 157.45

CREW

PILOT, ASTROGATOR, 2 ENGINEERS, MAINTENANCE

RUNNING COSTS

MAINTENANCE COST:
Cr1,312/month

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PURCHASE COST:
MCr157.45

POWER REQUIRMENTS

80	**80**
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
120	**4**
JUMP DRIVE	SENSORS

160

HULL POINTS
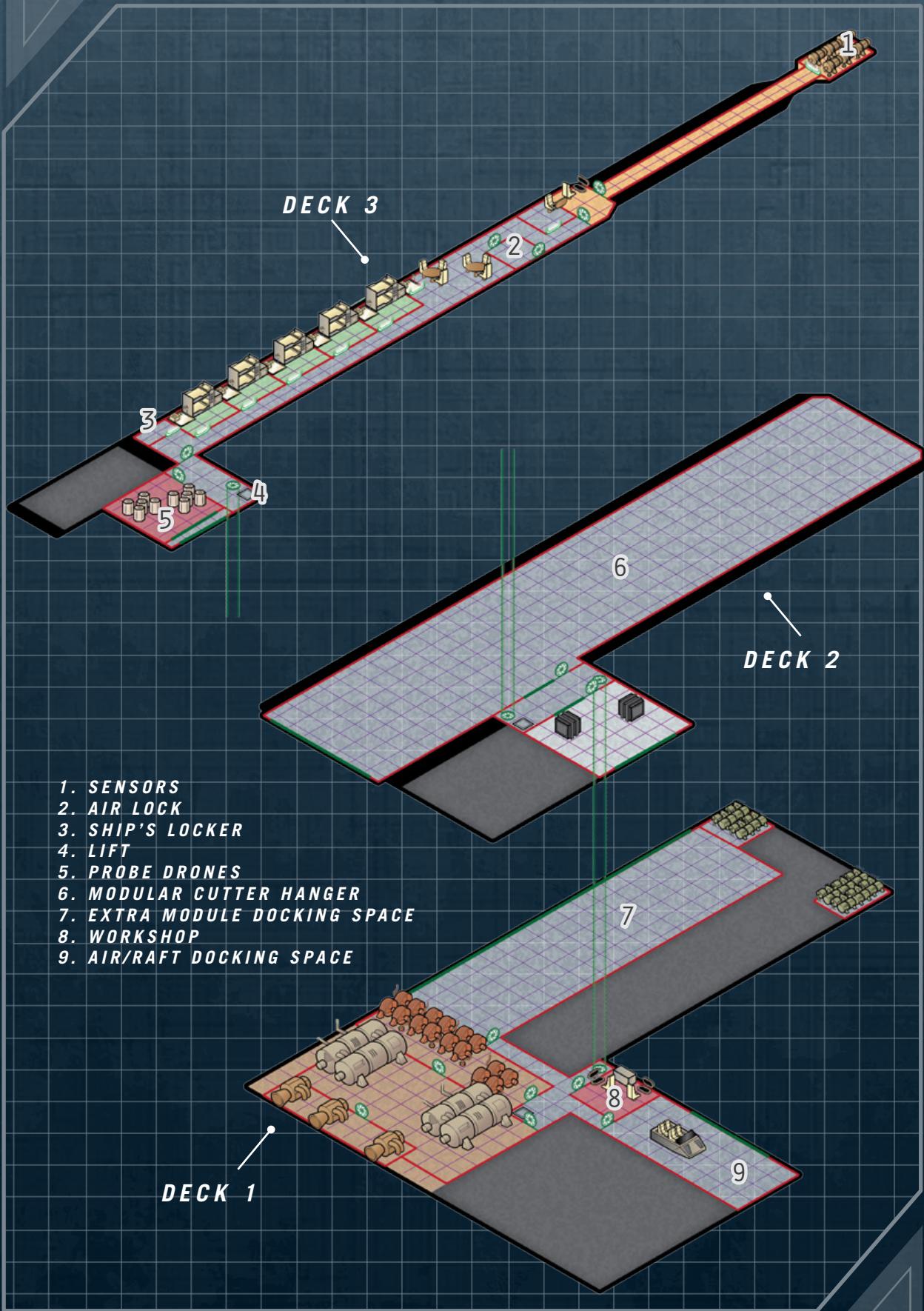
The survey scout is a typical ship in service with the Imperial Interstellar Scout Service. Its function is to continually re-survey the interior regions of the Imperium, updating maps and charts, and maintaining beacons and markers for astrogation hazards.

The survey scout is a peaceful vessel, typically unarmed and inoffensive. It does, however, mount four hardpoints and can be armed with a variety of turrets and weaponry if necessary.

The *Donosev*-class survey scout is named for famous scouts in the Imperial service.

DECK 3

1

2

3

4

5

DECK 2

6

1. SENSORS
2. AIR LOCK
3. SHIP'S LOCKER
4. LIFT
5. PROBE DRONES
6. MODULAR CUTTER HANGER
7. EXTRA MODULE DOCKING SPACE
8. WORKSHOP
9. AIR/RAFT DOCKING SPACE

7

8

9

DECK 1

SYSTEM DEFENCE BOAT

TL13		TONS	COST (MCR)
Hull	400 tons, streamlined	-	26
	Reinforced		10
Armour	Crystaliron, Armor: 13	65	23.4
M-Drive	Thrust 6, increased size	30	45
Power Plant	Fusion, increased size	31.25	23.44
	(power 375)		
Fuel Tanks	16 weeks of operation	16	-
Bridge	Holographic Controls	20	2.5
Computer	Computer 25/fib	-	15
Sensors	Improved	3	4.3
	Countermeasures Suite	2	4
	Improved Signal Processing	1	4
	Extended Arrays	6	8.6
Weapons	Triple Turret (pulse laser) x2	2	4
	Triple Turret (missile) x2	2	3.25
Ammunition	Missile storage (384)	32	-
Systems	Workshop	6	0.9
	Fuel Processor (20/tons day)	1	0.05
	Medical Bay	4	0.8
	Repair Drones	4	0.8
Staterooms	Standard x13	52	6.5
Software	Auto-Repair/1	-	5
	Evade/1	-	1
	Fire Control/1	-	2
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		13	1.3
Cargo		100.42	-

TOTAL: MCR 175,41225

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X2, MAINTENANCE, MEDIC, GUNNER X4

RUNNING COSTS

MAINTENANCE COST:
MCr 14,618/month

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PURCHASE COST:
MCr 175,41225

POWER REQUIRMENTS

240	80
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
1	14
FUEL PROCESSOR	SENSORS

176
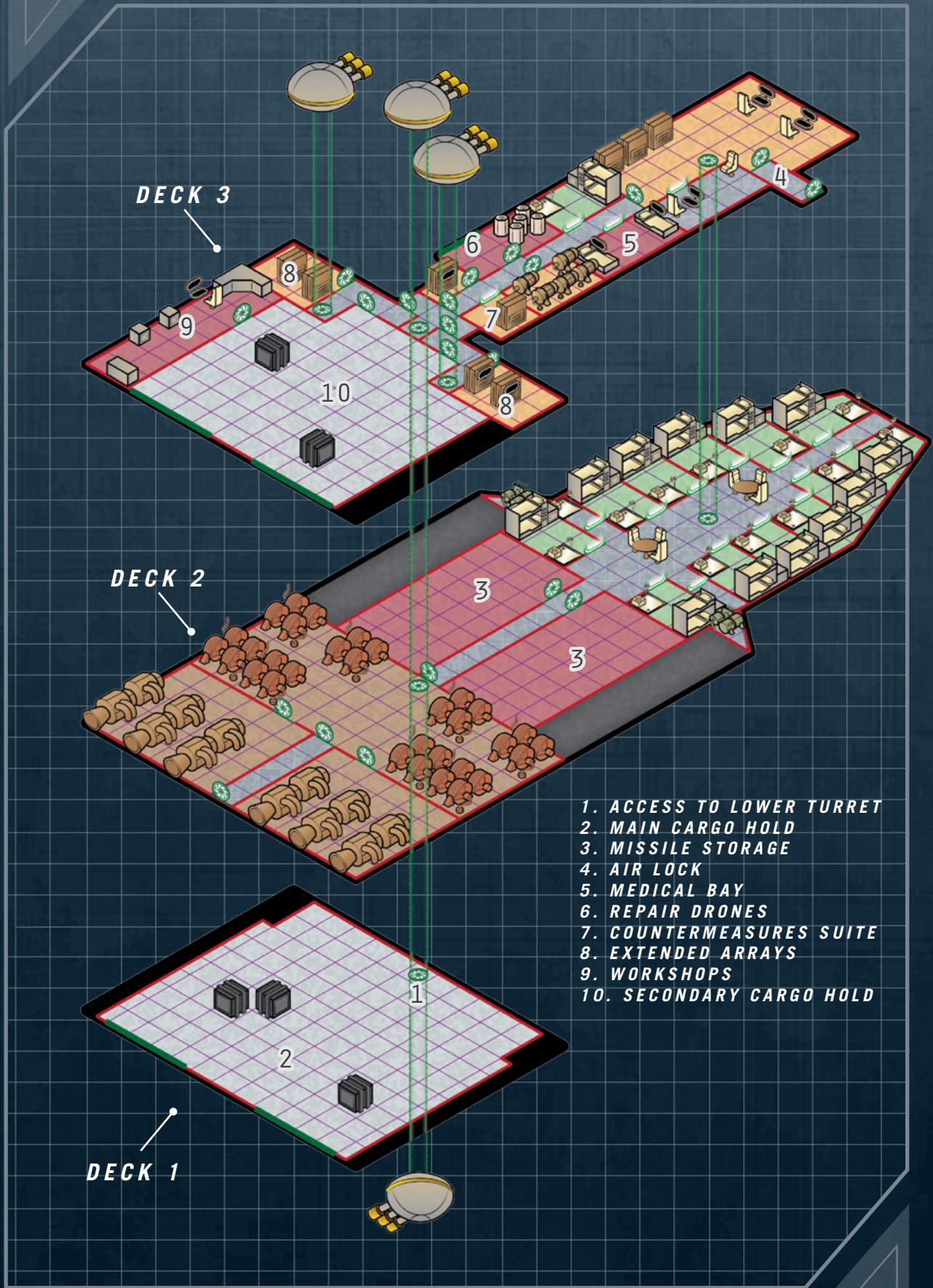
HULL POINTS

The term boat means a non-starship, whether a gunboat, a ship's boat, or a system defense boat. Because non-starships can allocate more tonnage to power plants and weaponry, they can usually defeat a starship of equal tonnage. From this principle, the concept of the system defense boat has evolved. Fleets of such boats are stationed in important systems and charged with their defense. From stations in orbit, they defend the primary world. From stations deep within the local gas giant, they attack enemy ships in the process of refuelling. In extreme situations, they can scatter and hide, in asteroid belts, on airless worlds, and in the depths of oceans; later they strike out again, hitting the enemy from the rear or when least expected.

Finally, such system defense boats are also used for routine duties such as customs inspections, piracy suppression, and search and rescue.

DECK 3

DECK 2

DECK 1

8

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1

2

1. ACCESS TO LOWER TURRET
2. MAIN CARGO HOLD
3. MISSILE STORAGE
4. AIR LOCK
5. MEDICAL BAY
6. REPAIR DRONES
7. COUNTERMEASURES SUITE
8. EXTENDED ARRAYS
9. WORKSHOPS
10. SECONDARY CARGO HOLD
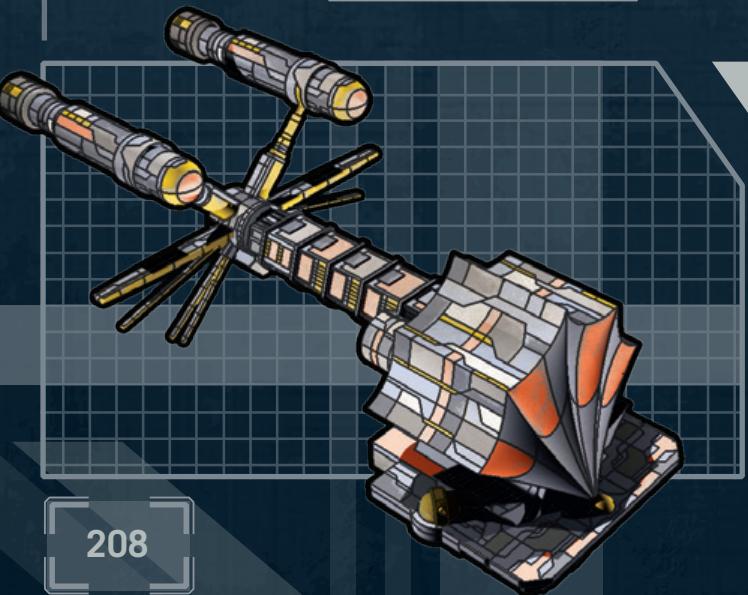
ANNIC NOVA

TL15		TONS	COST (MCʀ)
Hull	520 tons, standard		30
Armour	Armour: 0		
J-Drive	Jump-3	56	84
	Jump-2	39	58.5
Power Plant	Fusion, Power 330	22	22
Fuel Tanks	8 weeks operation	6	-
Bridge		20	3
	Small (Forward Control Area)	10	1.5
Computer	10/bis	-	.24
Sensors	Military Grade	2	4.1
Weapons	Single Turret (Beam laser) x2	2	1.4
Craft	Docking Clamp type II x2	10	2
	Pinnace x2	-	17.46
Systems	Workshop x4	24	3.6
	Briefing Room	4	.5
	Collectors	23	11.5
	Hydroponics (Biosphere)	10	2
Staterooms	Standard x11	44	5.5
Software	Jump Control/3	-	0.3
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		30	3
Cargo		295.6	

TOTAL: MCʀ 251.8

CREW

CAPTAIN, PILOT, ASTROGATOR, ENGINEER X3, MAINTENANCE, GUNNER X2, ADMINSTRATOR, MEDIC, PINNACE PILOT X2

RUNNING COSTS

MAINTENANCE COST:
Cr2,098/month

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PURCHASE COST:
MCr251.8

POWER REQUIRMENTS

136	120
JUMP-2 DRIVE	BASIC SHIP SYSTEMS
204	2
JUMP-3 DRIVE	SENSORS

208
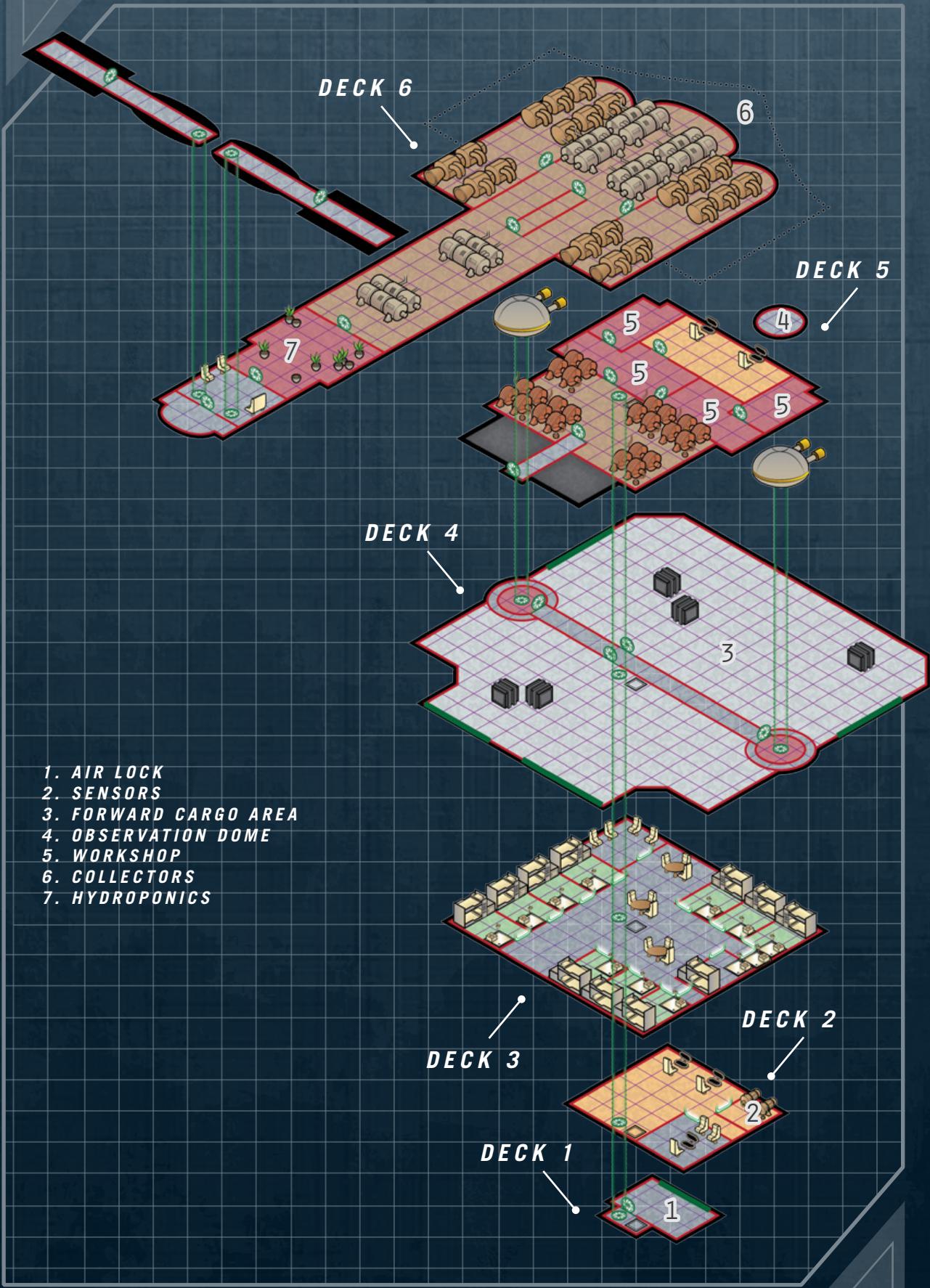
HULL POINTS

Using an unorthodox 600 ton frame and hull, this artifact is allowed in Imperial commerce under the salvage laws provided the ship is registered with Imperial authorities (typical registration fee: Cr100,000). The ship has two jump-drives (jump-2, and jump-3 which operate independently, but may not sum their power. There are no maneuver drives (the pinnaces act as tugs to a minor extent). A stellar collector absorbs and collects energy the jump drives. Two single turrets each mount a single beam laser.

DECK 6

6

DECK 5

7

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5 5

4

DECK 4

3

1. AIR LOCK
2. SENSORS
3. FORWARD CARGO AREA
4. OBSERVATION DOME
5. WORKSHOP
6. COLLECTORS
7. HYDROPONICS

DECK 2

DECK 3

2

DECK 1

1

SUBSIDISED LINER

(TYPE-M)
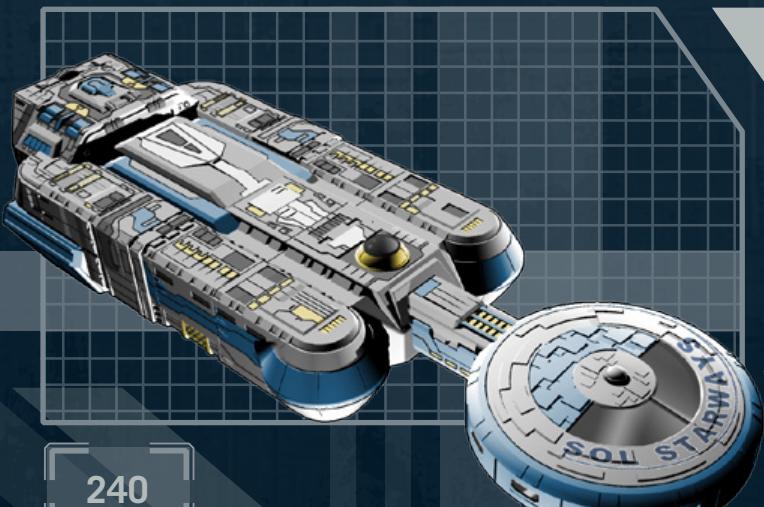
TL12		TONS	COST (MCʀ)
Hull	600 tons, Standard	-	30
Armour	Armour: 0	-	-
M-Drive	Thrust 1	6	12
J-Drive	Jump-3	50	75
Power Plant	Fusion, Power 360	24	24
Fuel Tanks	4 weeks operation, J-3, plus Launch	183	-
Bridge		20	3
Computer	Computer 10/bis	-	0.24
Sensors	Civilian Grade	1	3
Weapons		-	-
Systems	Docking Space (20 tons)	22	5.5
	Launch	-	5.607
Staterooms	Standard x 30	120	15
	Low Berths x 20	10	1
Software	Jump Control/3	-	0.3
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		45	4.5
Cargo		119	-

TOTAL: MCʀ 161.523

CREW

PILOT, ASTROGATOR, 2 ENGINEERS, MEDIC, STEWARD

RUNNING COSTS

MAINTENANCE COST:
Cr13413/month

· · · · ·

PURCHASE COST:
MCr161.523

POWER REQUIRMENTS

60	120
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
180	**1**
JUMP DRIVE	SENSORS

240
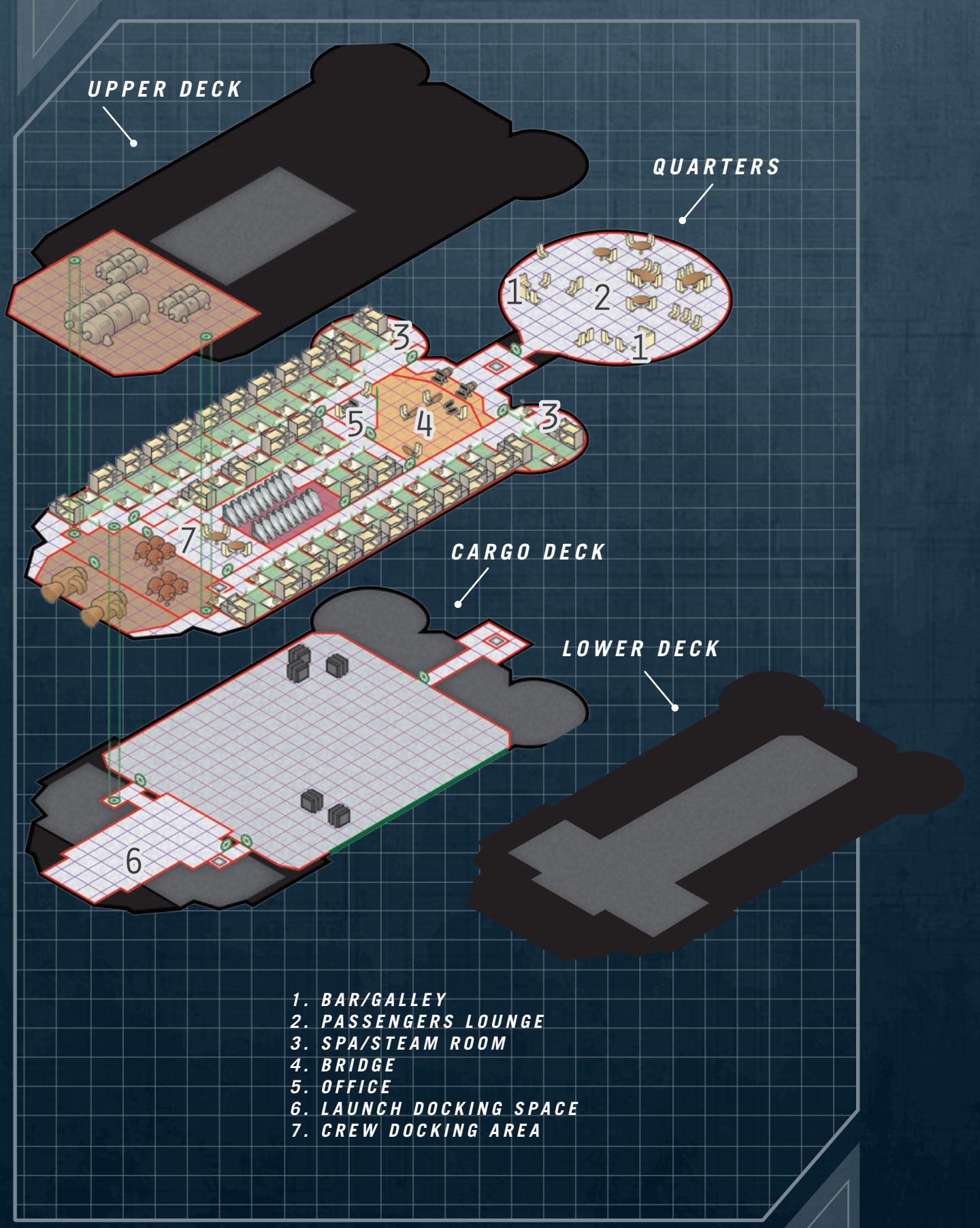
HULL POINTS

The subsidised liner is built for carrying passengers and cargo on long haul routes, in a modicum of comfort; while a steward is present, passengers should expect cheap interstellar travel rather than luxury. Overall, the ship is capable of carrying 24 passengers in addition to its crew, with a further 20 in low berths. With a 3 parsec jump capability, a lot of destinations are possible. Though the hull of the ship itself is unstreamlined, a launch allows passengers to be ferried to the surface of a world, or act as a life boat in emergencies.

UPPER DECK

QUARTERS

1

2

1

3

5

4

3

7

CARGO DECK

LOWER DECK

6

1. BAR/GALLEY
2. PASSENGERS LOUNGE
3. SPA/STEAM ROOM
4. BRIDGE
5. OFFICE
6. LAUNCH DOCKING SPACE
7. CREW DOCKING AREA

MERCENARY CRUISER

TL12		TONS	COST (MCR)
Hull	800 tons, Sphere	-	32
Armour	Crystaliron, Armour: 4	40	6.4
M-Drive	Thrust 3	24	48
J-Drive	Jump-3	65	97.5
Power Plant	Fusion, Power 750	50	50
Fuel Tanks	4 weeks operation, J-3, fuel for Cutters	252	-
Bridge		20	4
Computer	Computer 20/fib	-	7.5
Sensors	Military Grade	2	4.1
Weapons	Triple Turrets x 8	8	8
Systems	Docking Space (4 tons)	5	1.25
	Air-Raft	-	0.26
	Docking Space (50 tons)	55	13.75
	Modular Cutter	-	10.242
	Docking Space (50 tons)	55	13.75
	Modular Cutter	-	10.242
	Repair Drones	8	1.6
	ATV x 2 (on cutters)	-	0.31
Staterooms	Standard x 25	100	12.5
Software	Autor-Repair/2	-	10
	Evade/1	-	-
	Fire Control/1	-	2
	Jump Control/3	-	0.3
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		44	4.4
Cargo		72	

TOTAL: MCR 292.4646

CREW

PILOT, ASTROGATOR, 3 ENGINEERS, MEDIC

RUNNING COSTS

MAINTENANCE COST
Cr24372/month

· · · · ·

PURCHASE COST
MCr292.4646

POWER REQUIRMENTS

240	160
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

240	2
JUMP DRIVE	SENSORS

8
TURRETS
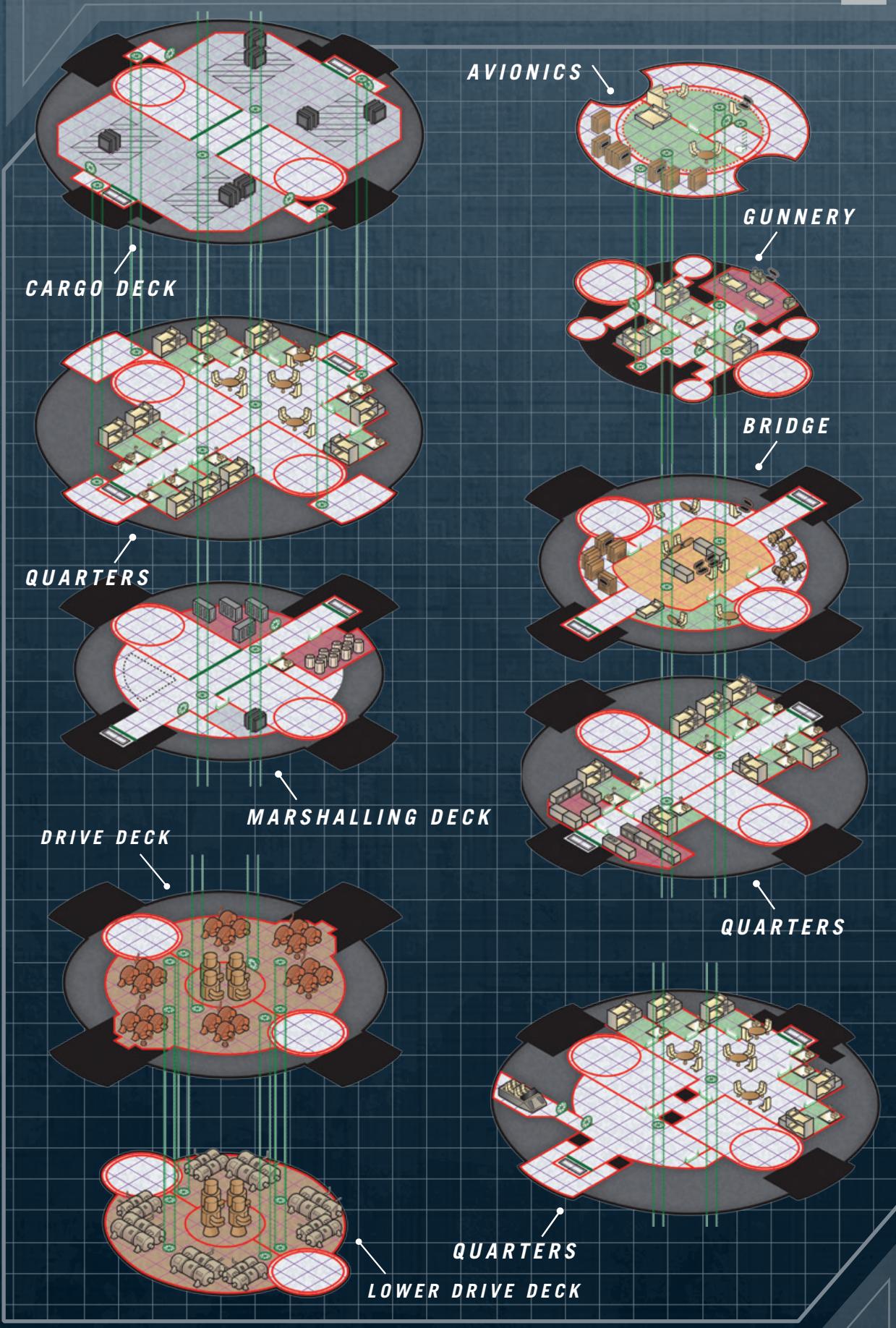
320
HULL POINTS

The mercenary cruiser is built to carry small troop units for corporate, governmental or, more commonly, mercenary operations. It has enough space to carry a combat platoon, plus crew and support personnel, along with their equipment, albeit in fairly cramped confines. The platoon can be deployed to a planet's surface within the two modular cutters housed inside the ship, and can then disembark using the ATVs the two cutters carry. Turrets are fitted as standard but while shipyards do not generally include weapons, it is a rare mercenary cruiser that is not armed to the teeth.

CARGO DECK

AVIONICS

GUNNERY

QUARTERS

BRIDGE

MARSHALLING DECK

DRIVE DECK

QUARTERS

QUARTERS

LOWER DRIVE DECK

DESTROYER ESCORT
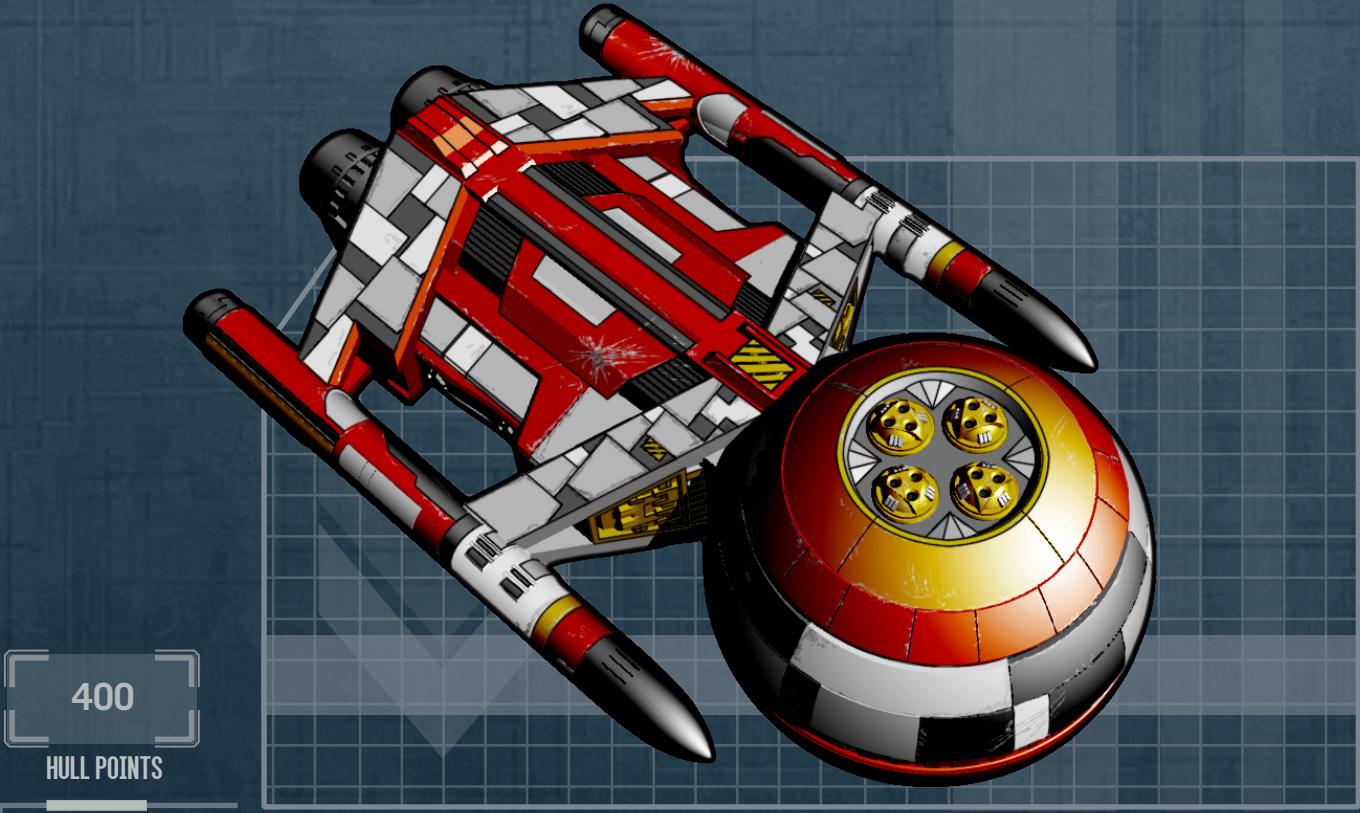
TL15		TONS	COST (MCr)
Hull	1,000 tons, close structure		45
	Reinforced	-	22.5
Armour	Bonded Superdense	8	3.6
M-Drive	Thrust: 6	60	120
J-Drive	Jump-4	105	157.5
Power Plant	Fusion (TL15), Power: 1,300	65	65
Fuel Tanks	8 weeks operation, J-4	414	-
Bridge		40	5
Computer	Computer 35/fib	-	45
Sensors	Advanced	5	5.3
Weapons	Triple Turret (Missile) x2	2	6.5
	Fusion Barbette	5	4
	Particle Barbette x2	10	16
	Triple Turret (Sandcaster) x5	5	8.75
Ammunition	Missile Storage (384 missiles)	32	
	Sandcaster Barrels (640 barrels)	32	
Craft	Modular Cutter	55	24.037
Systems	Recreational Facilities	20	2
	Medical Bay	4	2
	Repair Drones	10	2
	Armoury	2	0.5
Staterooms	Standard x23	92	11.5
		-	
Software	Manoeuvre/0	-	
	Jump Control/4	-	0.4
	Evade/2	-	2
	Fire Control/2	-	4
	Auto Repair/1	-	5
	Library	-	-
Cargo		31	-

TOTAL: MCr 569.6

400

HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X8, MAINTENANCE X2, MEDIC, GUNNER X20, ADMINISTRATOR, OFFICERS X4

RUNNING COSTS

MAINTENANCE COST
Mcr47.466/month

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PURCHASE COST
Mcr 569.6

POWER REQUIRMENTS

900

MANOEUVRE DRIVE

200

BASIC SHIP SYSTEMS

400
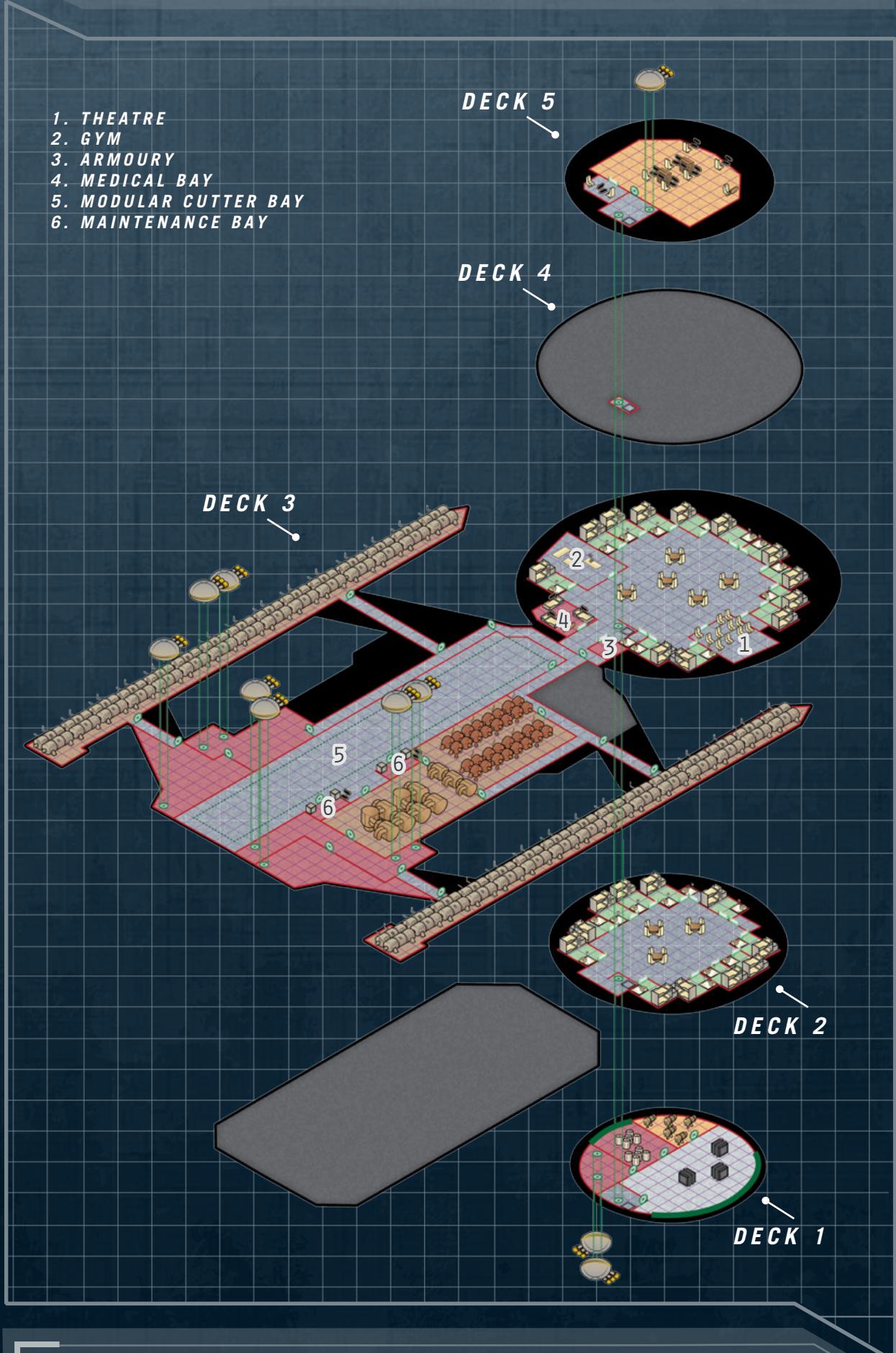
JUMP DRIVE

6

SENSORS

The *Chrysanthemum*-class destroyer escort is a small, fast vessel intended for fleet and squadron escort duties. The design is old, but efficient, with examples of the ship serving in the Imperial Navy for over a century. Chrysanthemums are ubiquitous, being encountered with larger fleet elements as much as working alone.

This class of destroyer escort has been pressed into service in a variety of non-escort duties, including orbital patrols, police operations, garrison duties, and even limited strike missions.

1. THEATRE
2. GYM
3. ARMOURY
4. MEDICAL BAY
5. MODULAR CUTTER BAY
6. MAINTENANCE BAY

DECK 5

DECK 4

DECK 3

DECK 2

DECK 1

DESTROYER ESCORT
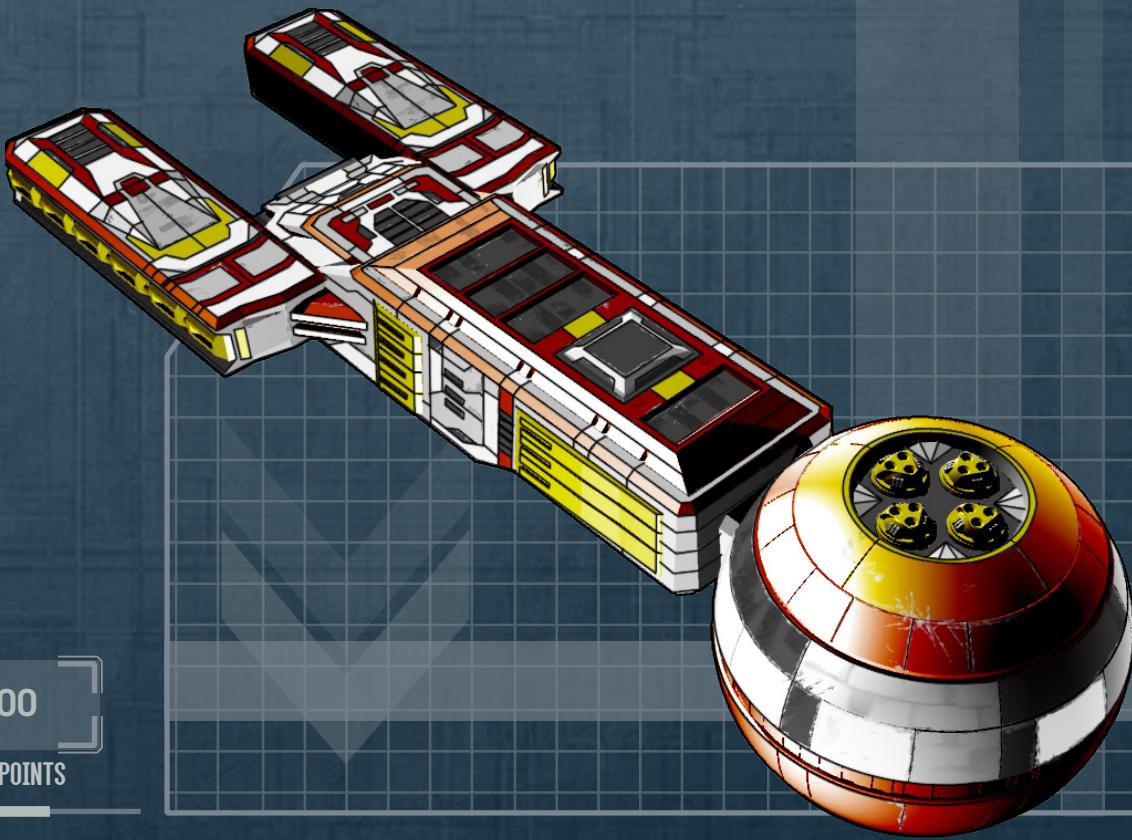
TL15		TONS	COST (MCr)
Hull	1,000 tons, close structure		45
	Reinforced	-	22.5
M-Drive	Thrust: 6	60	120
J-Drive	Jump-4, Reduced Tonnage x2	84	252
Power Plant	Fusion (TL15), Power: 1,300	65	120
Fuel Tanks	8 weeks operation, J-4	412	-
Bridge		40	5
Computer	Computer 35/fib	-	45
Sensors	Advanced	5	5.3
Weapons	Triple Missile Turret x4	4	13
	Triple Beam Laser Turret x6	6	15
Ammunition	Missile Storage (384 missiles)	32	-
Craft	Docking Space	110	27.5
	Modular Cutter	-	20.574
Systems	Recreational Facilities	20	2
	Medical Bay	4	2
	Repair Drones	10	2
	Armoury	2	0.5
Staterooms	Standard x23	92	11.5
Software	Auto Repair/1	-	5
	Evade/2	-	2
	Fire Control/2	-	4
	Jump Control/4	-	0.4
	Library	-	-
	Manoeuvre/0	-	-
Cargo		51	-

TOTAL: MCr 599.02

400

HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X6, MAINTENANCE X2, MEDIC, GUNNER X20, ADMINISTRATOR, OFFICERS X4

RUNNING COSTS

MAINTENANCE COST
Cr49,918/month

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PURCHASE COST
Mcr 599.02

POWER REQUIRMENTS

600

MANOEUVRE DRIVE

200

BASIC SHIP SYSTEMS

400
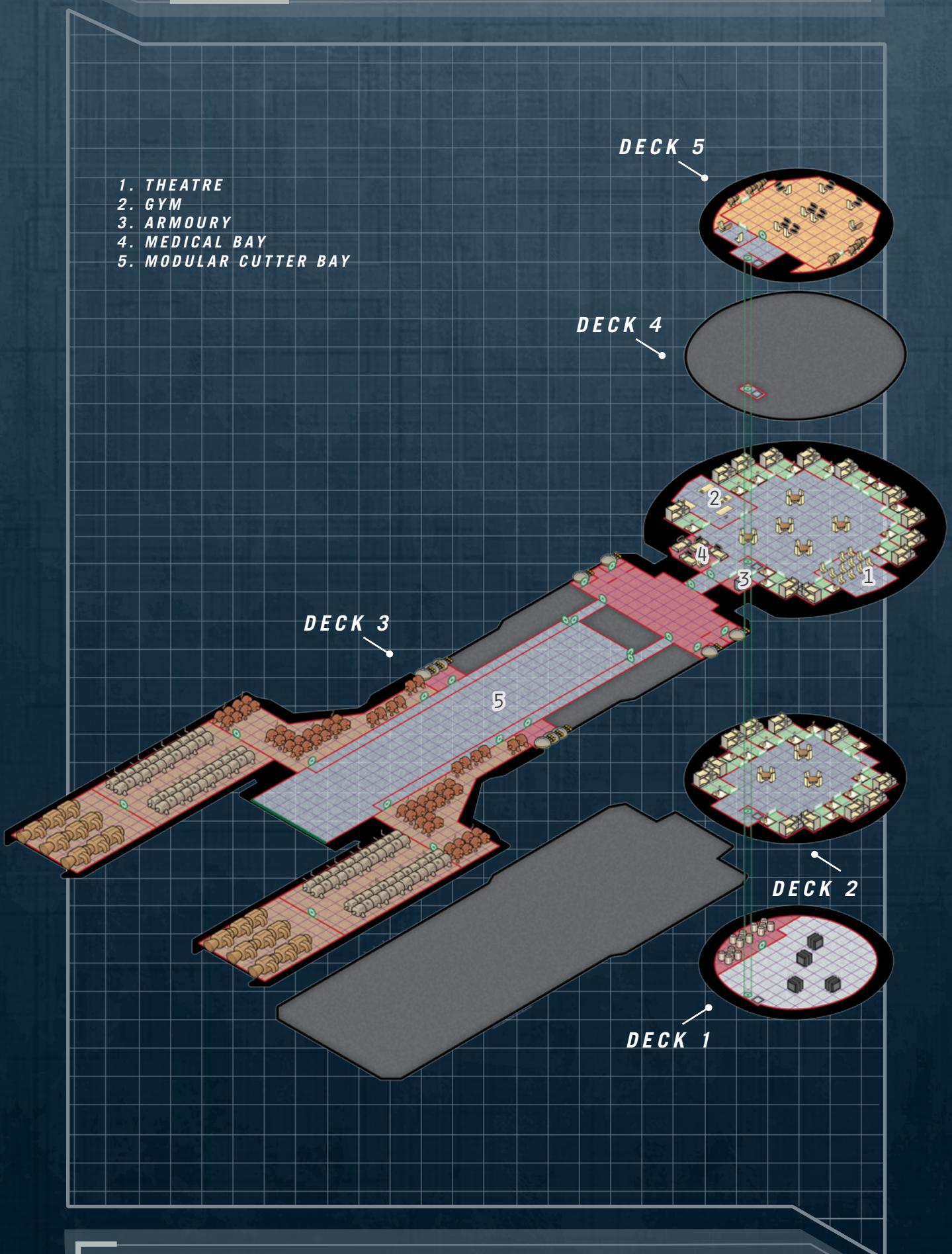
JUMP DRIVE

—

SENSORS

During the height of the Third Frontier War (979 to 986), high losses in civilian shipping and among transport vessels impressed into Imperial service resulted in the issuance of an Admiralty specification for a mid-sized escort vessel expressly for close protection of unarmed transport craft. The design which was finally accepted was the *Fer-de-lance*-class destroyer escort.

Performance characteristics for this class make it capable of staying with most Imperial fleets (jump-4, 9-G acceleration), and thus this type of vessel can be found escorting most squadrons as well as more typical convoys.

1. THEATRE
2. GYM
3. ARMOURY
4. MEDICAL BAY
5. MODULAR CUTTER BAY

DECK 5

DECK 4

DECK 3

DECK 2

DECK 1

EXPRESS BOAT TENDER

TL13		TONS	COST (MCr)
Hull	1,000 tons, standard		50
Armour	Armour: 0		
M-Drive	Thrust 1	10	20
J-Drive	Jump 1	30	45
Power Plant	Fusion, power 450	30	30
Fuel Tanks	Jump-1, 20 weeks of operation	115	-
Bridge		20	5
Computer	Computer/15	-	2
Sensors	Civilian Grade	1	3
Weapons	Single Turret (empty) x2	2	0.2
	Pop-Up Single Turret (empty)	2	1.2
Systems	Docking Space (600 tons)	660	165
	Fuel Processor (100 tons/day)	5	0.25
	Fuel Scoops	-	1
	Low Berths		
	Mail Distribution Array (advanced)	20	10
	Workshop x2	12	1.8
Staterooms	Standard x10	40	5
	High	6	0.8
Software	Jump Control/1	-	0.1
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		12	1.15
Cargo		25.5	-

TOTAL: MCr 308.25

CREW

CAPTAIN, PILOT, ASTROGATOR, ENGINEER X2, MAINTENANCE, MEDIC, ADMINISTRATOR, GUNNER X3 (OPTIONAL)

RUNNING COSTS

MAINTENANCE COST:
25,687/month

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PURCHASE COST:
MCr308.25

POWER REQURIMENTS

100	200
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
100	1
JUMP DRIVE	SENSORS

5
FUEL PROCESSOR

400
HULL POINTS
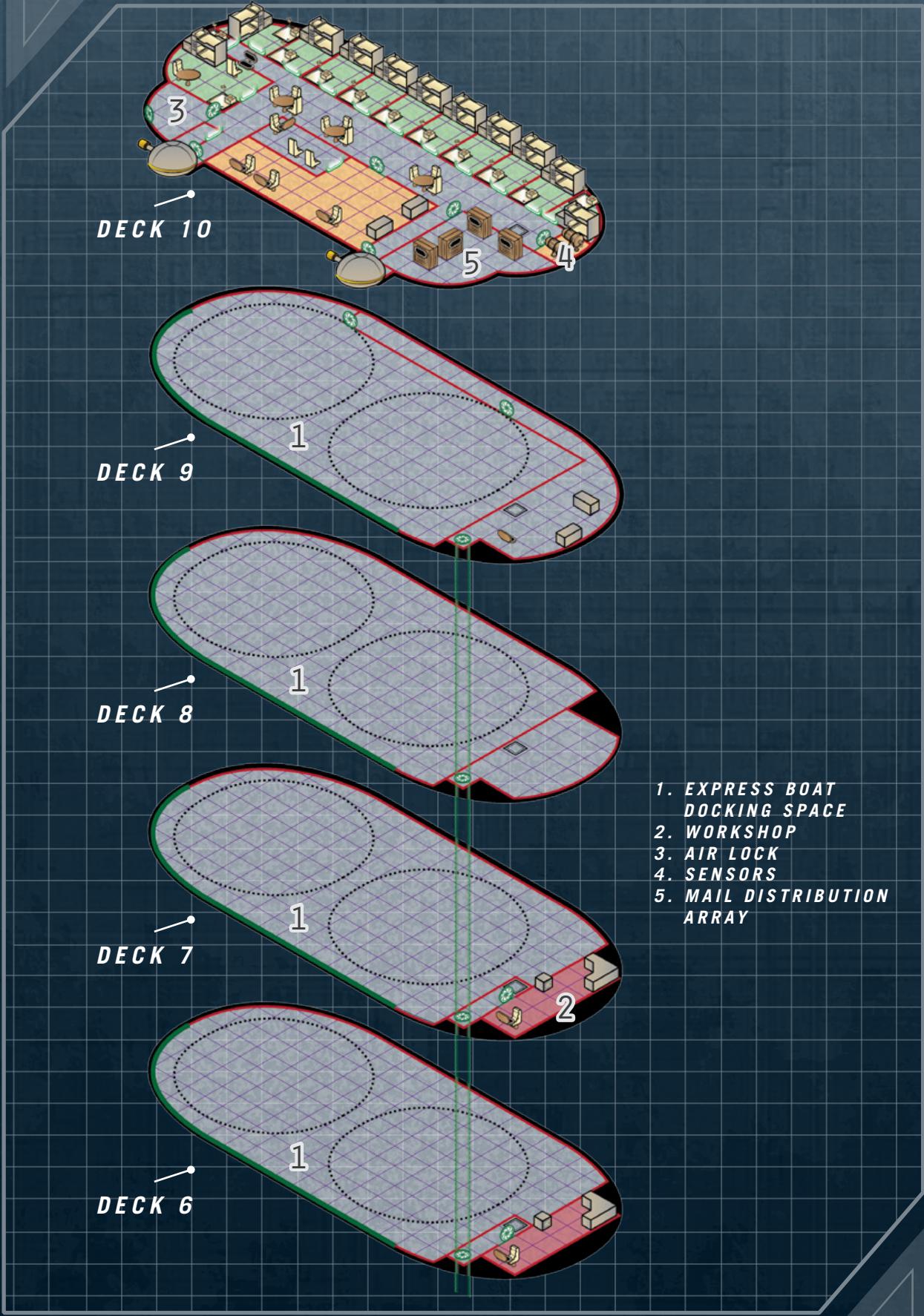
The express boat system would not work without the express boat tender. These tenders, stationed in each system that express boats stop at, serve two purposes. First, they tend express boats, recovering them when they arrive, refuelling them and repairing minor problems, and then sending them on their way. Second, they serve as a relay station between the planetary surface based message center and the express boat itself. Messages are forwarded to the tender for transmittal to the xboat just before it leaves for the next star system.

Express boat tenders are encountered anywhere that xboats may be expected. High population, high technology systems will probably have several tenders operating in order to handle the flow of information. Express boat tenders are jump capable, and each may carry up to four xboats in its cavernous ship bay. As a result, the tenders can be found in fringe or off-route systems ferrying extra xboats to areas that need them. They also undertake recovery missions to pick up damaged xboats or boats which have misjumped to off-route systems.

DECK 10

3

5

4

DECK 9

1

DECK 8

1

DECK 7

1

2

DECK 6

1

1. EXPRESS BOAT
   DOCKING SPACE
2. WORKSHOP
3. AIR LOCK
4. SENSORS
5. MAIL DISTRIBUTION
   ARRAY

DECK 6

1

DECK 5

1

DECK 4

1

DECK 3

1

DECK 2

DECK 1
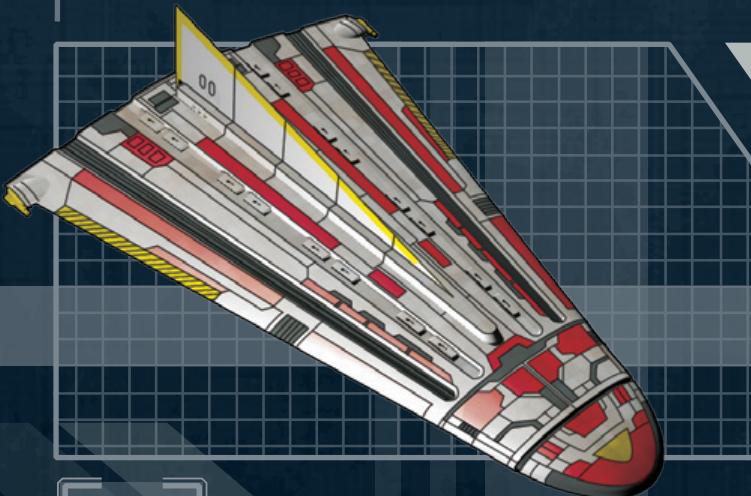
COLONIAL CRUISER

TL15		TONS	COST (MCR)
Hull	1,250 tons		62.5
	Reinforced		31.25
Armour	Armour: 0		
M-Drive	Thrust 4	4	50
J-Drive	Jump 4, Reduced Tonnage x2	104	195
Power Plant	Fusion (TL15), Power 1400	70	140
Fuel Tanks	8 weeks operation, J-4	514	-
Bridge	Holographic Controls	40	8.13
Computer	Computer 35		30
Sensors	Advanced	5	5.3
Weapons	Double Turret (beam Laser) x8	8	12
	Triple Turret (missile) x2	2	6.5
	Particle barbette x2	10	16
Ammunition	Missile storage (120 missiles)	10	-
Screens	Nuclear Damper x5	50	50
	Black Globe Generator	50	100
Craft	Pinnace	44	19.732
Systems	Fuel Scoops	-	1
	Workshop	6	0.9
	Medical Bay	4	2
	Briefing Room	4	0.5
	Armoury	9	2.25
	Fuel Processor (100 tons/day)	5	0.15
Staterooms	Standard x30	120	15
	Barracks x31	62	3.1
Common Areas		46	4.56
Software	Evade/2	-	2
	Fire Control/4	-	8
	Jump Control/4	-	0.4
	Library	-	-
	Manoeuvre/0	-	-
Cargo		37.5	-

TOTAL: MCR 734.72

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINNER X7, MAINTENANCE X3, MEDIC, GUNNER X30, ADMINISTRATOR X2, OFFICER X4, 35 MARINES

RUNNING COSTS

MAINTENANCE COST:
Cr61,226/month

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PURCHASE COST:
MCr734.72

POWER REQUIRMENTS

500	250
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

500	6
JUMP DRIVE	SENSORS
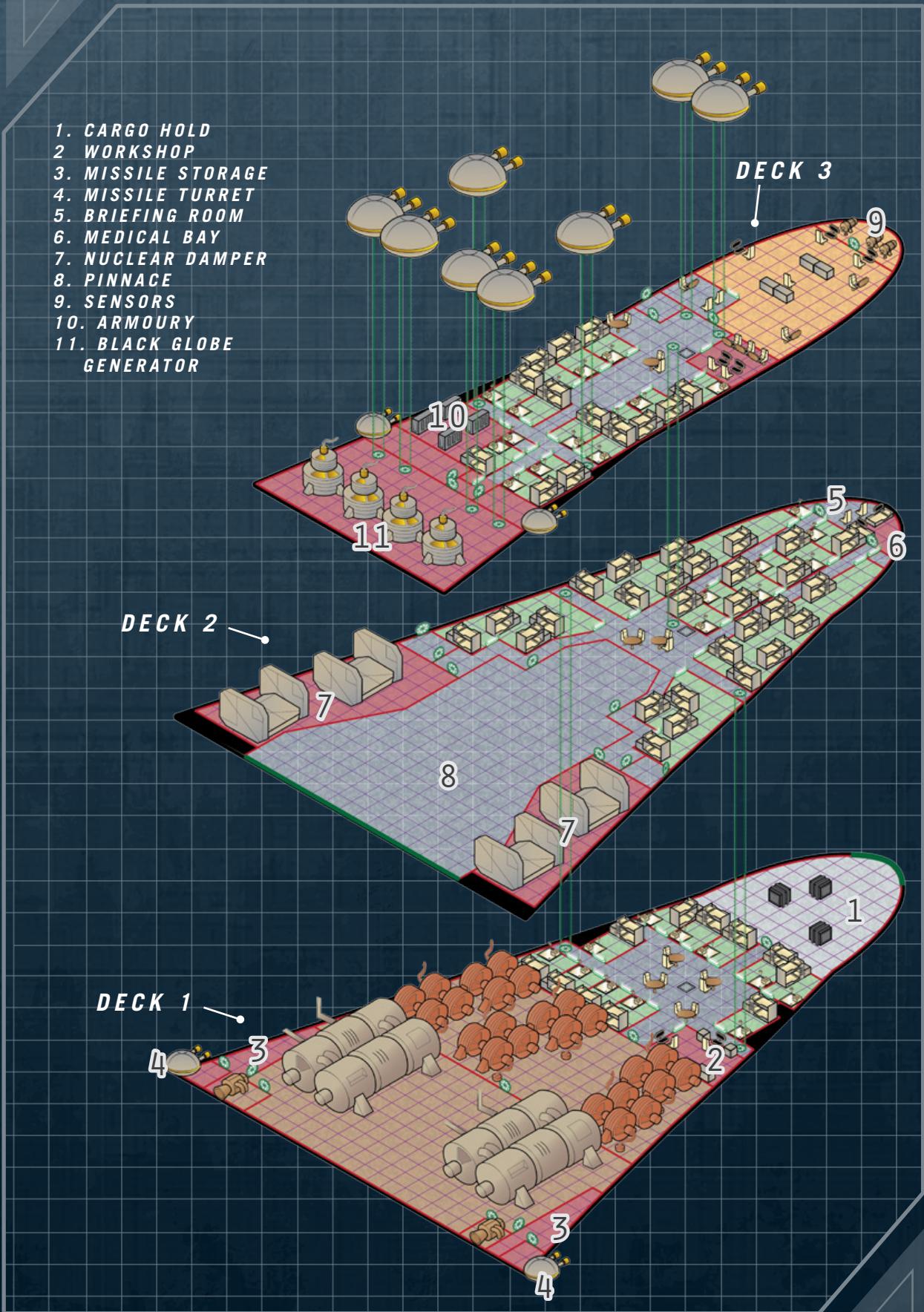
5
FUEL PROCESSOR

The *Kinunir*-class colonial cruiser (also known by a variety of designations: vanguard cruiser, battlecruiser, and vanguard escort) is not a true cruiser, being more properly termed an escort. This particular ship is an ill-fated model discontinued after a production run of only 20 examples. Several have been lost in action, and one has been converted to an orbital prison.

550
HULL POINTS

1. CARGO HOLD
2. WORKSHOP
3. MISSILE STORAGE
4. MISSILE TURRET
5. BRIEFING ROOM
6. MEDICAL BAY
7. NUCLEAR DAMPER
8. PINNACE
9. SENSORS
10. ARMOURY
11. BLACK GLOBE
    GENERATOR

DECK 3

DECK 2

DECK 1

MERCHANT CRUISER
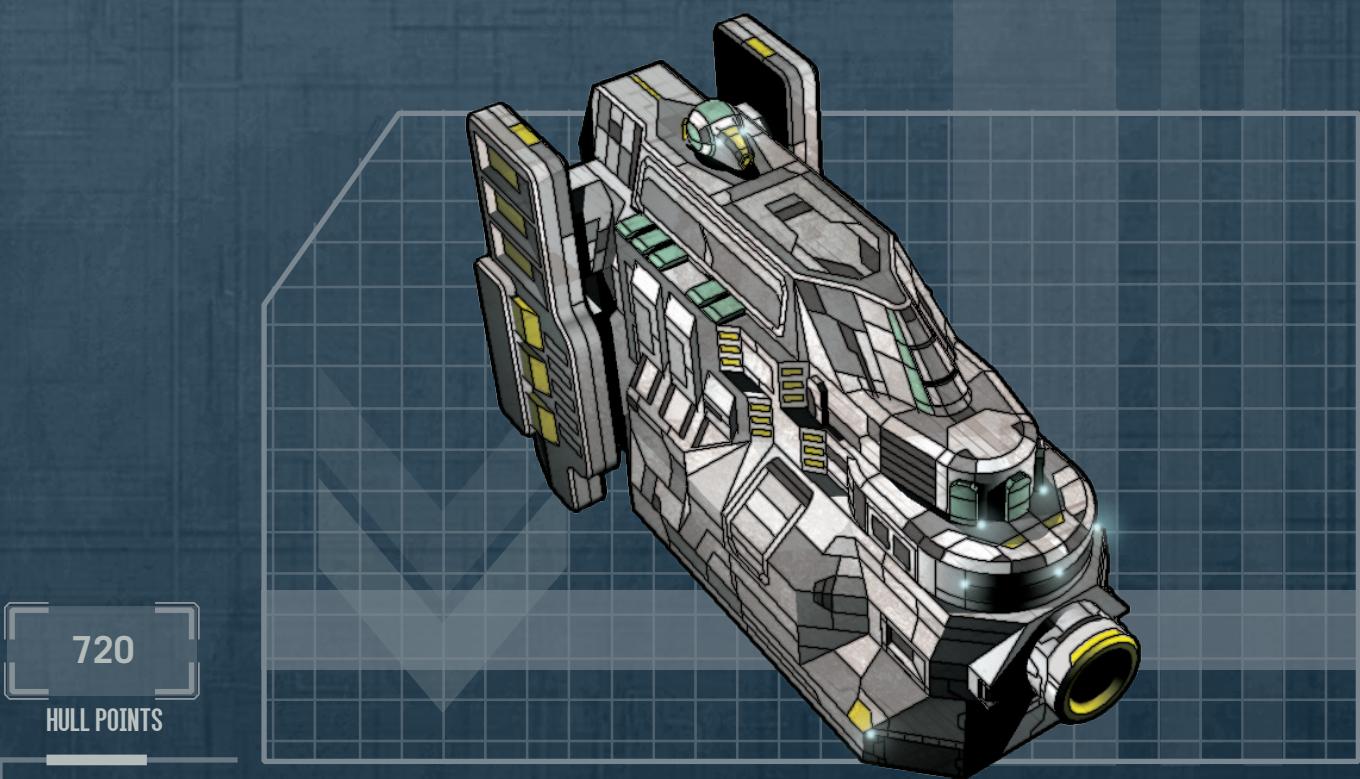
TL12		TONS	COST (MCʀ)
Hull	1,800 tons standard		90
Armour	Armour: 0		
M-Drive	Thrust 4	72	144
M-Drive	Thrust 2	95	142.5
J-Drive	Jump-3	140	210
J-Drive	Jump-2	95	142.5
Power Plant	Fusion, Power 1,665	111	111
Fuel Tanks	Jump-4, 16 weeks of operation	588	-
Bridge		40	9
Auxiliary Bridge	Small	20	4.5
Computer	Computer 10 bis/fib	-	.32
Backup Computer	Computer 5 bis/fib	-	.06
Sensors	Civilian Grade	1	3
Weapons	Double Turret (Beam laser) x6	6	9
	Fixed missile mount x2	-	1.7
	Torpedo Barbette x2	10	6
Ammunition	Missile Storage (48 missiles)	4	-
	Torpedo Storage (12 torpedoes)	4	-
Craft	Air/Raft	4	1.5
	Launch x2	44	23.834
	Pinnace	44	17.732
	Shuttle	105	41.417
Systems	Fuel Scoop	-	1
	Fuel Processor (300 tons/day)	15	0.75
	Medical Bay x2	8	4
	Multi-Environment Space	21	0.5
	Briefing Room x3	12	1.5
	Re-Entry Capsule x4	2	.08
	Workshop x4	24	3.6
	Low Birth x6	3	.3
	Armoury	2	0.5
	Hydroponics (Biosphere)	17	8.2
	Cargo Crane	3.5	3.5
	Cargo Airlock	4.5	0.45
Staterooms	Standard x31	124	15.5
	High	6	0.8
	Luxury Stateroom	10	1.5
Common Areas		35	3.5
Software	Evade/1	-	1
	Fire Control/1	-	2
	Jump Control/3	-	0.4
	Library	-	-
	Manoeuvre/0	-	-
Cargo		188	-

## TOTAL: MCʀ 844,7787

720

HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X13, MAINTENANCE X2, MEDIC X2, GUNNER X10, ADMINISTRATOR, OFFICER

RUNNING COSTS

MAINTENANCE COST
MCr 70,398.225/month

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PURCHASE COST
MCr 844.7787

POWER REQUIRMENTS

1,080

MANOEUVRE
DRIVE

360

BASIC SHIP
SYSTEMS
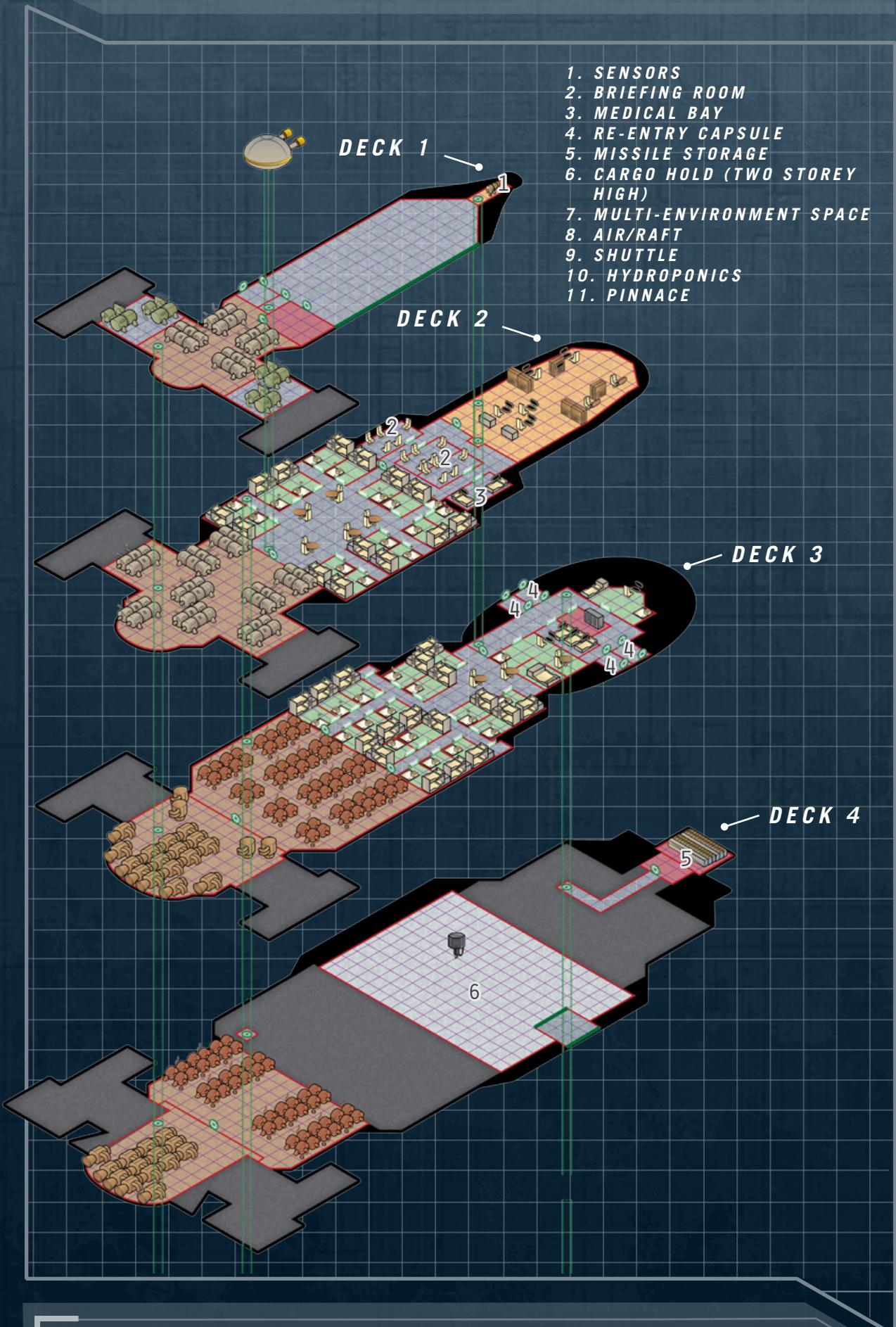
900
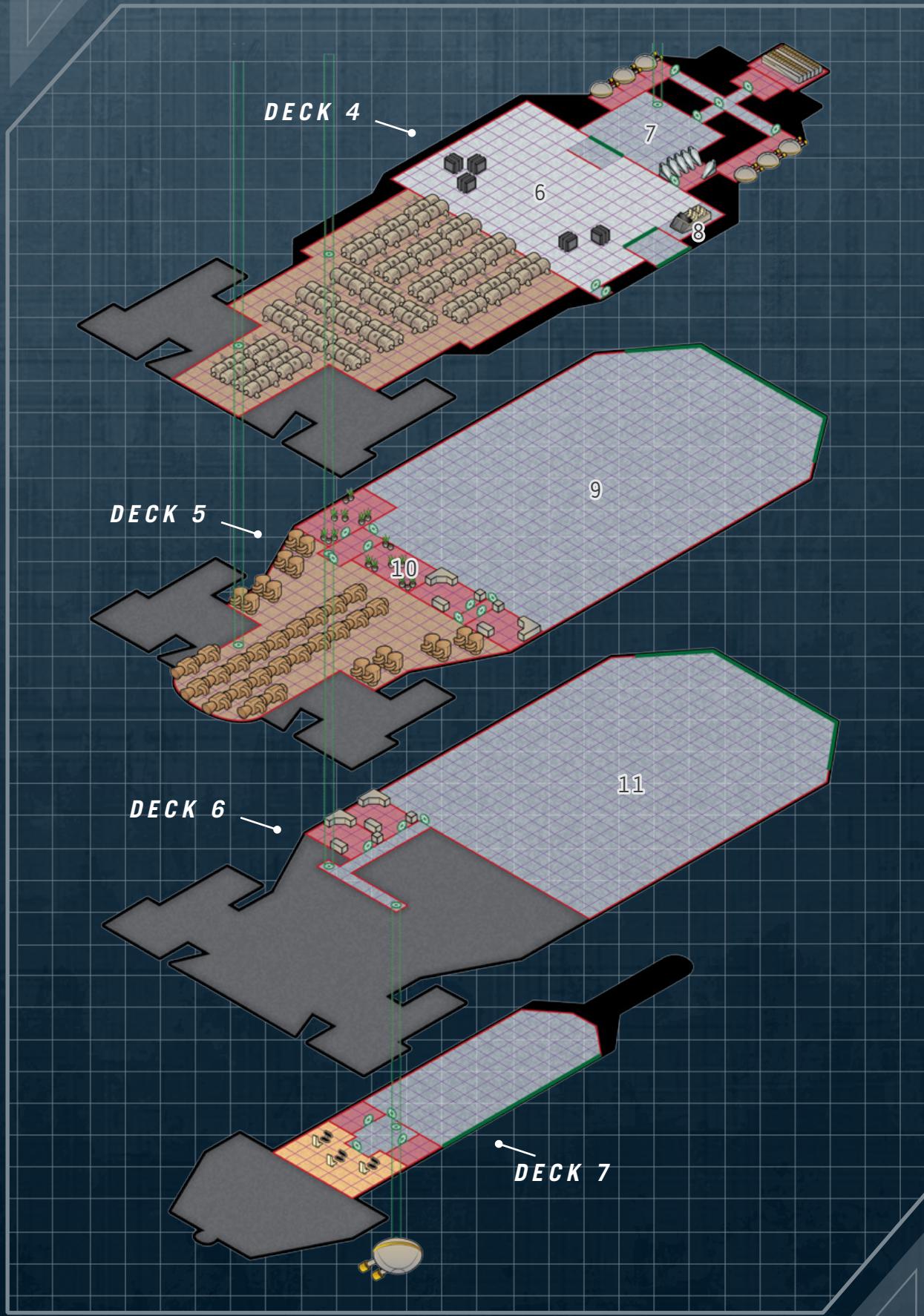
JUMP DRIVE

1

SENSORS

The *Leviathan*-class was devleoped from previous designs and is primarily intended for independent cruising in undeveloped trade areas; high survivability is also a design factor. The vessels are semi-streamlined, allowing skimming refuelling manoeuvres as well as landings in types 0 and 1 atmospheres. Atmospheric landings are otherwise impossible, hence the large complement of ship's boat.

1. SENSORS
2. BRIEFING ROOM
3. MEDICAL BAY
4. RE-ENTRY CAPSULE
5. MISSILE STORAGE
6. CARGO HOLD (TWO STOREY HIGH)
7. MULTI-ENVIRONMENT SPACE
8. AIR/RAFT
9. SHUTTLE
10. HYDROPONICS
11. PINNACE

DECK 1

DECK 2

DECK 3

DECK 4

DECK 4

DECK 5

DECK 6

DECK 7

6

7

8

9

10

11

DESTROYER
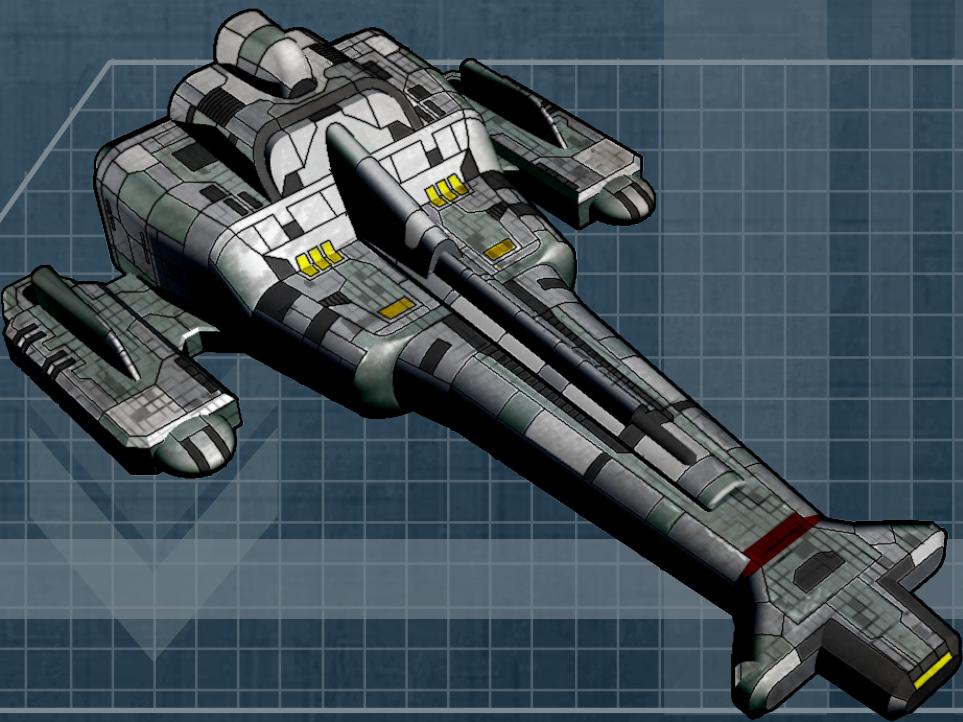
TL15		TONS	COST (MCʀ)
Hull	3,000 tons, Streamlined		195
	Reinforced		75
Armour	Armour: 0		
M-Drive	Thrust 6	180	360
J-Drive	Jump-4	305	457.5
Power Plant	Fusion (TL15), Power 4,000	200	200
Fuel Tanks	8 weeks operation, J-4	1,240	-
Bridge		60	15
Computer	Core/70 fib	-	75
Sensors	Improved	3	4.3
	Countermeasures Suite	2	4
	Enhanced Signal Processing	2	8
Weapons	Small bay – Particle	50	.5
	Triple turret (missile) x6	6	19.5
	Triple turret (beam laser) x8	8	20
	Triple turret (sandcaster) x6	6	10.5
	Point Defence Battery Type III x2	40	40
Ammunition	Missile storage (144)	12	-
	Sandcaster barrel storage (240)	12	-
Screens	Meson Screen x2	20	40
	Nuclear Damper x4	40	40
Craft	Modular Cutter x2	110	48.074
Systems	Workshop	6	.9
	Fuel Processor	60	3
	Medical Bay	4	2
	Armoury	5	1.25
	Repair Drones	30	6
	Briefing Room	4	.5
Staterooms	106	424	53
Software	Advanced Fire Control/1	-	12
	Anti-Hijack/2	-	8
	Auto-Repair/1	-	5
	Broad Spectrum EW	-	14
	Evade/1	-	1
	Jump Control	-	-
	Library	-	-
	Manoeuvre/0	-	-
	Point Defence/2	-	12
Common Areas		106	10.6
Cargo		65	-

TOTAL: MCʀ 1.556.6616

165

1,320

HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X20, MAINTENANCE X6, MEDIC, GUNNER X62, ADMINISTRATOR X3, OFFICER X9

RUNNING COSTS

MAINTENANCE COST
MCr 12/month

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PURCHASE COST
Mcr 1.556.6616

POWER REQUIRMENTS

1,800

MANOEUVRE
DRIVE

600

BASIC SHIP
SYSTEMS

1,200

JUMP DRIVE

60

FUEL PROCESSOR

7
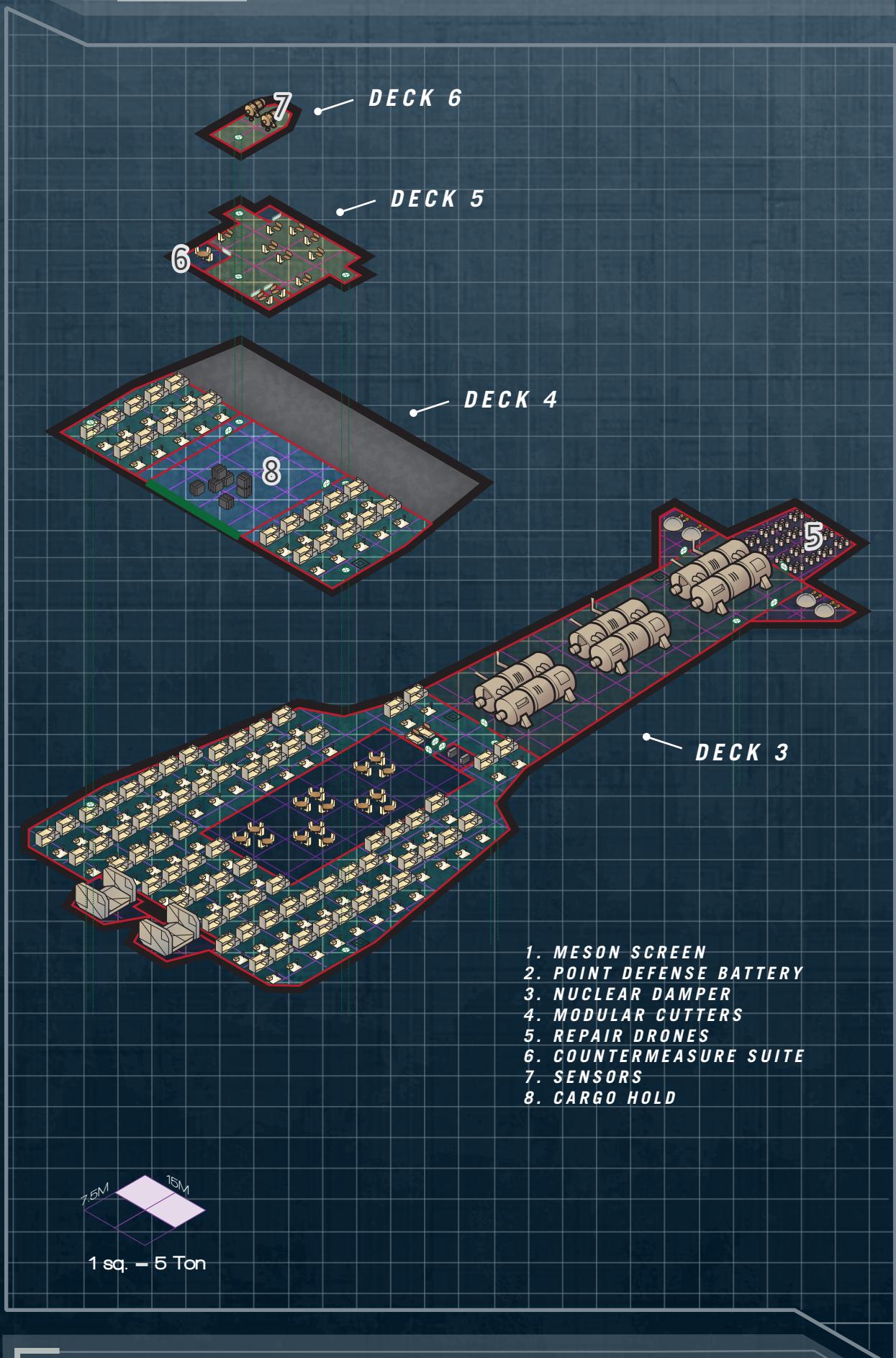
SENSORS
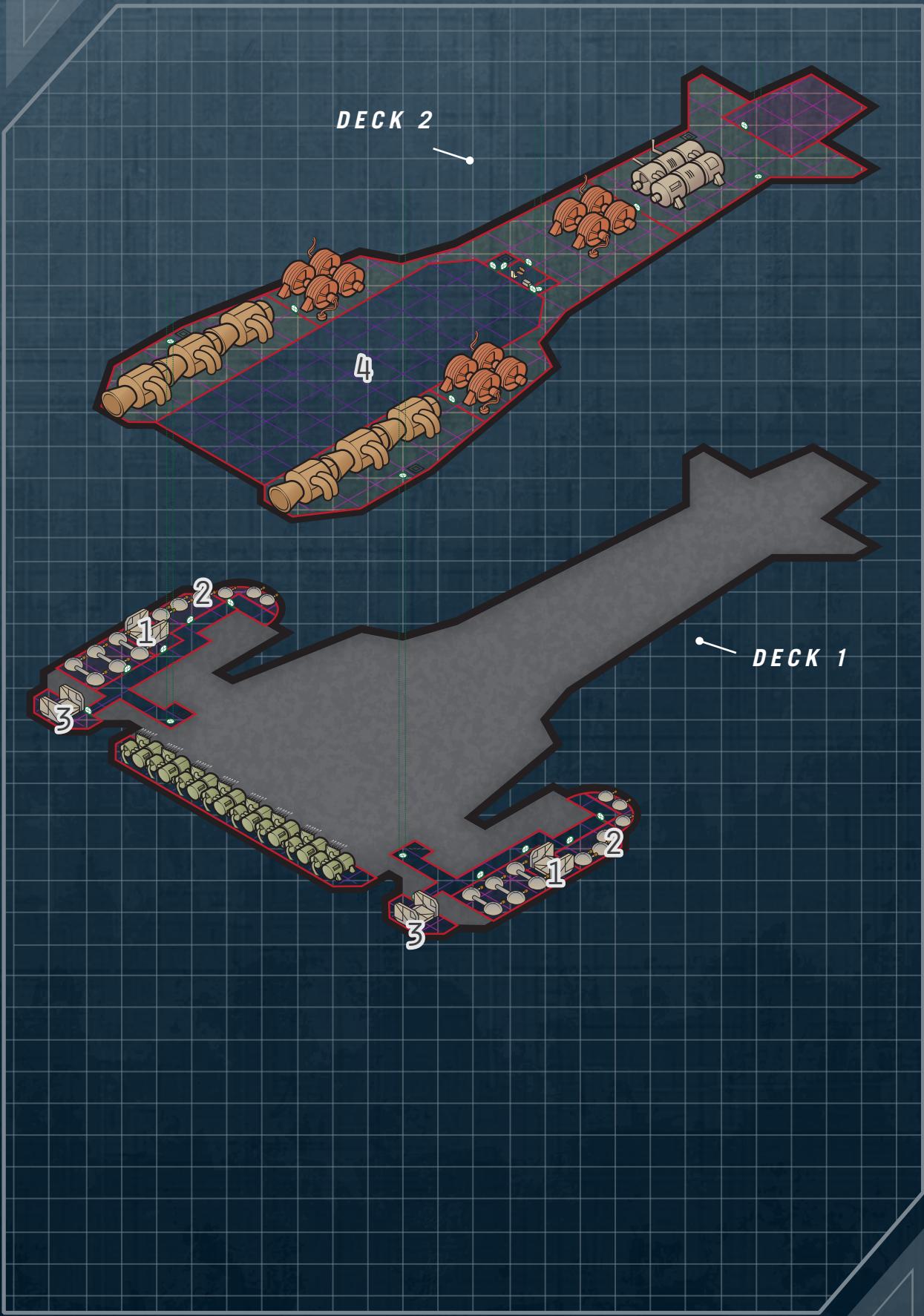
The *Midu Agashaam*-class destroyer is a streamlined escort vessel intended to supplement fleet defenses with anti-fighter and anti-small craft ships. As yet, the class has achieved only limited production, and is still considered to be experimental or developmental in status. The Admiralty, in its evaluation efforts, has thus far deployed the ships in over-sized squadrons of ten to twenty vessels, and has committed them to operations only with the Navy's major battle fleets.

DECK 6

DECK 5

DECK 4

DECK 3

7

6

8

5

1. MESON SCREEN
2. POINT DEFENSE BATTERY
3. NUCLEAR DAMPER
4. MODULAR CUTTERS
5. REPAIR DRONES
6. COUNTERMEASURE SUITE
7. SENSORS
8. CARGO HOLD

7.5M
15M

1 sq. = 5 Ton

DECK 2

4

DECK 1

1
2
3

1
2
3

FLEET ESCORT

TL15		TONS	COST (MCʀ)
Hull	5,000 standard	-	250
Armour	Crystaliron, Armour: 5	313	62.5
M-Drive	Thrust 6	300	600
J-Drive	Jump-4	505	757.5
Power Plant	Fusion, Power 6,750	450	450
Fuel Tanks	J-4, 8 weeks of operation	2,090	-
Bridge	Holographic Controls	60	31.25
Computer	Core/70 fib	-	120
Sensors	Advanced	5	5.3
	Enhanced Signal Processing	2	8
	Countermeasures Suite	2	4
Weapons	Small Bay (missile) x2	100	24
	Triple Turret (beam laser) x30	30	75
	Point Defence Battery Type III x2	40	40
Ammunition	Missile Storage (240 missiles)	20	-
Screens	Meson Screen x2	20	40
	Nuclear Damper x2	20	20
Craft	Modular Cutter x3	165	72.11
Systems	Workshop	6	0.9
	Fuel Scoops	-	1
	Armoury	5	1.25
	Briefing Room	4	0.5
	Repair Drones	50	10
	Medical Bay	4	2
Staterooms	Standard x114	456	57
Software	Advanced Fire Control/2	-	15
	Anti-Hijack/2	-	8
	Auto-Repair/1	-	5
	Broad Spectrum EW	-	14
	Electronic Warfare/1	-	15
	Evade/1	-	1
	Jump Control	-	-
	Library	-	-
	Manoeuvre/0	-	-
	Point Defence/2	-	12
Common Areas		114	11.4
Cargo		239.5	-

TOTAL: MCʀ 2,404,54

2,000
HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X36, MAINTENANCE X10, MEDIC, GUNNER X44, ADMINISTRATOR X5, OFFICER X10, MODULAR CUTTER PILOT X3

RUNNING COSTS

MAINTENANCE COST
MCr 20,037/month

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PURCHASE COST
MCr 2,404.54

POWER REQUIRMENTS

3,000	1,000
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
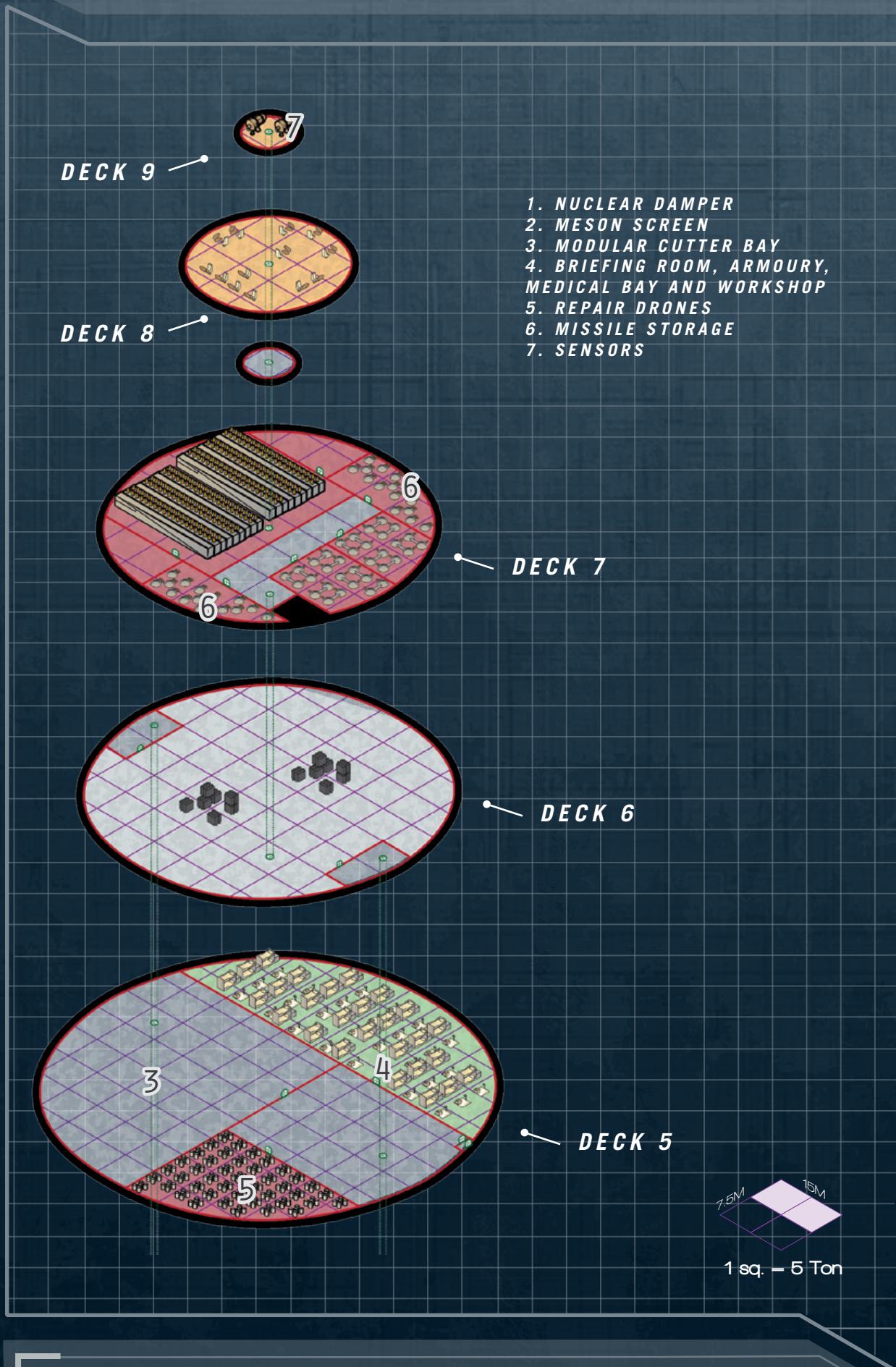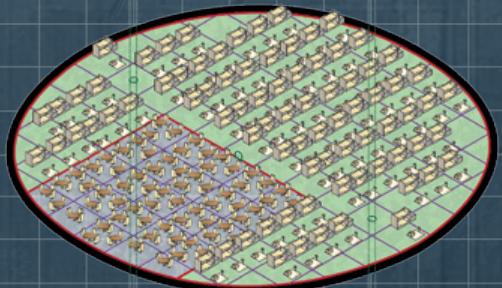
2,000	8
JUMP DRIVE	SENSORS
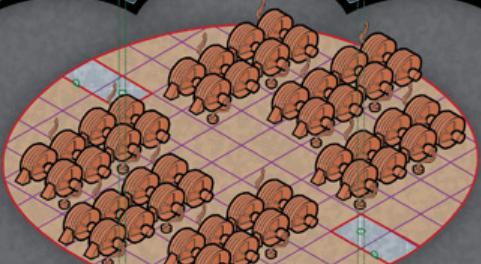
The *P. F. Sloan*-class fleet escort is intended for routine fleet security and support. Fleet escorts are assigned in quantity for local or system defense any time that several squadrons or a fleet are present. If it is remembered that Sloans are lightly armed and armored, then their performance can be seen as admirable, although they cannot withstand major engagements.

It should be noted that apart from the TL15 sensor suite, the ship can be built at TL14, increasing the number of yards capable of building and supporting this vessel.

DECK 9

DECK 8

1. NUCLEAR DAMPER
2. MESON SCREEN
3. MODULAR CUTTER BAY
4. BRIEFING ROOM, ARMOURY,
MEDICAL BAY AND WORKSHOP
5. REPAIR DRONES
6. MISSILE STORAGE
7. SENSORS

6

6

DECK 7

DECK 6

3

4

DECK 5

5

7.5M

15M

1 sq. = 5 Ton

DECK 4

DECK 3

DECK 2

DECK 1

LIGHT CARRRIER
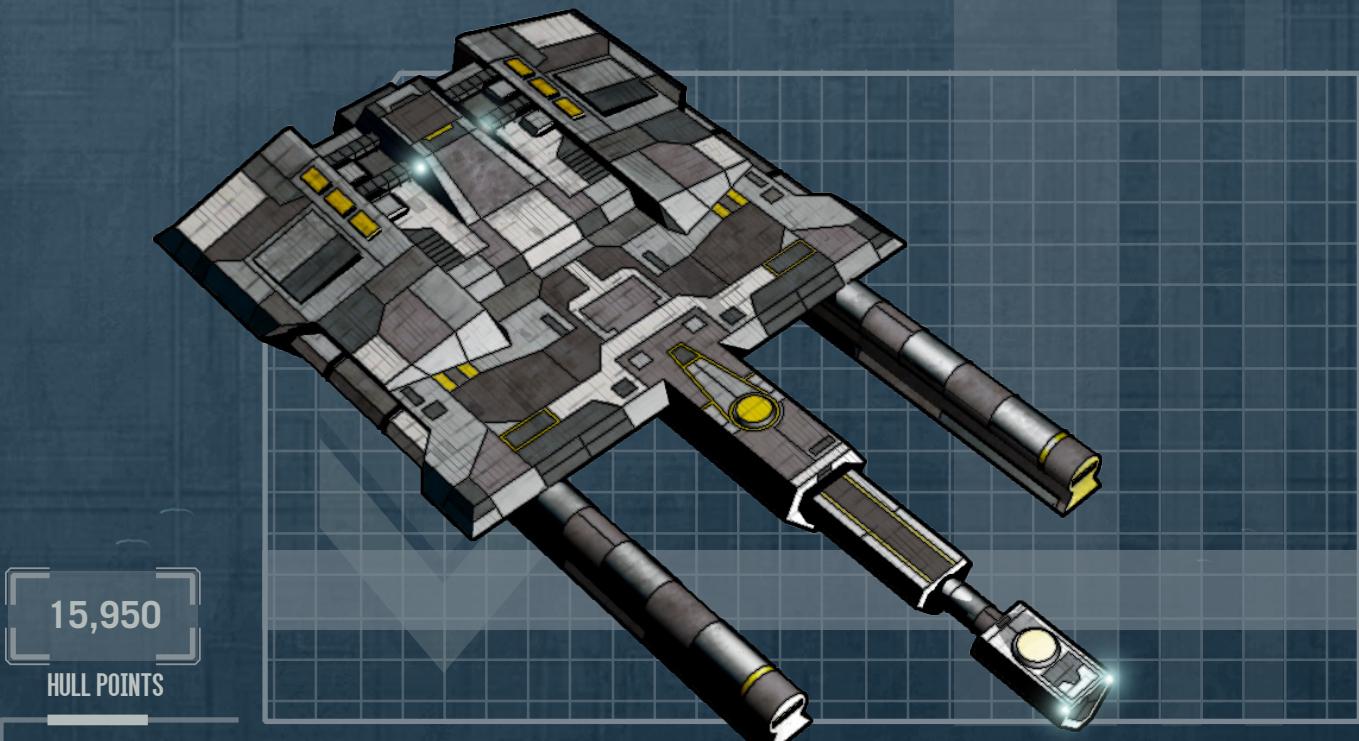
TL14		TONS	COST (MCR)
Hull	29,000 tons standard	-	1,450
	Reinforced	-	725
Armour	Crystaliron, Armour: 1	363	108.75
M-Drive	Thrust 2	580	1,160
J-Drive	Jump 4	2,905	4,357.5
Power Plant	Fusion, power 26,700	1,780	1,780
Fuel Tanks	J-4, 8 weeks of operation	11.956	-
Bridge		60	145
Computer	Core/60	-	75
Sensors	Advanced	5	5.3
	Countermeasures Suite	2	4
	Distributed Arrays	10	10.6
	Enhanced Signal Processing	2	8
Weapons	Small Meson Bay x4	200	200
	Triple turret (Missile) x50	50	162.5
	Triple turret (Beam laser) x50	50	125
	Triple turret (sandcaster) x50	50	87.5
	Dual turret (Fusion gun) x50	50	125
	Single turret (Particle beam) x50	50	210
	Point Defence Battery (Type III) x4	80	80
Ammunition	Missile Storage (1,500 missiles)	125	-
	Sandcaster Barrel Storage (1,500 barrels)	75	-
Screens	Nuclear Damper x9	90	90
Craft	Docking Space (50 tons) x77	4,235	1,058.75
	Full Hangar (50 tons) x3	300	0.6
	Heavy Fighter x80	-	4,273.2
Systems	Armoury	38	9.5
	Briefing Room x10	40	5
	Fuel Processor (2,000 tons/day)	100	5
	Fuel Scoops	-	1
	Launch Tube (50 tons)	500	250
	Medical Bay x8	32	16
	Recovery Deck (50 tons)	500	250
	Repair Drones	290	58
	Workshop x4	24	3.6
Staterooms	Standard x490	1,960	245
	High	6	0.8
Software	Advanced Fire Control/1	-	12
	Anti-Hijack/1	-	6
	Auto-Repair/1	-	5
	Broad Spectrum EW	-	14
	Electronic Warfare/1	-	15
	Evade/1	-	1
	Jump Control	-	-
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		490	49
Cargo		2002.5	

TOTAL: MCR 15,468.84

15,950

HULL POINTS

CREW

CAPTAIN, PILOT X3, FIGHTER CREW X176, ASTROGATOR, ENGINEER X173, MAINTENANCE X 58, MEDIC X8 , GUNNER X426, ADMINISTRATOR X29, OFFICER X87

RUNNING COSTS

MAINTENANCE COST
MCr 1.28907/month

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PURCHASE COST
MCr 15,468.84

The *Skimkish*-class light carrier is relatively slow fighter carrier/tender characterized by a variety of heterogeneous weaponry and a large complement of heavy fighters.

The Imperial Navy does not emphasise carriers as ships that decide battles, instead pairing carriers with assault and battle squadrons, along with fleet tenders. Fighters screen the launching and recovery of battle riders, while the battle riders themselves, along with cruisers and dreadnoughts, are used to destroy enemy ships of the line; the fighters then ensure they survive recovery operations.

POWER REQUIRMENTS

5,800

MANOEUVRE DRIVE

5,800

BASIC SHIP SYSTEMS

11,600

JUMP DRIVE

100
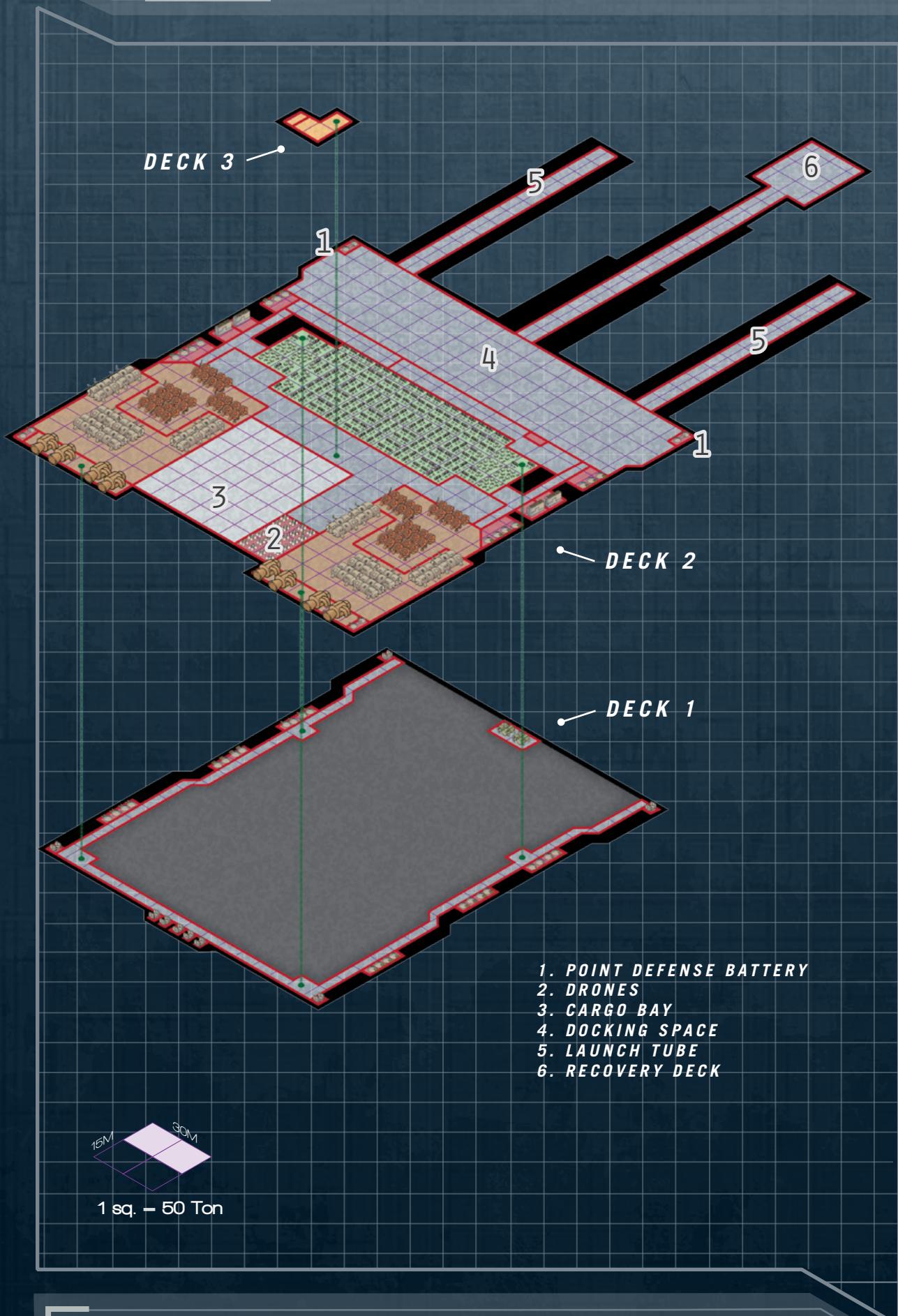
FUEL PROCESSOR

15

SENSORS

DECK 3

5

6

1

4

5

1

3

2

DECK 2

DECK 1

1. POINT DEFENSE BATTERY
2. DRONES
3. CARGO BAY
4. DOCKING SPACE
5. LAUNCH TUBE
6. RECOVERY DECK

15M

30M

1 sq. = 50 Ton

LIGHT CRUISER

TL15		TONS	COST (MCr)
Hull	30,000 tons standard	-	1,500
	Reinforced	-	750
Armour	Armour: 0		
M-Drive	Thrust 5 (size reduction x3)	1,050	3,150
J-Drive	Jump 5 (decreased fuel)	3,755	6195.75
Power Plant	Fusion (TL15), power 24,000	1,200	1,200
Fuel Tanks	J-5, 8 weeks of operation	240	-
Bridge	Holographic Controls	60	187.5
Computer	Core/100fib	-	195
Sensors	Advanced	5	5.3
	Military Countermeasures	15	28
	Enhanced Signal Processing	2	8
	Distributed Arrays	10	10.6
Weapons	Spinal – Meson (TL15)	6,000	2,600
	Triple Turret (missile) x160	160	520
	Triple Turret (beam laser, accurate, high yield) x50	50	157.5
	Triple Turret (sandcaster) x22	22	38.5
	Medium Tractor Beam Bay (energy inefficient)	100	150
	Point Defence Battery (Type III) x2	40	40
Ammunition	Missile Storage (11,520 missiles)	960	-
	Sandcaster Barrel Storage (1,320 barrels)	66	-
Screens	Nuclear Damper x9 (size reduction x3)	63	135
Craft	Modular Cutter x5	275	120.19
Systems	Armoury	16	4
	Briefing Room x2	8	1
	Command Bridge	80	225
	Fuel Processor (1,000 tons/day)	200	10
	Fuel Scoops	-	1
	Medical Bay x3	12	6
	Workshop x2	12	1.8
Staterooms	Standard x167	668	8.5
	High x2	12	1.6
Software	Advanced Fire Control/2	-	15
	Anti-Hijack/3	-	10
	Battle System/2	-	24
	Broad Spectrum EW	-	14
	Electronic Warfare/1	-	15
	Launch Solution/3	-	16
	Library	-	-
	Jump Control	-	-
	Manoeuvre/0	-	-
	Point Defence/2	-	12
Common Areas		167	16.7
Cargo		477	-

TOTAL: MCr 15,746,5215

12,000

HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X58, MAINTENANCE X10, MEDIC X3, GUNNER X172, ADMINISTRATOR X10, OFFICER X27, 20 MARINES

RUNNING COSTS

MAINTENANCE COST
MCr 1.3122/month

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PURCHASE COST
MCr 15,746.5215

The *Gionetti*-class light cruiser is named exclusively for posthumous recipients of the Imperial Starburst for Extreme Heroism.

Originally intended as a fast-reacting fighting ship, its actual use has evolved with experience. The ship is currently in favor as a flagship for many minor operations. Its high jump capability make it extremely responsive to most situations, and it is possible to displace troops or service crew (or both) to provide quarters for command and staff personnel.

POWER REQUIRMENTS

15,000
MANOEUVRE DRIVE

6,000
BASIC SHIP SYSTEMS

15,000
JUMP DRIVE

200
FUEL PROCESSOR

16
SENSORS

DECK 9

DECK 8

4

DECK 7

9

DECK 6

8

1. NUCLEAR DAMPER
2. SPINAL - MESON
3. COMMON AREA
4. MEDICAL BAY
5. MODULAR CUTTERS
6. WORKSHOPS
7. CARGO HOLD
8. MEDIUM TRACTOR BEAM BAY
9. ARMOURY

DECK 5

5

6

7

DECK 4

DECK 3

1 sq. = 5 Ton

DECK 2

2

2

3

3

2

1

2

1

DECK 1

1

1

ARMOURED CRUISER [GHALALK-CLASS]
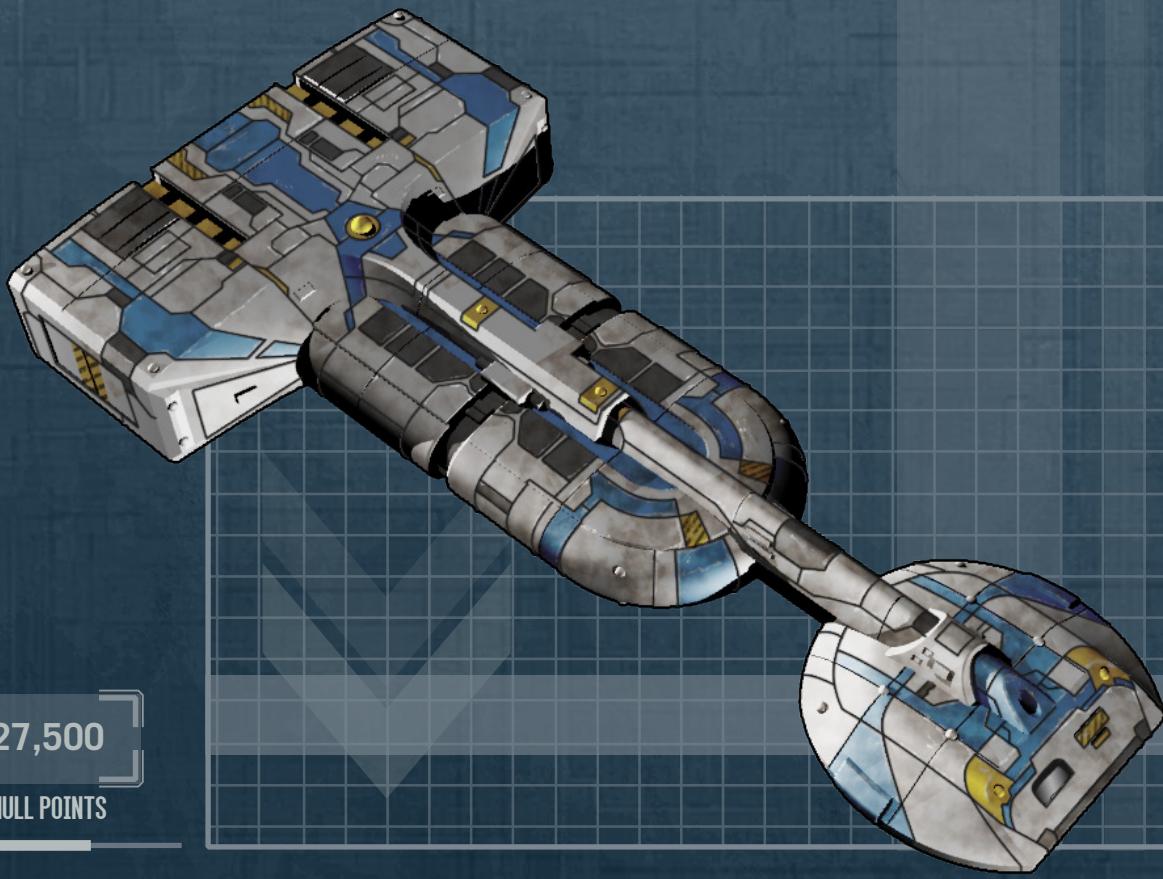
TL15		TONS	COST (MCR)
Hull	50,000 tons, standard		2,500
	Reinforced		1,250
Armour	Bonded Superdense, Armour: 15	6,000	1,250
	Radiation Shielding		4,500
M-Drive	Thrust 6	3,000	6,000
J-Drive	Jump-4	5,005	7,507.5
Power Plant	Fusion (TL15), Power 76,600	3,830	7,660
Fuel Tanks	8 weeks operation, J-4	20,766	-
Bridge	Holographic Controls	60	312.5
Computer	Core/90	-	120
Sensors	Advanced (Distributed Arrays) x2	60	63.6
	Military Countermeasures Suite	30	56
	Enhanced Signal Processing	4	16
Weapons	Spinal - Particle	3,500	1,000
	Small Bays (Missile) x40	2,000	480
	Barbette (Fusion) x10	50	40
	Triple Turret (Sandcasters) x14	14	24.5
	Triple Turret (Beam Laser) x10	10	25
	Point Defence Battery (Type III) x2	40	160
Ammunition	Missile Storage (1,440 missiles)	120	-
	Sandcaster Barrels (200 barrels)	10	-
Screens	Meson Screen x10	100	200
	Nuclear Damper x10	100	100
Armoured Bulkheads	Power Plant	383	76.6
	Jump Drive	400	80
	Manoeuvre Drive	450	90
	Spinal Mount	350	70
	Small Bays	200	40
	Meson Screen	10	2
	Nuclear Damper	10	2
	Bridge	6	1.2
	Command Bridge	8	1.6
	Missile Storage	12	2.4
	Sensors	4.7	0.94
Craft	Deployment Shuttle x4	220	55
Systems	Repair Drones	500	100
	Briefing Room x8	32	2
	Command Bridge (Holographic Controls)	80	468.75
	Armoury	15	8
	Fuel Scoop	-	1
	Fuel Processor (3,000 tons/day)	150	7.5
	Medical Bay (10 patients) x2	44	22
	Recreational Facilities	20	2
Staterooms	Standard x407	1,628	203.5
	Barracks x180	360	9
Software	Manoeuvre/0	-	-
	Intellect	-	1
	Jump Control/4	-	-
	Evade/3	-	3
	Fire Control/5	-	10
	Auto-Repair/2	-	10
	Library	-	-
Cargo		463.1	-

TOTAL: MCR 31,002.867

27,500

HULL POINTS

CREW

3 PILOTS, ASTROGATOR, 339 ENGINEERS, 100 MAINTENANCE, 7 MEDICS, 171 GUNNERS, 50 ADMINISTRATORS, 70 OFFICERS, 8 SMALL CRAFT CREW.

RUNNING COSTS

MAINTENANCE COST
MCr2.58 /month

• • • • •

PURCHASE COST
McC31,002.867

POWER REQUIRMENTS

30,000

MANOEUVRE DRIVE

10,000

BASIC SHIP SYSTEMS

20,000

JUMP DRIVE
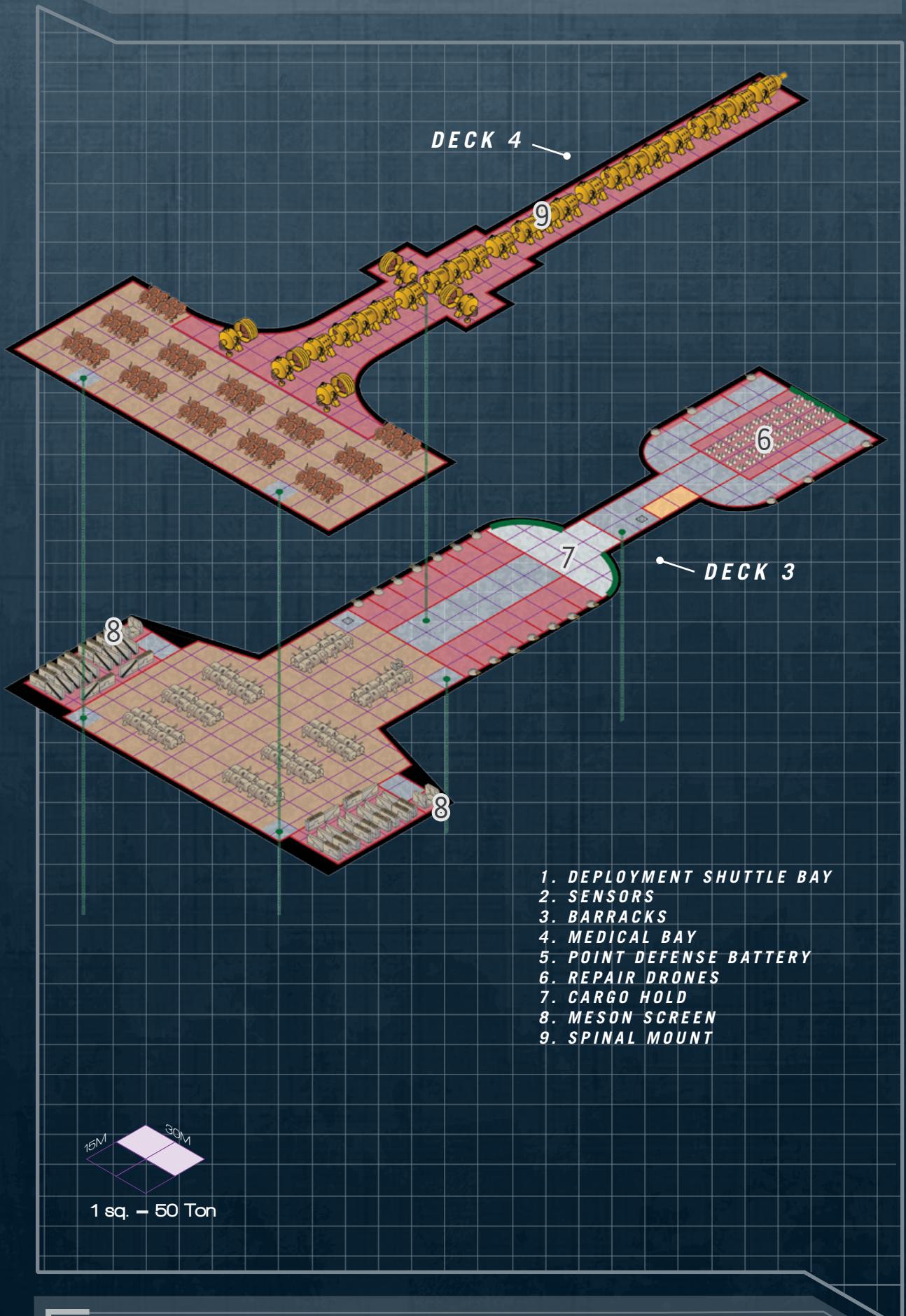
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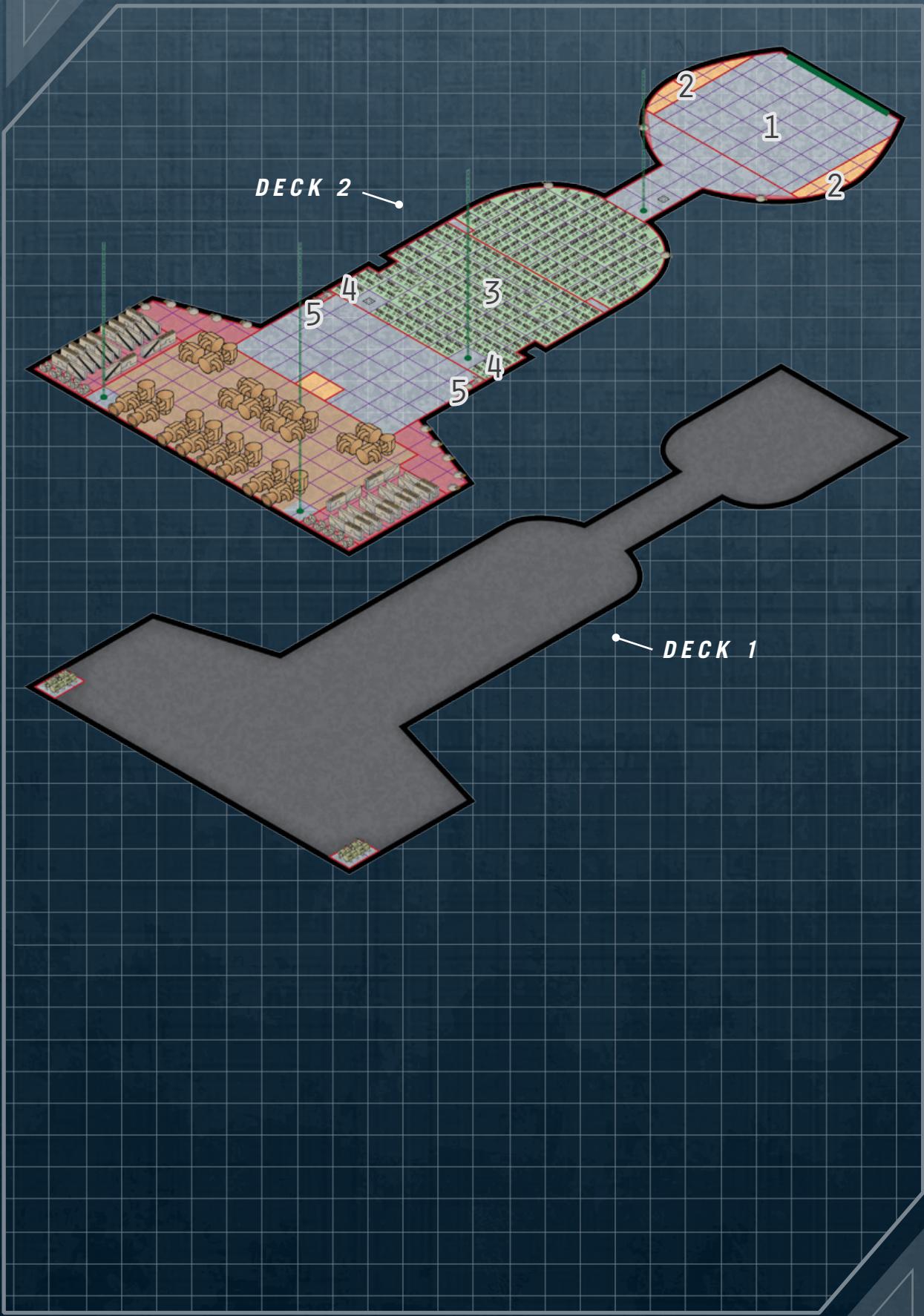
SENSORS

The *Ghalalk*-class armoured cruiser is a basic fleet workhorse, undertaking a wide variety of duties in peace-time, and supporting the battle fleets in war. The two hundred marines carried aboard the *Ghalalk* constitute a reinforced company, trained in protected forces operations, and capable of orbital assaults if called upon.

The deployment shuttles carried can ferry the entire complement of marines to either a planetary surface or an enemy vessel with equal ability. The marines' equipment is kept aboard the deployment shuttles.

The *Ghalalk*-class, while capable of operating alone, sometimes acts as a flagship for small fleets, and has a command bridge and extra staterooms to accommodate a command staff.

DECK 4

9

6

DECK 3

7

8

8

1. DEPLOYMENT SHUTTLE BAY
2. SENSORS
3. BARRACKS
4. MEDICAL BAY
5. POINT DEFENSE BATTERY
6. REPAIR DRONES
7. CARGO HOLD
8. MESON SCREEN
9. SPINAL MOUNT

15M

30M

1 sq. = 50 Ton

DECK 2

DECK 1

2

1

2

4

5

3

4

5

PLANETOID MONITOR
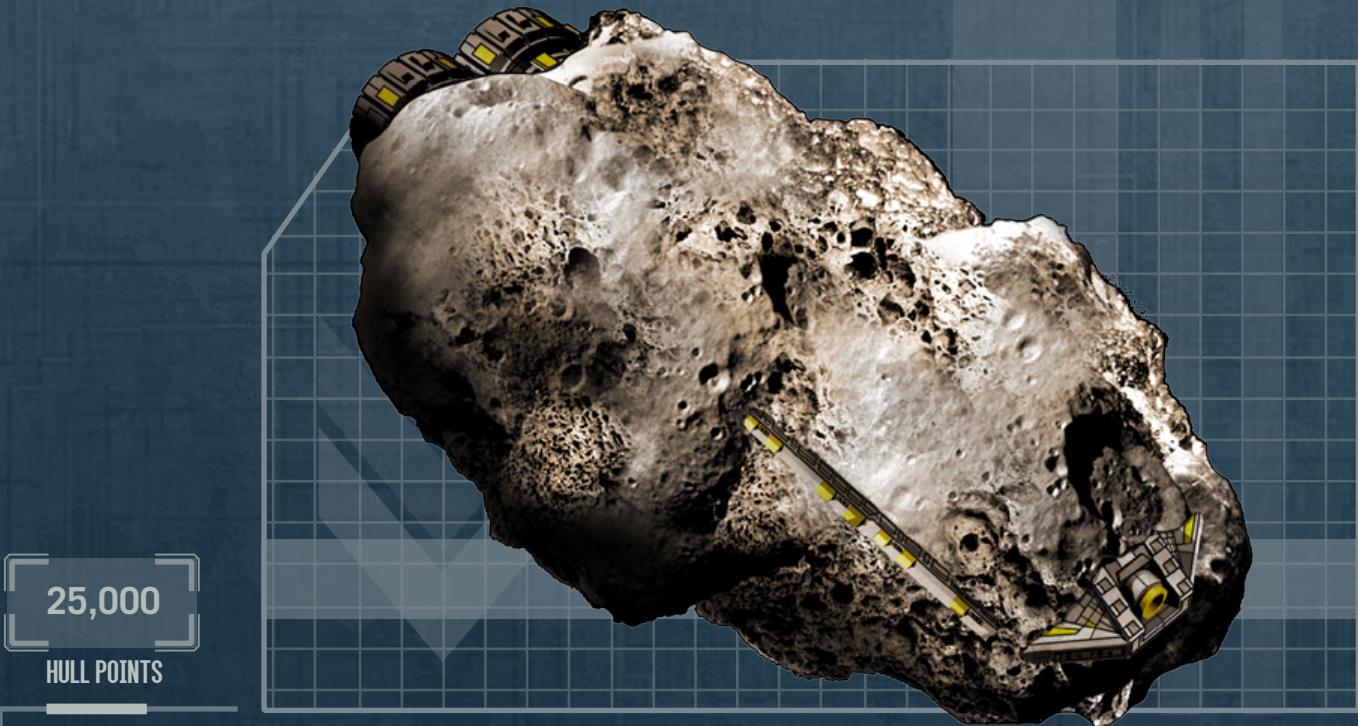
TL15		TONS	COST (MCʀ)
Hull	50,000 tons, Buffered planetoid, Armour: 4	-	200
	Reinforced	-	100
Armour	Crystaliron, Armour: 2	1,250	30
M-Drive	Thrust 6	3,000	6,000
Power Plant	Fusion, power 44,010	2,934	2,934
Fuel Tanks	16 weeks of operation	1,176	-
Bridge		60	250
Computer	Core/90fib	-	180
Sensors	Advanced	5	5.3
	Countermeasures suite	2	4
	Distributed arrays	10	10.6
	Enhanced signal processing	2	8
Weapons	Spinal – meson (TL15)	12,000	5,200
	Triple turret (sandcaster) x90	90	157.5
	Dual turret (pulse laser) x100	100	250
	Dual turret (missile) x90	90	180
	Dual turret (fusion gun) x20	20	90
	Point defence battery (type II) x5	100	50
Ammunition	Missile storage (1,800 missiles)	150	-
	Sandcaster barrel storage (2,700 barrels)	135	-
Screens	Nuclear damper x6	60	60
Craft	Docking space (50 tons) x19	1,045	261.25
	Full hangar (50 tons)	100	0.2
	Heavy fighter x20	1068.3	
Systems	Armoury	50	12.5
	Briefing room x4	16	2
	Fuel processor (100 tons/day)	5	0.25
	Launch Tube (50 tons)	500	250
	Medical bay x6	24	12
	Recovery deck (50 tons)	500	250
	Repair drones	500	100
	Workshop x3	18	2.7
Staterooms	Standard x631	2,524	315.5
Software	Advanced Fire Control/3	-	18
	Auto-Repair/2	-	10
	Anti-Hijack/2	-	8
	Broad Spectrum EW	-	14
	Electronic Warfare/2	-	18
	Evade/2	-	2
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		631	63.1
Cargo			5,403

TOTAL: MCʀ 16,305.48

25,000

HULL POINTS

CREW

CAPTAIN, PILOT X3, SMALL CRAFT PILOTS X44, ENGINEER X175, MAINTENANCE X100, MEDIC X11, GUNNER X742, ADMINISTRATOR X50, OFFICER X112

RUNNING COSTS

MAINTENANCE COST
MCr 1.35879/month

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PURCHASE COST
MCr 16,305.48

POWER REQUIRMENTS

30,000

MANOEUVRE DRIVE

10,000

BASIC SHIP SYSTEMS

500

LAUNCH TUBE

500

RECOVERY DECK

15
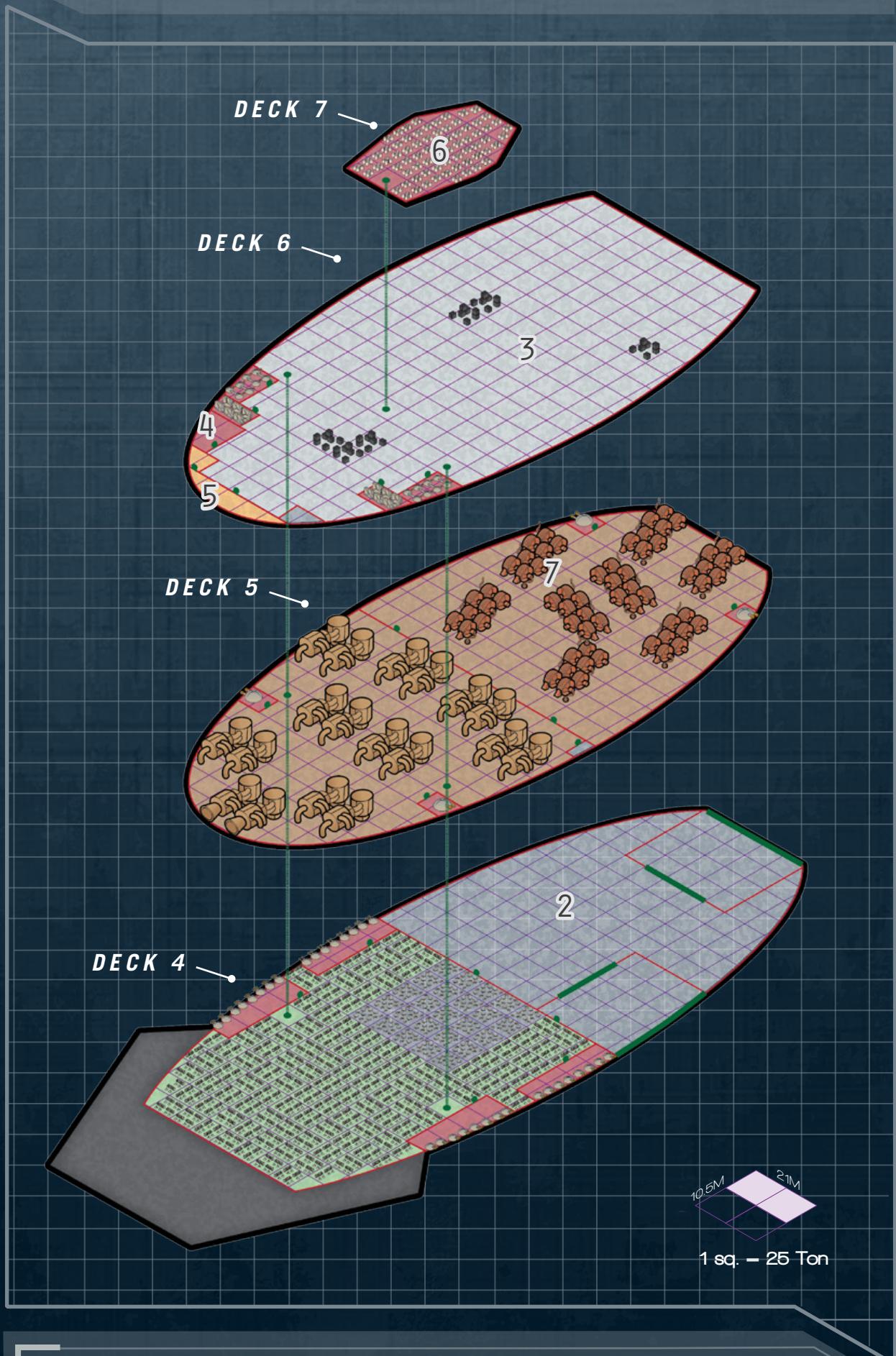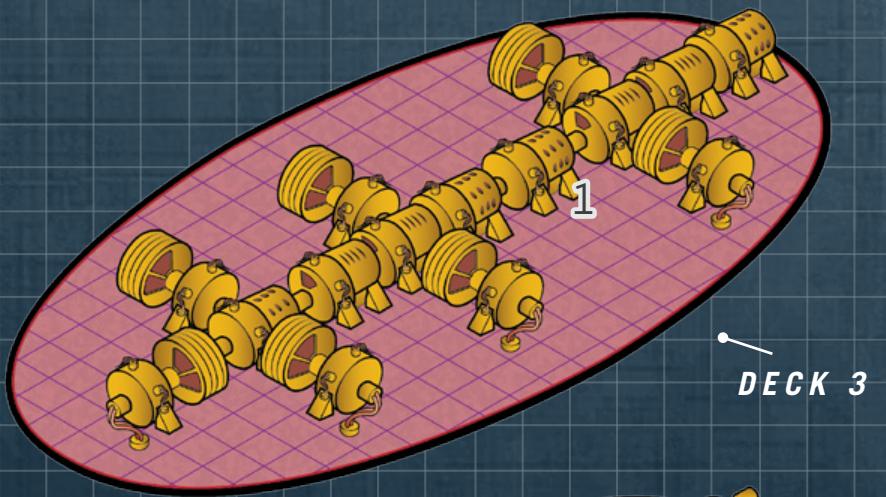
SENSORS
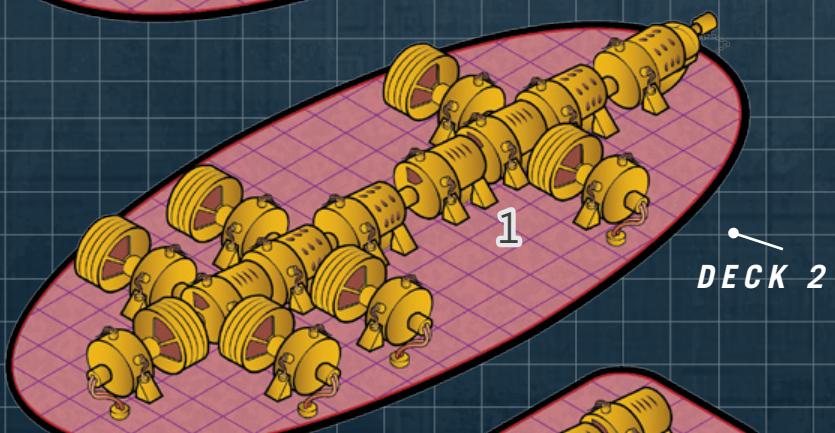
The *Empress Troyhune* was originally constructed in orbit above Mora/Mora in 1067 for system defense. Budget constraints, its experimental nature, and provision for future ship expansion meant that the ship's tonnage was not fully utilized as constructed. Many turrets were installed as dual rather than triple mounts, and a sizeable fraction of the ship remained unused. Originally, it was envisioned that this space would be later committed to additional heavy fighter squadrons and launch tubes. So far, this has not been the case, although the empty interior space has proven useful in other ways.

In 1101, the monitor was declared surplus to the needs of the Mora system and acquired by Rorise/Mora for system defense purposes. Transport to its new home presented somewhat of a problem, as neither of the navies of Mora or Rorise possessed a transport ship of sufficient capacity to carry the monitor, and commercial ships of that size are unknown in the Spinward Marches. An appeal to the Imperial Navy brought eventual results, and during the fleet exercise of 1104 the million-ton fleet tender Gorodish carried the *Empress Troyhune* to Rorise in place of one of its Hadrian class battleriders

DECK 7

6

DECK 6

3

4

5

DECK 5

7

DECK 4

2

10.5M

21M

1 sq. = 25 Ton

1

DECK 3

1

DECK 2

1
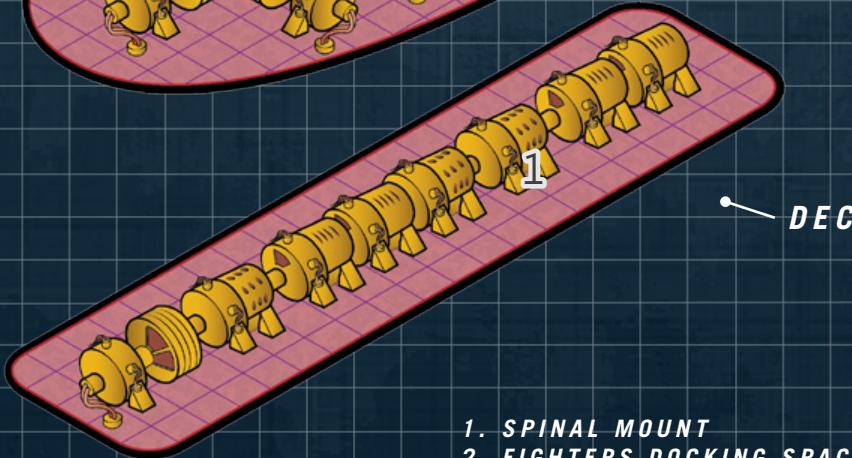
DECK 1

1. SPINAL MOUNT
2. FIGHTERS DOCKING SPACE
3. CARGO HOLD
4. ARMOURY
5. SENSORS
6. REPAIR DRONES

STRIKE CRUISER

TL15		TONS	COST (MCʀ)
Hull	50,000 tons, standard	-	2,500
	Reinforced	-	1,250
Armour	Armour: 0		
M-Drive	Thrust 4	2,000	4,000
J-Drive	Jump 3	3,755	5632.5
Power Plant	Fusion (TL15), power 51,000	2,550	5,100
Fuel Tanks	J-3, 8 weeks of operation	15,451	-
Bridge		60	250
Computer	Core/80fib	-	142.5
Sensors	Advanced	5	5.3
	Improved Signal Processing	1	4
	Countermeasures Suite	2	4
	Distributed Arrays	10	10.6
Weapons	Spinal Mount – Meson (TL15)	12,000	5,200
	Medium Particle Beam Bay	100	40
	Medium Tractor Beam Bay (energy inefficient)	100	150
	Small Missile Bay x40	2,000	480
	Triple Turret (beam laser) x40	40	100
	Triple Turret (sandcaster) x20	20	25
Ammunition	Missile Storage (4,800 missiles)	400	-
	Sandcaster Barrel Storage (6,000 barrels)	300	-
Screens	Meson Screen x9	90	180
	Nuclear Damper	90	190
Craft	Docking Space (50 tons) x98	5,390	1347.5
	Full Hangar (50 tons) x2	200	0.4
	Heavy Fighter x100	5,341.5	7,081
Systems	Armoury	61	15.25
	Briefing Room x12	48	6
	Fuel Processor (2,000 tons/day)	100	5
	Launch Tube x2	1,000	500
	Medical Bay x10	40	20
	Recovery Deck x2	1,000	500
	Workshop x3	18	2.7
Staterooms	Standard x598	2,392	299
	High	6	0.8
Software	Advanced Fire Control/3	-	18
	Anti-Hijack/3	-	10
	Broad Spectrum EW	-	14
	Electronic Warfare/1	-	15
	Jump Control	-	-
	Launch Solution/3	-	16
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		598	59.8
Cargo		173	-

TOTAL: MCʀ 30,001.545

22,000

HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATION, ENGINEER X242, MAINTENANCE X50, MEDIC X10, GUNNER X484, ADMINISTRATOR X25, OFFICER X91, FIGHER PILOTS X100, MARINES X100

RUNNING COSTS

MAINTENANCE COST
MCr 2.50012875/month

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PURCHASE COST
MCr 30,001.545

POWER REQUIRMENTS

20,000

MANOEUVRE DRIVE

10,000

BASIC SHIP SYSTEMS

15,000

JUMP DRIVE

1,000

RECOVERY DECK

14
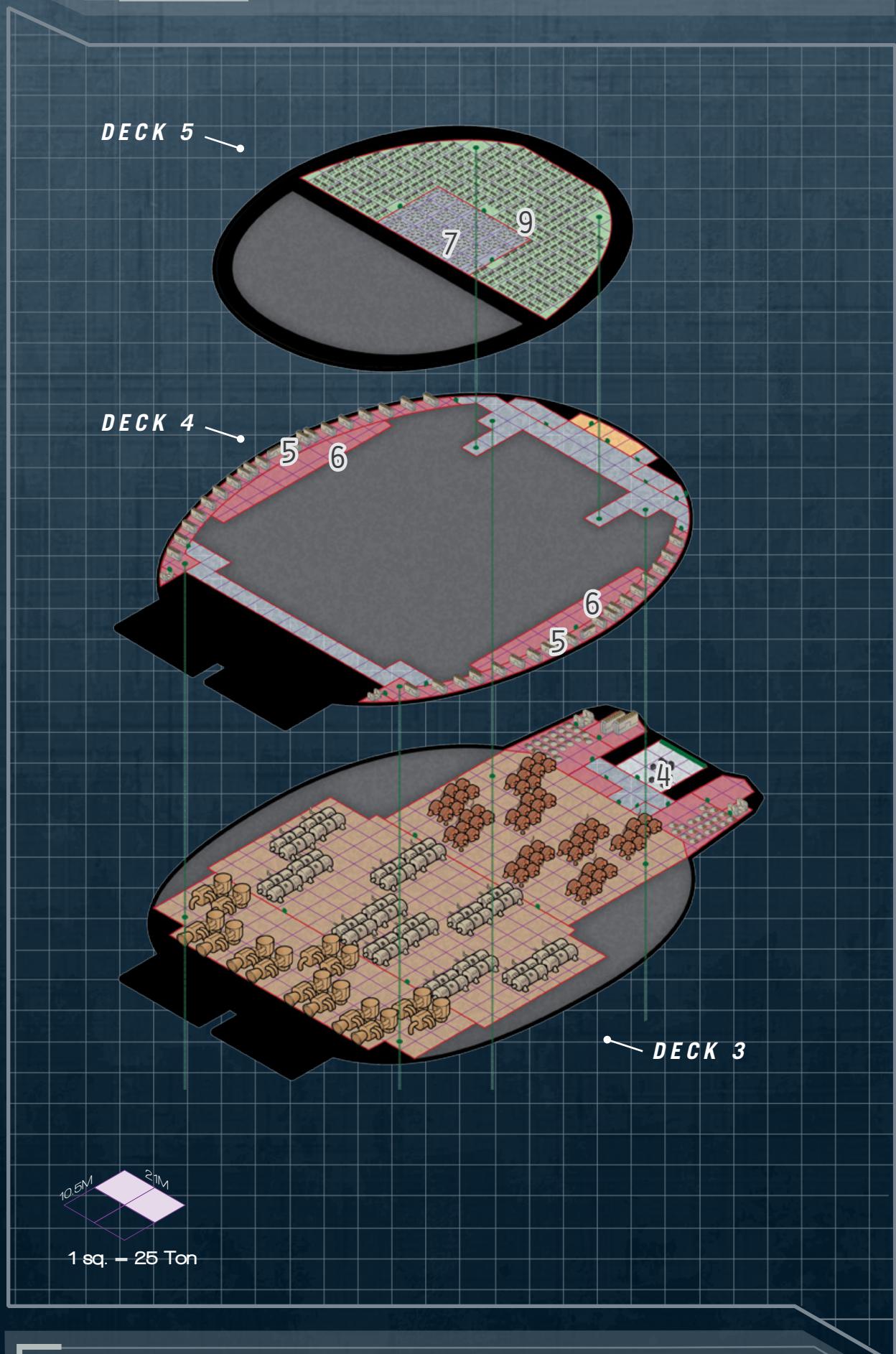
SENSORS
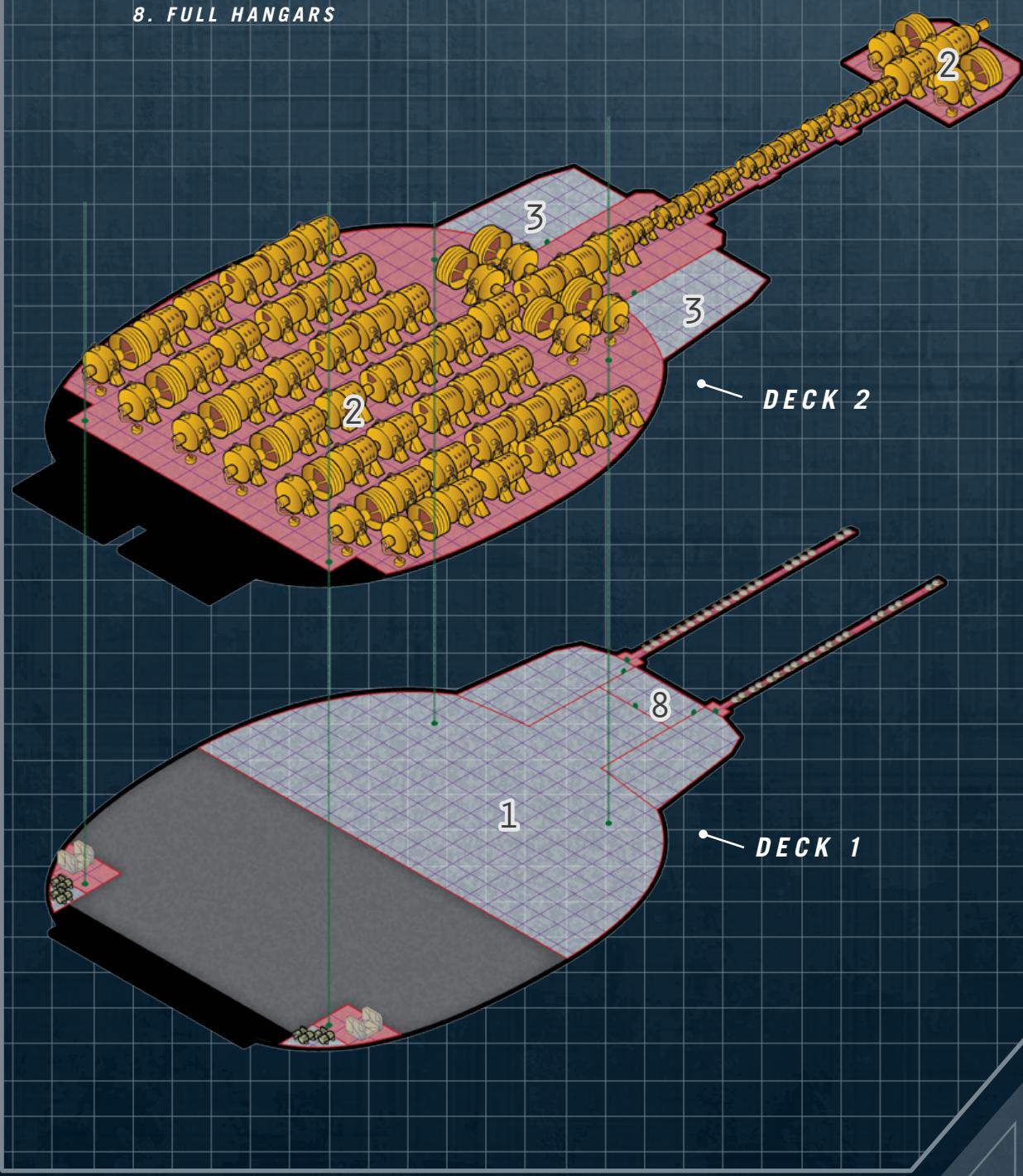
Named for famous battles in Imperial history, the *Arakoine*-class strike cruiser is specifically designed for ground support and surface bombardment. It has large missile resources available, as well as both meson gun and particle accelerator weaponry. The ship is supported by its large phalanx of fighter craft. These fighters are capable of close defense for the ship, and of ground support in combat.

The strike cruiser is not capable of fuel skimming itself, and depends on its auxiliaries and escorts for the fuel scoop process. It does carry on-board fuel purification plants for the processing of fuel.

DECK 5

7   9

DECK 4

5   6

6

5

4

DECK 3

10.5M   21M

1 sq. — 25 Ton

1. *FIGHTERS BAY*
2. *SPINAL MOUNT*
3. *LAUNCH TUBE*
4. *CARGO HOLD*
5. *SMALL MISSILE BAY*
6. *MISSILE STORAGE*
7. *COMMON AREA*
8. *FULL HANGARS*

2

3

3

2

DECK 2

8

1

DECK 1

191

FRONTIER CRUISER

AZHANTI-CLASS
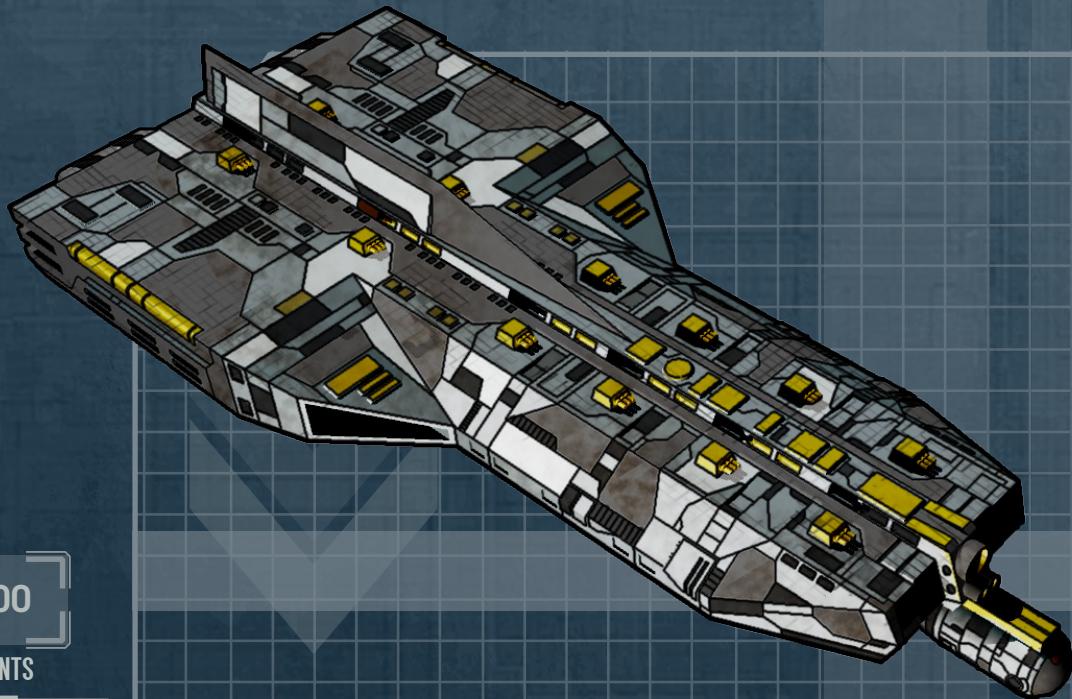
TL14		TONS	COST (MCR)
Hull	60,000 tons, standard	-	3,000
	Reinforced	-	1,500
Armour	Bonded Superdense, Armour: 5	2,400	1,200
M-Drive	Thrust 2	1,200	2,400
J-Drive	Jump 5	7,505	11,257.5
Power Plant	Fusion, power 54,150	3,610	3,610
Fuel Tanks	J-5, 8 weeks of operation	30,722	-
Bridge		60	300
Computer	Core/80	-	95
Sensors	Improved	3	4.3
	Distributed Arrays	6	8.6
Weapons	Spinal – Particle Acceleration (TL12)	6,300	1,100
	Small Missile Bay x24	1,200	288
	Fusion Barbette x40	200	160
	Triple Turret (Pulse Laser) x199	199	796
	Triple turret (Sandcaster) x130	130	162.5
Ammunition	Missile Storage (2,880 missiles)	240	-
	Sandcaster Barrel Storage (3,900 barrels)	195	-
Screens	Meson Screen x6	60	120
	Nuclear Damper x5	50	50
Craft	Docking Space (40 tons) x5	220	55
	Pinnace x5	-	43.66
	Docking Space (10 tons) x80	880	220
	Light Fighter x80	-	360
	Docking Space (400 tons) x4	1.760	440
	Fuel Shuttle x4	-	360.828
Systems	Armoury	55	13.75
	Briefing Room x7	28	3.5
	Fuel Processor (4,000 tons/day)	200	10
	Fuel Scoops	-	1
	Launch Tube (10 tons) x2	200	100
	Medical Bay x6	24	12
	Recovery Deck (10 tons)	200	100
	Workshop x4	24	3.6
Staterooms	Standard x401	1,604	200.5
	High	6	0.8
Software	Advanced Fire Control/1	-	12
	Anti-Hijack/3	-	10
	Broad Spectrum EW	-	14
	Electronic Warfare/2	-	18
	Evade/3	-	3
	Jump Control	-	-
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		401	40.1
Cargo		316.5	-

TOTAL: MCr 25,266,4092

33,000

HULL POINTS

CREW

CAPTAIN, PILOT X3, FIGHTER PILOT X88, ASTROGATOR, ENGINEER X120, MAINTENANCE X40, MEDIC X6, GUNNER X289, ADMINISTRATOR 20, OFFICER X57, MARINES X150

RUNNING COSTS

MAINTENANCE COST
MCr 2.1055341/month

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PURCHASE COST
MCr25,266.4092

POWER REQUIRMENTS

12,000	**12,000**
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS
30,000	**8**
JUMP DRIVE	SENSORS

200
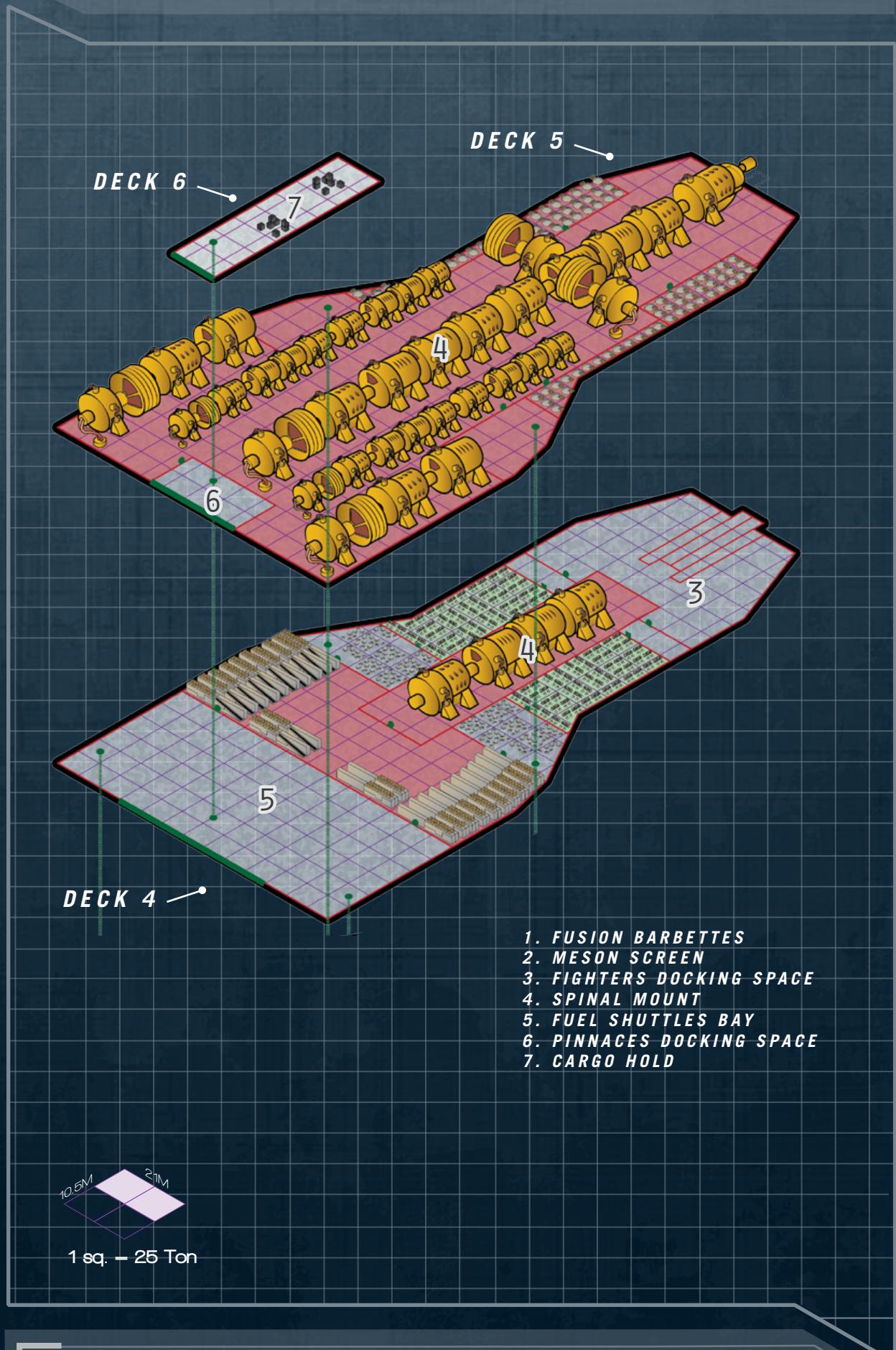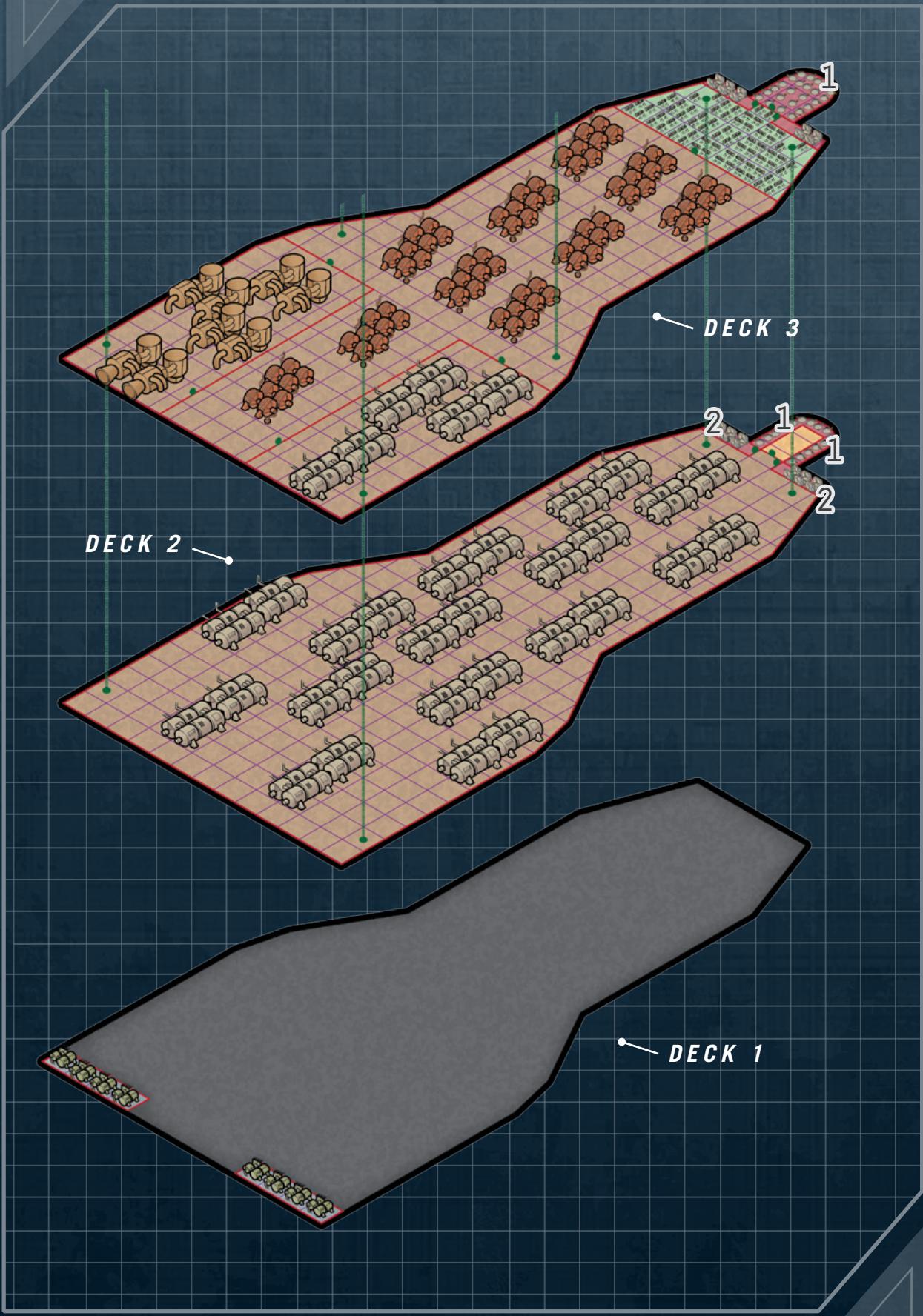
FUEL PROCESSOR

The *Azhanti High Lightning*-class is an obsolete multi-purpose cruiser capable of a variety of different functions. Most notable is the ship's high jump (jump-5) capability, which gives it great reactive mobility. It is this quality that has kept the ship in service in spite of its inferior agility and weaponry.

Several examples of the ship have been transferred to the Scout Service and to friendly client-states. Much of the remaining examples of the class were refurbished to the below specifications and now serve as frontier cruisers on the Imperial borders.

DECK 6

DECK 5

7

4

6

3

4

DECK 4

5

1. FUSION BARBETTES
2. MESON SCREEN
3. FIGHTERS DOCKING SPACE
4. SPINAL MOUNT
5. FUEL SHUTTLES BAY
6. PINNACES DOCKING SPACE
7. CARGO HOLD

10.5M
21M

1 sq. — 25 Ton

DECK 3

DECK 2

DECK 1
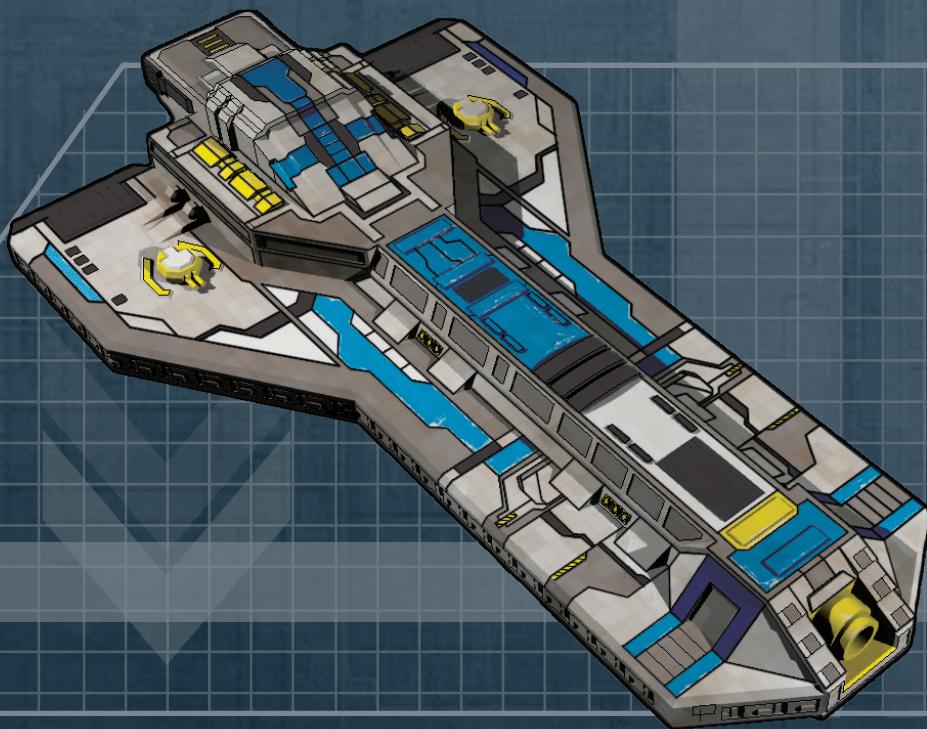
HEAVY CRUISER

ATLANTIC-CLASS

| TL15		TONS	COST (MCᴿ)
Hull	75,000 tons, standard		3,750
	Reinforced		1,875
Armour	Bonded Superdense, Armour: 10	6,000	4,500
M-Drive	Thrust 5	3,750	7,500
J-Drive	Jump 4	7,505	11,257.5
Power Plant	Fusion (TL15)	4,300	4,300
Fuel Tanks	J-4, 8 weeks of operation	30,860	-
Bridge		60	375
Computer	Core/90	-	120
Sensors	Improved	3	4.3
	Countermeasures Suite	2	4
	Enhanced Signal processing	2	8
	Distributed Arrays	6	8.6
Weapons	Spinal - Meson (TL14)	12,750	4,800
	Medium Bay (Particle Beam) x6	600	240
	Small Bay (Missile) x30	1,500	360
	Triple Turret (Sandcaster) x165	165	206.25
	Point Defence Battery (Type II) x4	80	40
Ammunition	Missile Storage (3,600 missiles)	300	-
	Sandcaster Barrel Storage (4,920 barrels)	246	-
Screens	Meson Screen x6	60	120
Craft	Docking Space (50 tons)	55	13.75
	Modular Cutter	-	10.287
	Docking Space (40 tons)	44	11
	Pinnace	-	8.73
	Docking Space (30 tons)	33	8.25
	Ship's Boat	-	5.652
Systems	Armoury	54	13.5
	Briefing Room x3	12	1.5
	Fuel Processor (10,000 tons/day)	500	25
	Fuel Scoop	-	1
	Medical Bay x12	48	24
	Re-Entry Capsule x1,351	675.5	27.02
	Repair Drones	750	150
	Workshop x3	18	2.7
Staterooms	Standard x688	2,752	344
	High	6	0.8
Software	Advanced Fire Control/2	-	15
	Anti-Hijack/3	-	10
	Auto-Repair/2	-	10
	Broad Spectrum EW	-	14
	Electronic Warfare/2	-	18
	Evade/2	-	2
	Jump Control	-	-
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		690	68.95
Cargo		1,174	-

TOTAL: MCᴿ 40,098,4119

41,250

HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X445, MAINTENANCE X150, MEDIC X12, GUNNER X542, ADMINISTRATOR X75, OFFICER X122

RUNNING COSTS

MAINTENANCE COST
MCr 3.341534325/month

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PURCHASE COST
MCr40,098.4119

POWER REQUIRMENTS

37,500

MANOEUVRE DRIVE

15,000

BASIC SHIP SYSTEMS

30,000

JUMP DRIVE

500

FUEL PROCESSOR

11

SENSORS
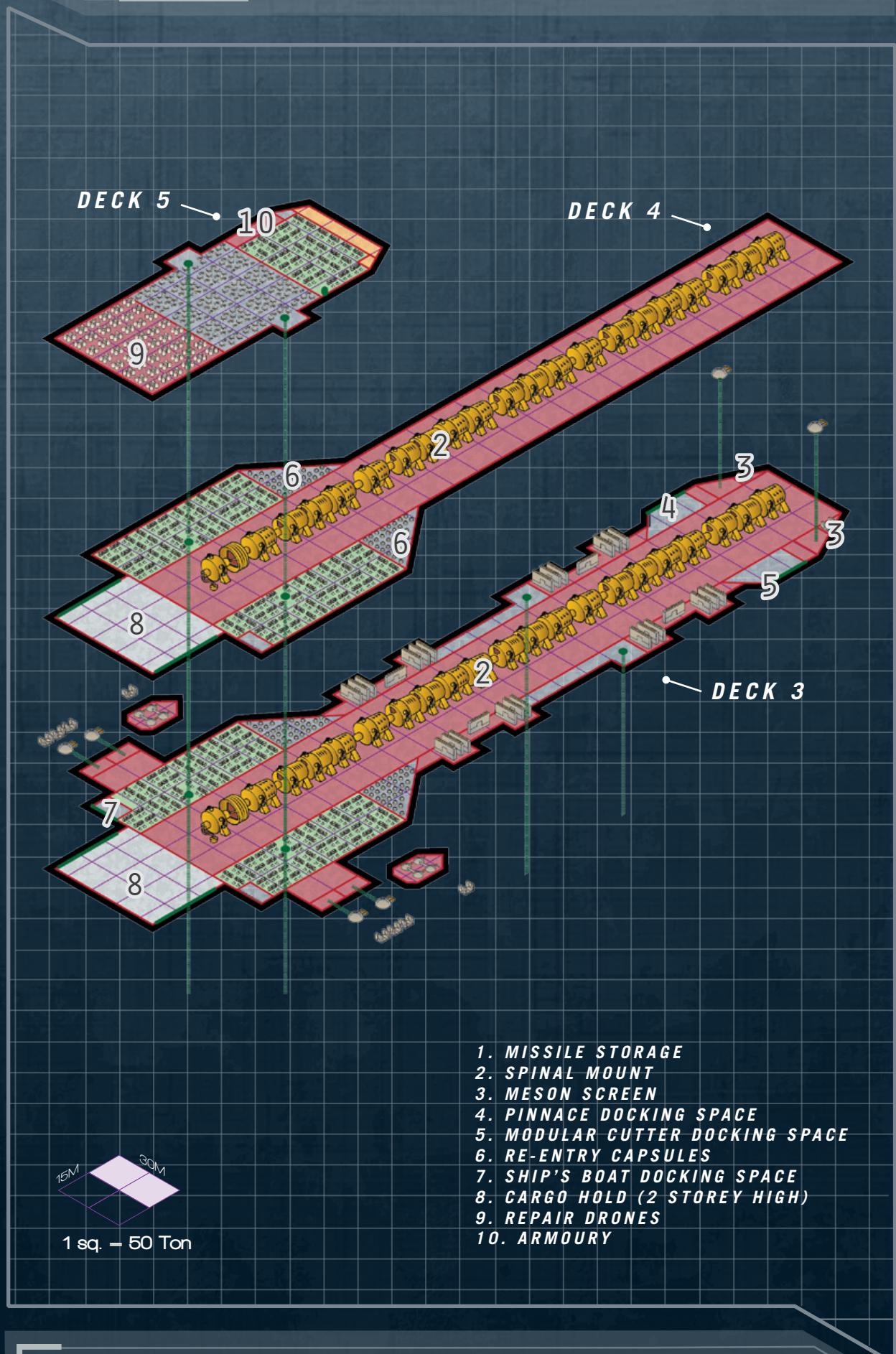
The *Atlantic*-class heavy cruiser is typical of the Imperial designs for such ships: a long flattened structure studded with weaponry, flaring aft for rudimentary control surfaces useful in fuel skimming. Well-armed and well-armored, it fulfills the basic design requirement of meeting the enemy and winning in battle.
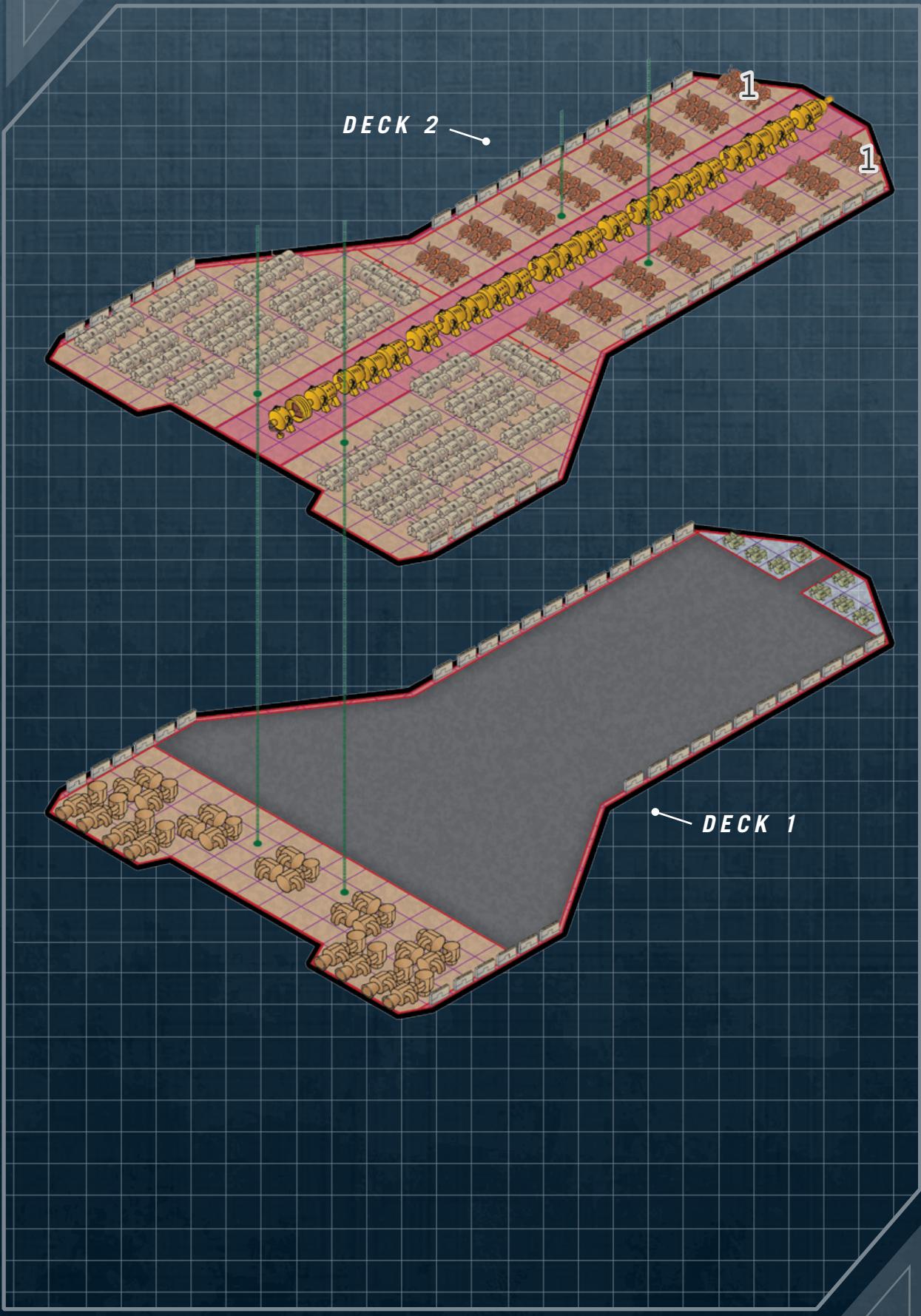
The *Atlantic*-class, however, is fast approaching obsolesence, and is not the equal of more modern vessels in the Imperium and neighboring regions. The slight disadvantage of 5-G acceleration is telling in otherwise equal engagements, and make the class inferior enough to affect strategic judgements concerning its commitment.

An upgrade program to enhance the class was considered, but decided against because of cost, although a number of enhanced prototypes have been reported.

This class of cruiser has lately proven popular with the Navy for independent missions, especially beyond the Imperial borders. Used alone, the ships are capable of a variety of diplomatic and scientific operations. Used in squadrons, they provide a useful show of force or reinforcement for friendly client-states.

Reportedly, some examples of the *Atlantic*-class have been fitted with black globe force field generators. This has not been confirmed.

DECK 5

DECK 4

DECK 3

10

9

2

6

6

8

8

7

4

3

3

5

2

1. MISSILE STORAGE
2. SPINAL MOUNT
3. MESON SCREEN
4. PINNACE DOCKING SPACE
5. MODULAR CUTTER DOCKING SPACE
6. RE-ENTRY CAPSULES
7. SHIP'S BOAT DOCKING SPACE
8. CARGO HOLD (2 STOREY HIGH)
9. REPAIR DRONES
10. ARMOURY

15M

30M

1 sq. = 50 Ton

DECK 2

1

1

DECK 1

STRIKE CARRIER

WIND-CLASS
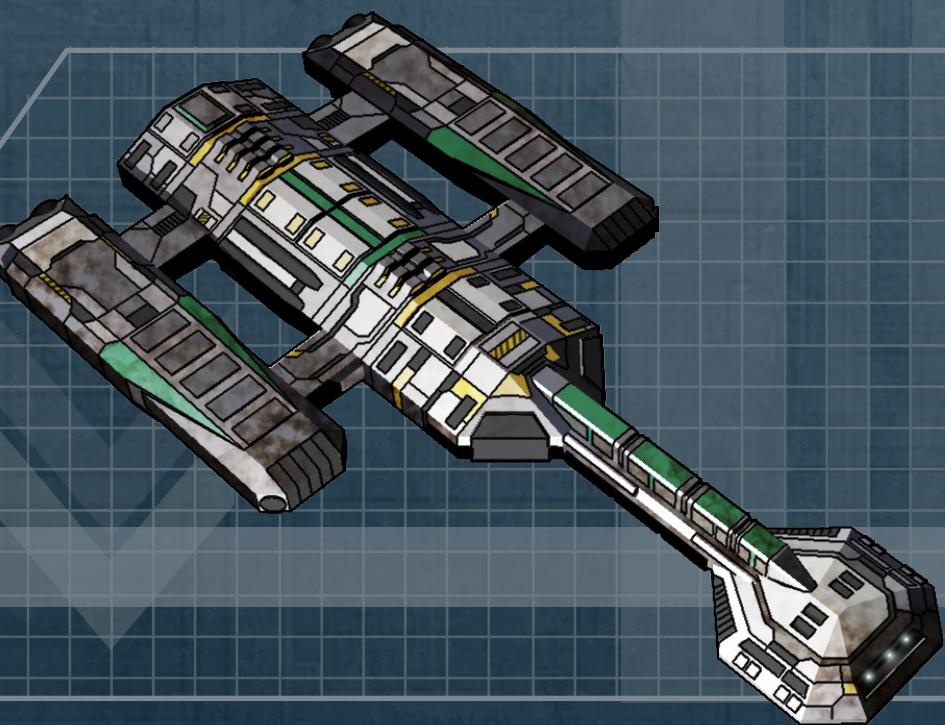
TL15		TONS	COST (MCR)
Hull	75,000 tons, standard	-	3,750
	Reinforced	-	1,875
Armour	Bonded Superdense, Armour: 6	3,600	2,700
M-Drive	Thrust 6	4,500	9,000
J-Drive	Jump 3	5,630	8,445
Power Plant	Fusion (TL15), Power 92,000	4,600	9,200
Fuel Tanks	J-3, 8 weeks of operation	23,420	-
Bridge	Holographic Controls	60	468.75
Computer	Core/70fib	-	120
Sensors	Advanced	5	5.3
	Distributed Arrays	10	10.6
	Enhanced Signal Processing	2	8
	Military Countermeasures Suite	15	28
Weapons	Spinal – Meson (TL15)	24,000	10,400
	Medium tractor beam bay (increased size) x9	1,080	1,350
	Small missile bay (reduced tonnage) x32	1,440	422.4
	Triple turret (beam laser, long range) x200	200	625
	Triple turret (sandcaster) x100	100	175
	Dual turret (fusion gun, high yield) x10	10	49.5
	Single turret (particle beam, intense focus) x10	10	10.5
	Point defence battery (type III) x8	160	160
Ammunition	Missile storage (3,840 missiles)	320	-
	Sandcaster barrel storage (3,000 barrels)	150	-
Screens	Meson screen x9	90	180
	Nuclear damper x9	90	90
Craft	Docking Space (10 tons) x80	880	220
	Light fighter x80	-	360
Systems	Armoury	64	16
	Briefing Room x12	48	6
	Fuel Processor (3,000 tons/day)	150	7.5
	Launch Tube (10 tons)	100	50
	Medical Bay x12	48	24
	Recovery Deck (10 tons)	100	50
	Workshop 6	36	5.4
Staterooms	Standard x726	2,904	363
	High	6	0.8
Software	Advanced Fire Control/2	-	15
	Broad Spectrum EW	-	8
	Electronic Warfare/1	-	15
	Evade/2	-	2
	Jump Control	-	-
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		726	72.6
Cargo		446	-

TOTAL: MCR 45,273,015

33,000

HULL POINTS

CREW

CAPTAIN, PILOT X3, FIGHTER PILOTS X88, ASTROGATOR, ENGINEER X428, MAINTENANCE X150, MEDIC X12, GUNNER X501, ADMINISTRATOR X75, OFFICER X125, TROOPS X40

RUNNING COSTS

MAINTENANCE COST
MCr 3.77275125/month

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PURCHASE COST
MCr 45,273.015

The *Wind*-class strike carrier is a particular artifact of the escalating tensions in the Spinward Marches. Designed and created for the transport of heavy fighters to the battle front, strike carriers are also well-armed, reasonably armored, and capable of standing in battle against most enemies.

POWER REQUIRMENTS

45,000

MANOEUVRE DRIVE

15,000

BASIC SHIP SYSTEMS

22,500

JUMP DRIVE

100

RECOVERY DECK

16

SENSORS

DECK 4

DECK 3

1. SPINAL MOUNT - MESON
2. MEDIUM TRACTOR BEAM BAY
3. DOCKING SPACE
4. LAUNCH TUBE
5. RECOVERY DECK
6. MESON SCREENS
7. NUCLEAR DAMPERS
8. CARGO HOLD

15M
30M

1 sq. = 50 Ton

DECK 2

8

DECK 1

FLEET CARRIER

ANTIAMA-CLASS
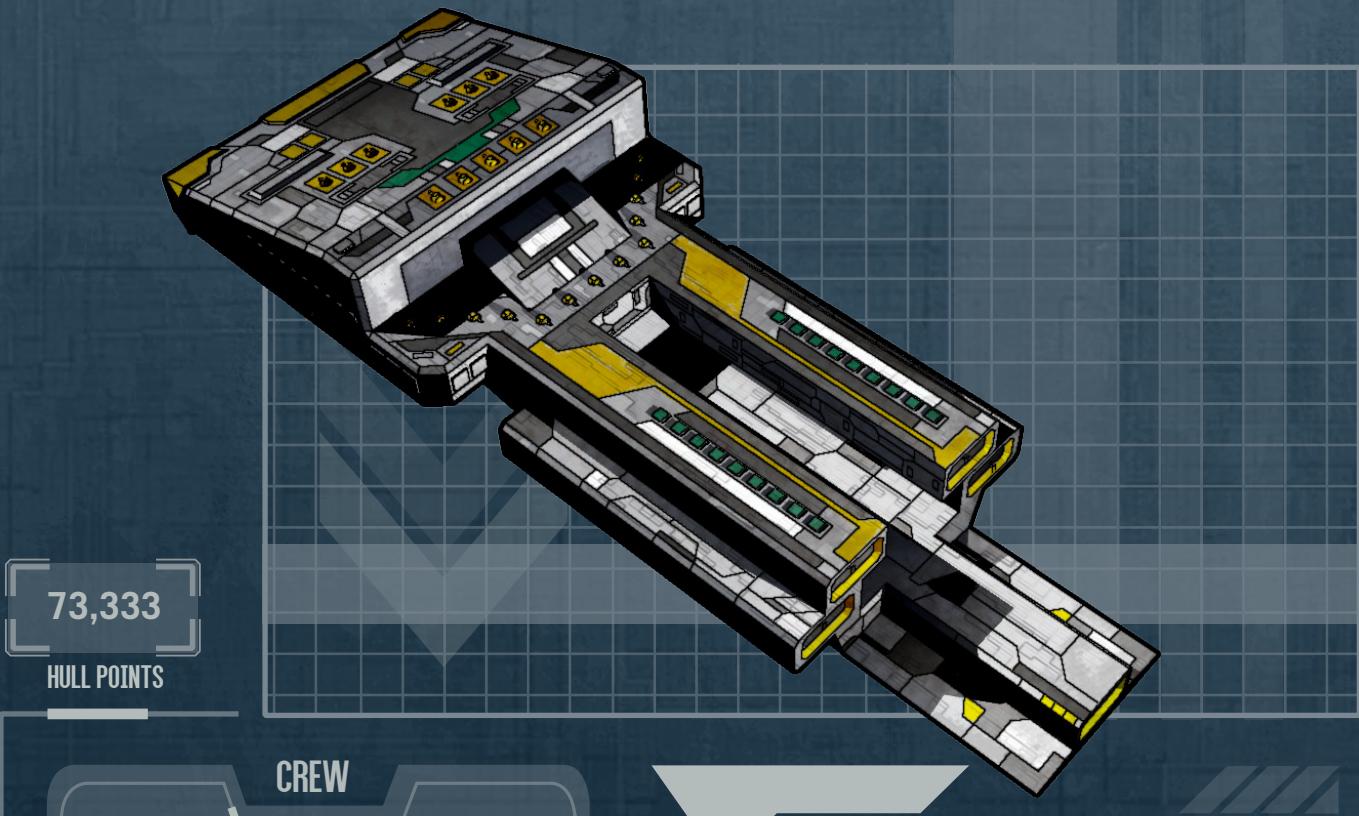
TL15		TONS	COST (MCR)
Hull	100,000 tons, standard	-	5,000
	Reinforced	-	2,500
	Radiation Shielding	-	2,500
Armour	Crystaliron, Armour: 2	2,500	750
M-Drive	Thrust 2	2,000	4,000
J-Drive	Jump 4	10,005	15,007.5
Power Plant	Fusion, Power 87,000	5,800	5,800
Fuel Tanks	J-4, 8 weeks of operation	41,160	-
Bridge		60	500
Computer	Core/60	-	75
Sensors	Advanced	5	5.3
	Distributed Arrays	10	10.6
	Enhanced Signal Processing	2	8
	Military Countermeasures Suite	15	28
Weapons	Medium meson bay	100	100
	Medium particle beam bay	100	40
	Medium tractor beam bay (increased size)	120	150
	Small missile bay x65	3,250	780
	Small fusion gun bay x5	250	40
	Triple turret (beam laser, long range) x160	160	500
	Triple turret (sandcaster) x160	160	280
	Point Defence Battery (Type III) x10	200	200
Ammunition	Missile storage (7,800 missiles)	650	-
	Sandcaster barrel storage (4,800 barrels)	240	-
Screens	Meson screen x9	90	180
	Nuclear damper x9	90	90
Craft	Docking Space (50 tons) x300	18,150	4,537.5
	Heavy fighter x300	-	17,118
Systems	Armoury	112	28
	Briefing Room x34	136	17
	Fuel Processor (8,000 tons/day)	400	20
	Fuel Scoops	-	1
	Launch Tube (50 tons) x3	1,500	750
	Medical Bay x24	96	48
	Recovery Deck (50 tons) x3	1,500	750
	Workshop x8	48	7.2
Staterooms	Standard x1,424	5,696	712
	High	6	0.8
Software	Advanced Fire Control/1	-	12
	Anti-Hijack/1	-	8
	Broad Spectrum EW	-	14
	Electronic Warfare/2	-	18
	Evade/2	-	2
	Jump Control	-	-
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		1,424	142.4
Cargo		5,075	

TOTAL: MCR 55,311,93

73,333

HULL POINTS

CREW

CAPTAIN, PILOT X3, FIGHTER CREW X660, ASTROGATOR, ENGINEER X733, MAINTENANCE X200, MEDIC X24, GUNNER X822, ADMINISTRATOR X100, OFFICER X254

RUNNING COSTS

MAINTENANCE COST
MCr 4.6093275/month

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PURCHASE COST
MCr 55,311,93

POWER REQUIRMENTS

20,000	20,000
MANOEUVRE DRIVE	BASIC SHIP SYSTEMS

40,000	16
JUMP DRIVE	SENSORS

400

FUEL PROCESSOR
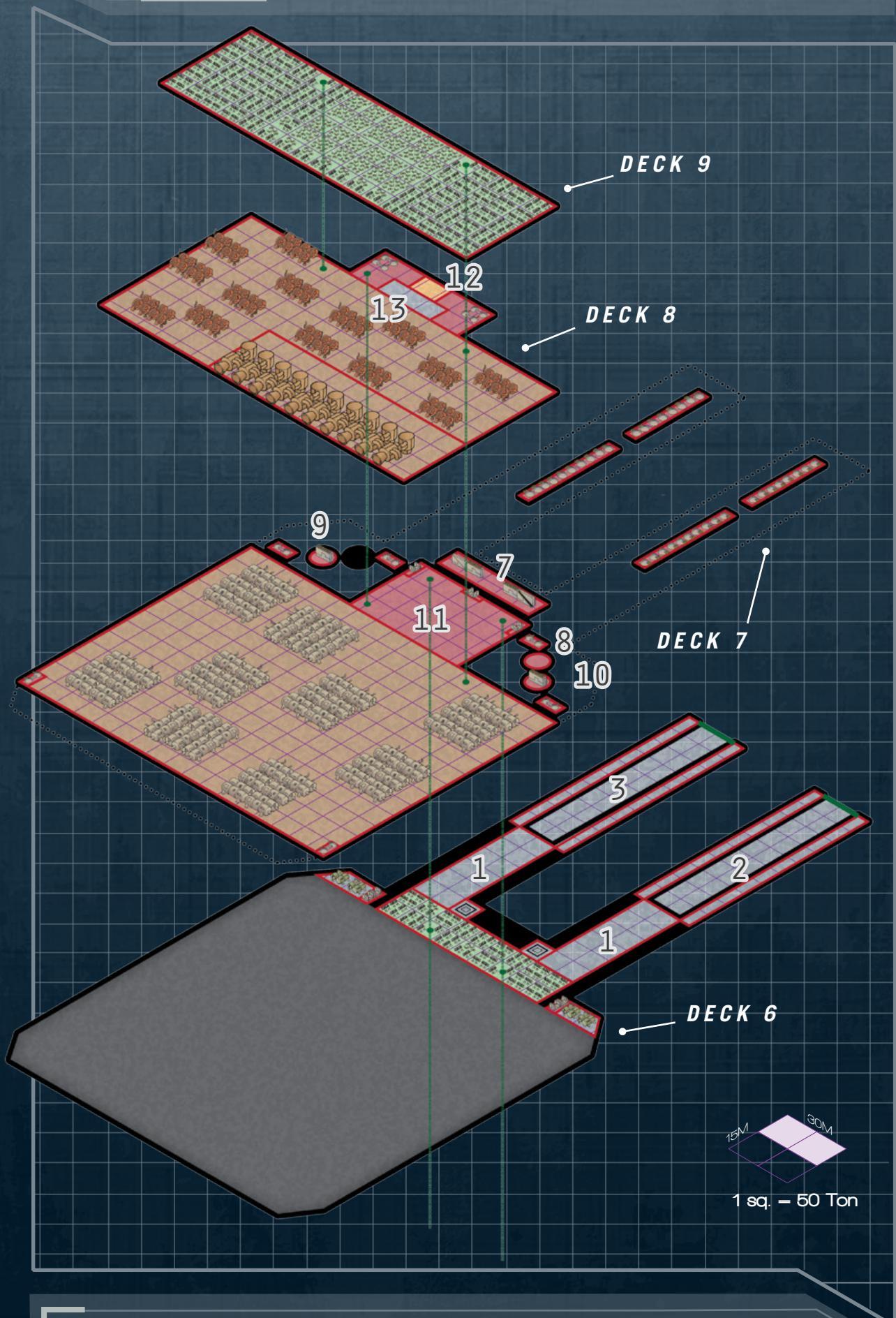
Also known in naval circles as the mother ship, the fleet carrier is a transport and launch facility for heavy fighters. Its main purpose is the carriage of FHs across interstellar distances to the site of battle. In peace, the fleet carrier is a mobile port and repair facility for its brood; in war, it is a formidable fleet element to be respected.
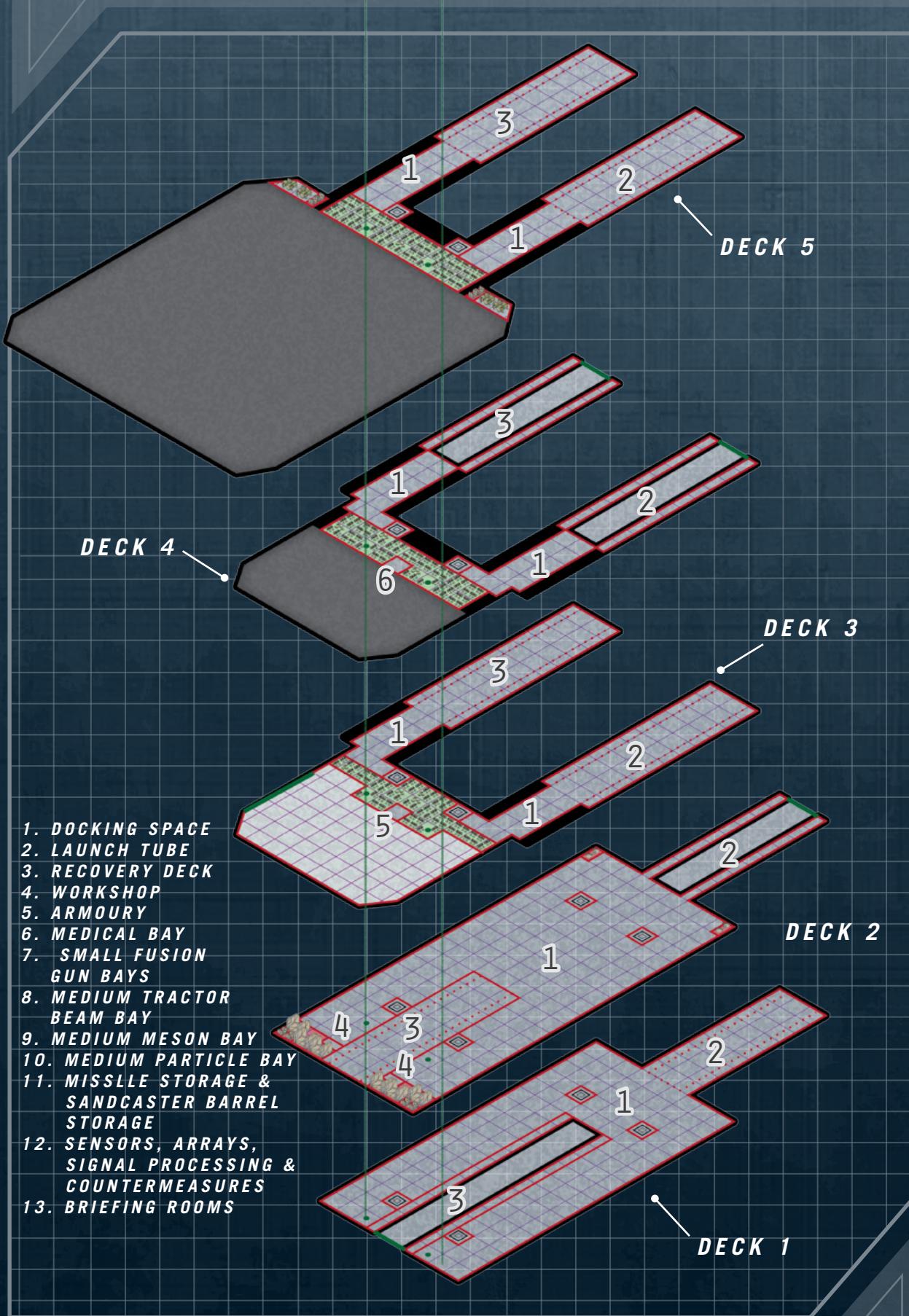
Defenses: The FC depends on its phalanx of three hundred fighters for the majority of its protection. Typically, one-third of the fighter force is in flight at any one time. In addition, however, the ship can defend itself with its extensive armament—especially its missile salvos. In practice, the fleet carrier's low armor rating and agility make it vulnerable and clumsy in battle, and it will join combat only to insure recovery of its brood.

Ground Support: The ship's meson gun and particle accelerator can be used against ground targets, as can its missile racks and its laser batteries. Generally this type of ground support occurs only in the final stages of a battle, when things are being mopped up. Doctrine would preclude risking this ship early in a battle when there is the potential disaster of surface-based return fire.

Evolution: The fleet carrier is an example of the continuing evolution of starship functions. In this case, it represents a splitting off of the fighter carrier operations of older battleships, placing the responsibilities all in a single ship designed for the purpose. Where once a large dreadnought would carry regiments of troops, phalanxes of fighters, and myriad weapons mounts, current practice is to split these various tasks into individual ships. Naval doctrine is to carry troops on troop transports, fighters on fighter carriers, and large weapons for the line of battle on battleships.

Class Names: The *Antiama*-class fleet carriers are named for empresses and consorts from Imperial history.

DECK 9

DECK 8

12

13

9

7

11

8

DECK 7

10

3

1

2

1

DECK 6

15M 30M

1 sq. = 50 Ton

DECK 5

DECK 4

DECK 3

DECK 2

DECK 1

1. DOCKING SPACE
2. LAUNCH TUBE
3. RECOVERY DECK
4. WORKSHOP
5. ARMOURY
6. MEDICAL BAY
7. SMALL FUSION
    GUN BAYS
8. MEDIUM TRACTOR
   BEAM BAY
9. MEDIUM MESON BAY
10. MEDIUM PARTICLE BAY
11. MISSLLE STORAGE &
    SANDCASTER BARREL
    STORAGE
12. SENSORS, ARRAYS,
    SIGNAL PROCESSING &
    COUNTERMEASURES
13. BRIEFING ROOMS

DREADNOUGHT

KOKIRRAK-CLASS
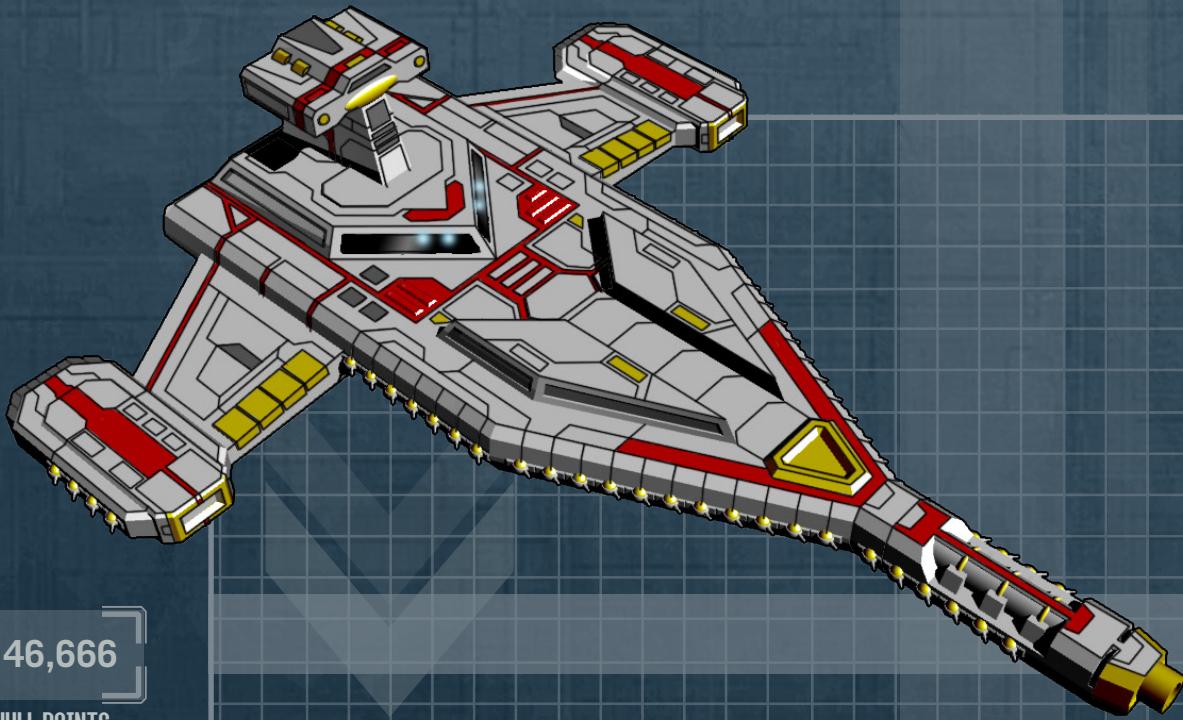
TL15		TONS	COST (MCʀ)
Hull	200,000 tons, standard	-	10,000
	5,800 tons modular	-	5,800
	Reinforced hull	-	5,000
	Radiation shielding	-	5,000
Armour	Bonded Superdense, Armor: 12	19,200	14,400
M-Drive	Thrust 6	12,000	24,000
J-Drive	Jump 4 (size reduction x2)	16,004	30,007.5
Power Plant	Fusion (TL15), power 180,000	9,000	18,000
Fuel Tanks	J-4, 16 weeks of operation	83,600	-
Bridge	Holographic controls	60	1,250
Computer	Core/90	-	120
	Core/80 (backup)	-	95
Sensors	Advanced x2	10	10.6
	Distributed Arrays	10	10.6
	Enhanced Signal Processing	2	8
	Military Countermeasures Suite	15	28
Weapons	Spinal – Meson (TL15)	30,000	13,000
	Small missile bay x50	2,500	600
	Small fusion gun bay x50	2,500	800
	Triple turret (beam laser, long range) x300	300	937.5
	Triple turret (sandcaster) x200	200	350
	Single turret (particle beam, intense focus) x330	330	346.5
	Point defence battery (type III) x20	400	400
Ammuntion	Missile storage (12,000 missiles)	1,000	-
	Sandcaster barrel storage (12,000 barrels)	600	-
Screens	Black globe generator	50	100
	Meson screen x8	80	160
	Nuclear damper x9	90	90
Craft	Docking Space (50 tons) x4	220	55
	Modular Cutter x4	-	41.15
	Docking Space (40 tons) x4	176	44
	Pinnace x4	-	34.928
	Docking Space (30 tons) x2	66	16.5
	Ship's Boat x2	-	11.304
Systems	Armoury	174	43.5
	Briefing Room x10	40	5
	Command Bridge (holographic controls)	80	468.75
	Fuel Processor (25,000 tons/day)	1,250	62.5
	Medical Bay x37	148	74
	Repair Drones	2,000	400
	Workshop x6	36	5.4
Staterooms	Standard x2,214	8,856	1,107
	High x3	18	2.4
Software	Advanced Fire Control/2		12
	Anti-Hijack/2		8
	Auto-Repair/2	-	10
	Battle System/1	-	18
	Broad Spectrum EW	-	14
	Electronic Warfare/1	-	15
	Evade/1	-	1
	Jump Control	-	-
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		2,214	221.4
Cargo		971	-
	Modular cargo area	5,800	-

TOTAL: MCʀ 119.822.877

146,666

HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X1,058, MAINTENANCE X400, MEDIC X37, GUNNER X2,236, ADMINISTRATOR X200, OFFICER X394

RUNNING COSTS

MAINTENANCE COST
MCr 9.98523975/month

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PURCHASE COST
MCr 119,822.877

POWER REQUIRMENTS

120,000

MANOEUVRE DRIVE

40,000

BASIC SHIP SYSTEMS

80,000

JUMP DRIVE

1,250

FUEL PROCESSOR

16

SENSORS
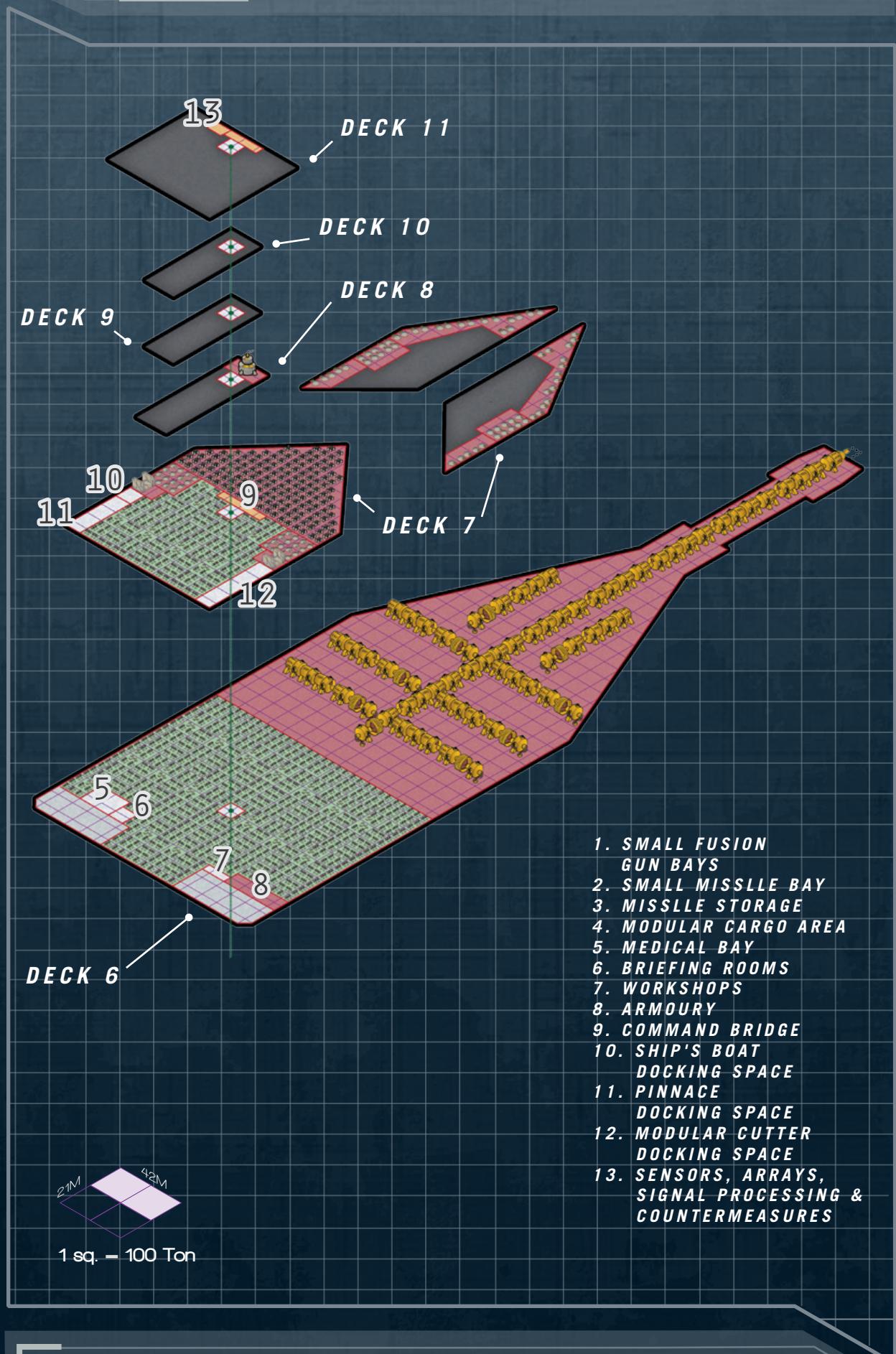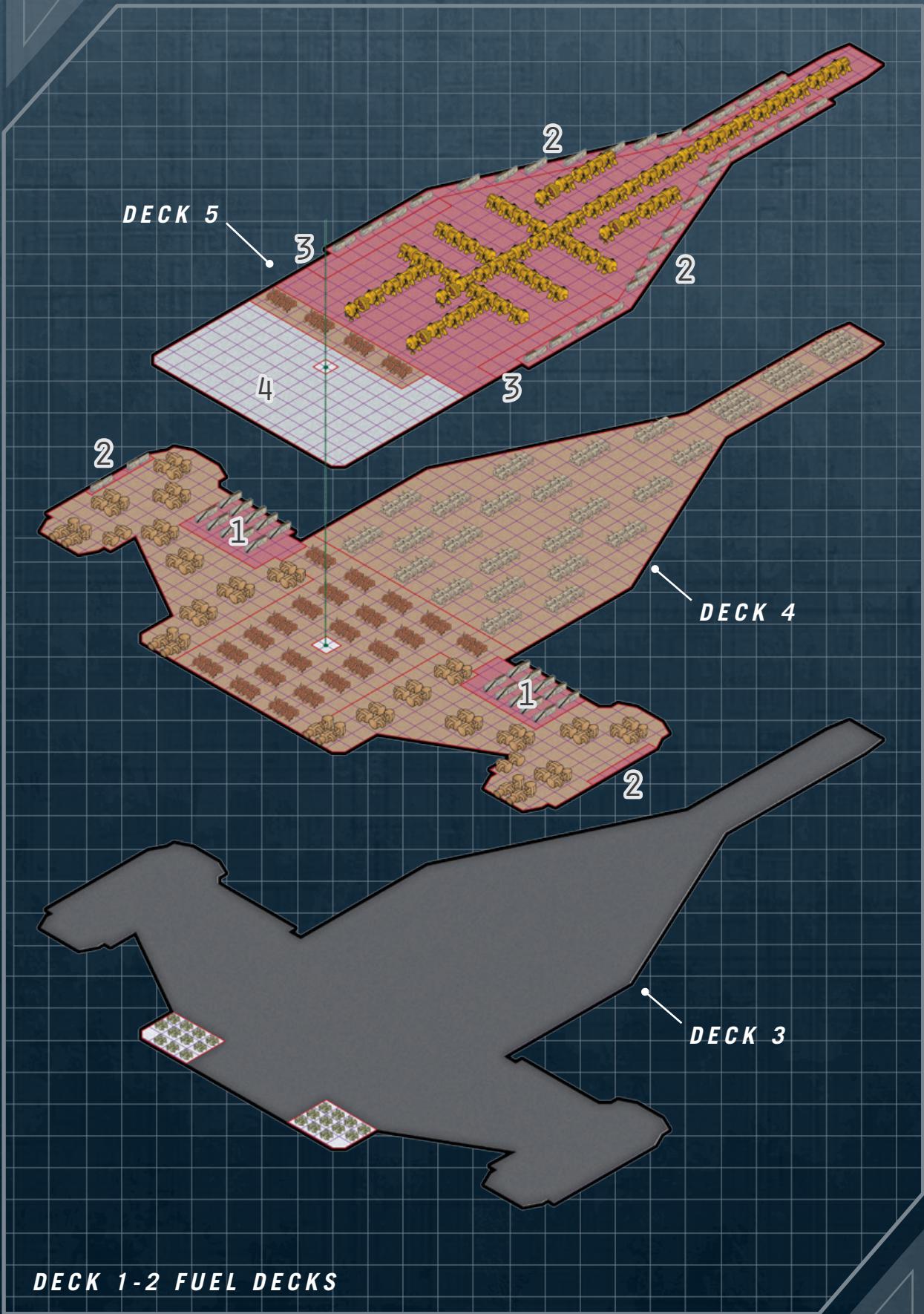
The *Kokirrak*-class dreadnought is one of the more common classes of capital ships in service in the Spinward Marches; a total of four BatRons of this type serve on permanent station, with harbor assignments at Rhylanor, Regina, Jewell, and Mora. Generally, one squadron of Kokirraks is dispersed into independent ships with ancillary escorts. On patrol, the ships combine training operations with routine patrols and reaction operations.

The *Kokirrak*-class is a preferred ship for flagship operations due to its extensive admiral's quarters, which include command and communications equipment, as well as entertainment chambers. The ship is capable of controlling a large fleet engagement within a system, as well as holding its own in battle; the combination of fleet controller and line-of-battle ship makes it an asset in nearly any space combat situation.

The *Kokirrak*-class are one of the older classes of dreadnoughts in Imperial service, and are now being phased out of service. Within the last decade, several ships have been disposed of to other services such as the scouts, and to other governments, including sector navies and client-states in the Spinward border regions of the Imperium.

DECK 11
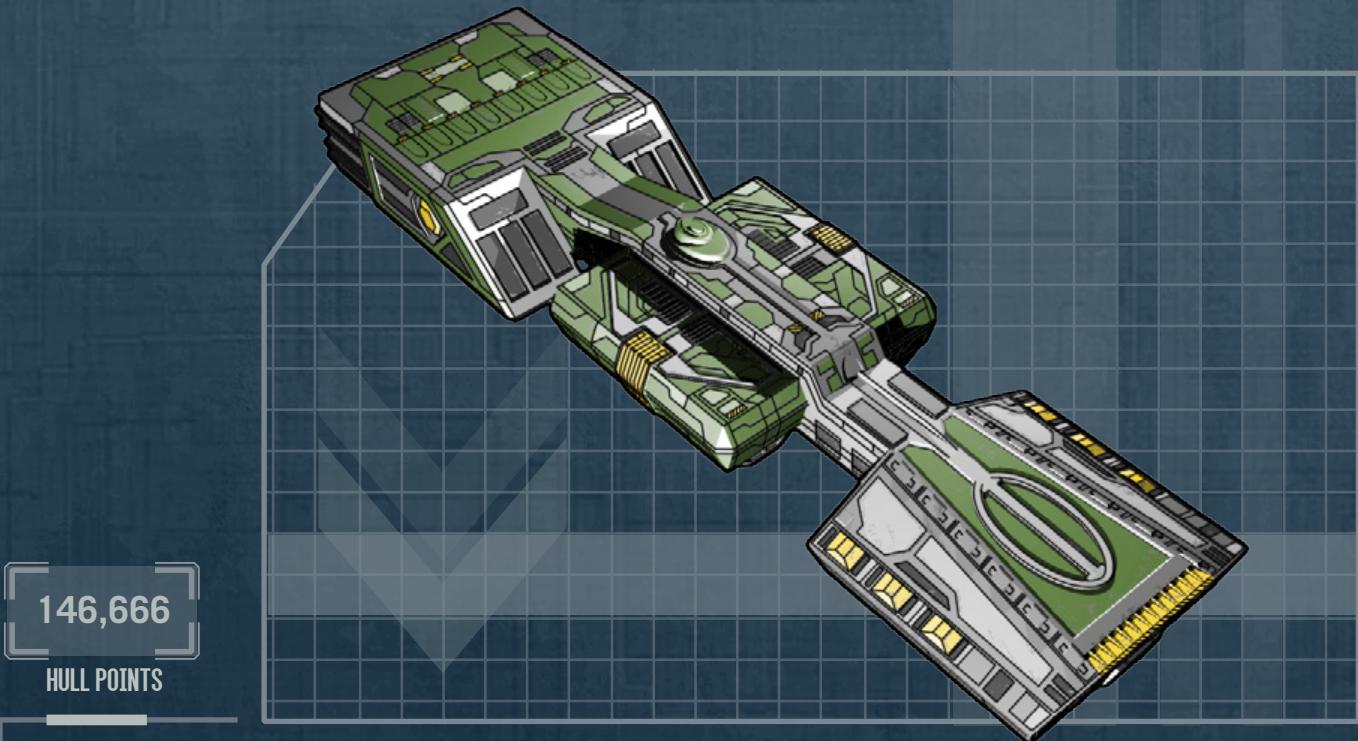
DECK 10

DECK 8

DECK 9

13

10

11

9

12

DECK 7

5   6

7   8

DECK 6

1. SMALL FUSION
   GUN BAYS
2. SMALL MISSLLE BAY
3. MISSLLE STORAGE
4. MODULAR CARGO AREA
5. MEDICAL BAY
6. BRIEFING ROOMS
7. WORKSHOPS
8. ARMOURY
9. COMMAND BRIDGE
10. SHIP'S BOAT
    DOCKING SPACE
11. PINNACE
    DOCKING SPACE
12. MODULAR CUTTER
    DOCKING SPACE
13. SENSORS, ARRAYS,
    SIGNAL PROCESSING &
    COUNTERMEASURES

21M   42M

1 sq. = 100 Ton

DECK 5

3

4

3

2

2

DECK 4

2

1

1

2

2

DECK 3

DECK 1-2 FUEL DECKS

211

DREADNOUGHT

TL15		TONS	COST (MCʀ)
Hull	200,000 tons, standard	-	10,000
	Radiation shielding	-	5,000
	Reinforced	-	5,000
Armour	Crystaliron, Armour: 10	25,000	7,500
M-Drive	Thrust 5	10,000	20,000
J-Drive	Jump 4	20,005	30,007.5
Power Plant	Fusion, power 165,000	11,000	11,000
Fuel Tanks	J4, 16 weeks of operation	84,400	-
Bridge	Holographic controls	60	1,50
Computer	Core/90	-	120
	Core/80 (backup)	-	95
Sensors	Advanced x2	10	10.6
	Distributed Arrays	10	10.6
	Enhanced Signal Processing	2	8
	Military Countermeasures Suite	15	28
Weapons	Spinal – Meson (TL15)	24,000	10,400
	Medium tractor beam bay (energy inneficient) x50	5,000	7,500
	Small missile bay x50	2,500	900
	Triple turret (beam laser, long range) x100	100	250
	Triple turret (sandcaster) x100	100	175
	Dual turret (fusion gun, high yield) x30	30	148.5
	Single turret (particle beam, intense focus) x400	400	420
	Point defence battery (Type III) x20	400	400
Ammunition	Missile storage (12,000 missiles)	1,000	-
	Sandcaster barrel storage (6,000 barrels)	300	-
Screens	Meson screen x3	30	60
	Nuclear damper x9	90	90
Craft	Docking Space (50 tons) x5	275	68.75
	Modular cutter x5	-	51.435
Systems	Armoury	156	39
	Briefing Room x8	32	4
	Command Bridge (holographic controls)	80	468.75
	Fuel processor (25,000 tons/day)	1,250	62.5
	Fuel scoops	-	1
	Medical Bay x33	132	66
	Repair Drones	2,000	400
	Workshop x6	36	5.4
Staterooms	Standard x1,984	7,936	992
	High x2	12	1.6
Software	Advanced Fire Control/2	-	12
	Anti-Hijack/2	-	8
	Auto-Repair/2	-	10
	Battle System/1	-	18
	Broad Spectrum EW	-	14
	Electronic Warfare/1	-	15
	Evade/1	-	1
	Jump Control	-	-
	Library	-	-
	Manoeuvre/0	-	-
Common Areas		1,987	198.7
Cargo		1,625	-

TOTAL: MCʀ 101.529.4815

146,666

HULL POINTS

CREW

CAPTAIN, PILOT X3, ASTROGATOR, ENGINEER X1172, MAINTENACE X400, MEDIC X33, GUNNER X1,724, ADMINISTRATOR X200, OFFICER X353

RUNNING COSTS

MAINTENANCE COST
MCr 8.460790125/month

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PURCHASE COST
MCr 101.529.4815

POWER REQUIRMENTS

100,000

MANOEUVRE DRIVE

40,000

BASIC SHIP SYSTEMS

80,000

JUMP DRIVE

1,250

FUEL PROCESSOR

16

SENSORS
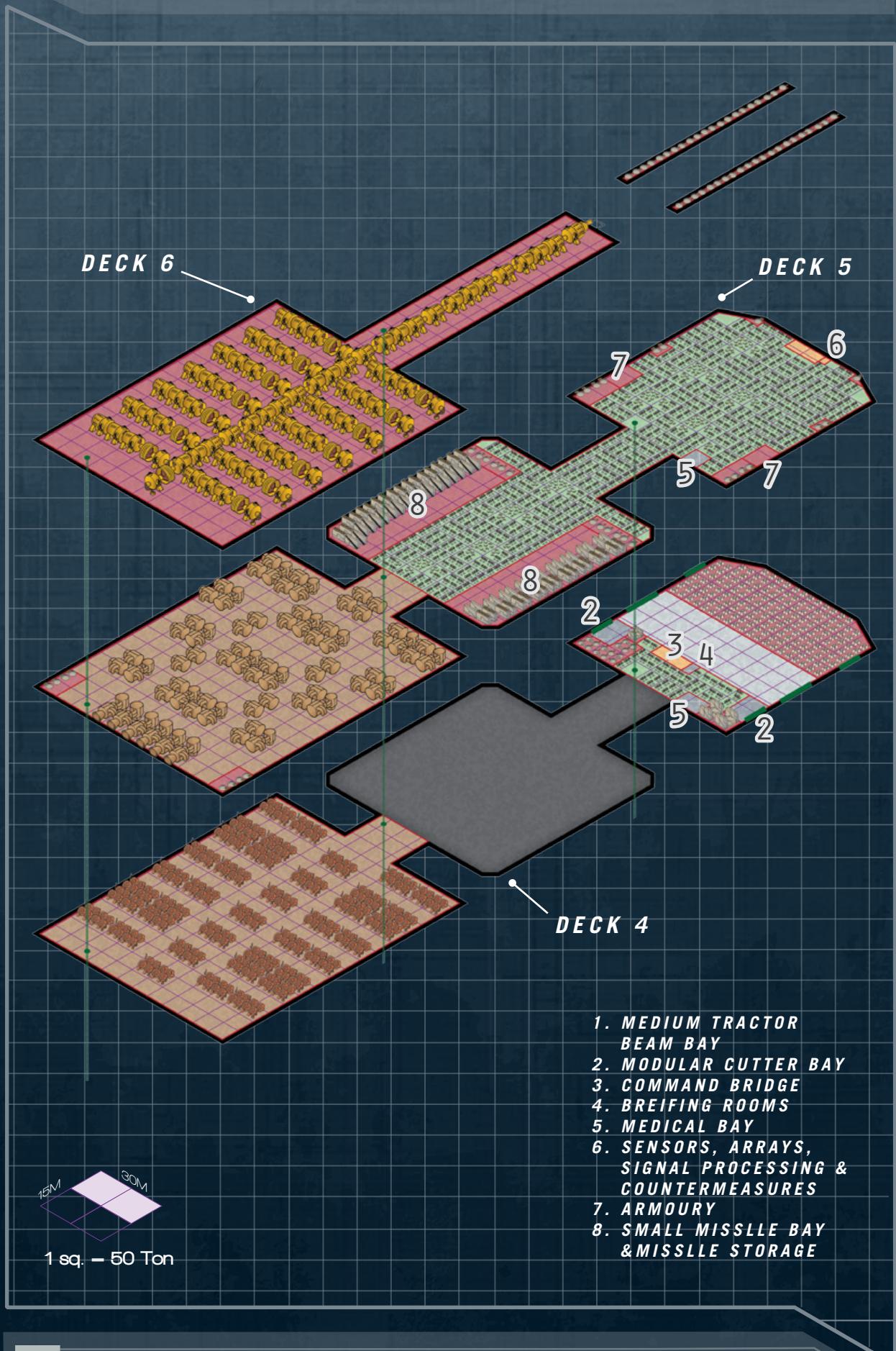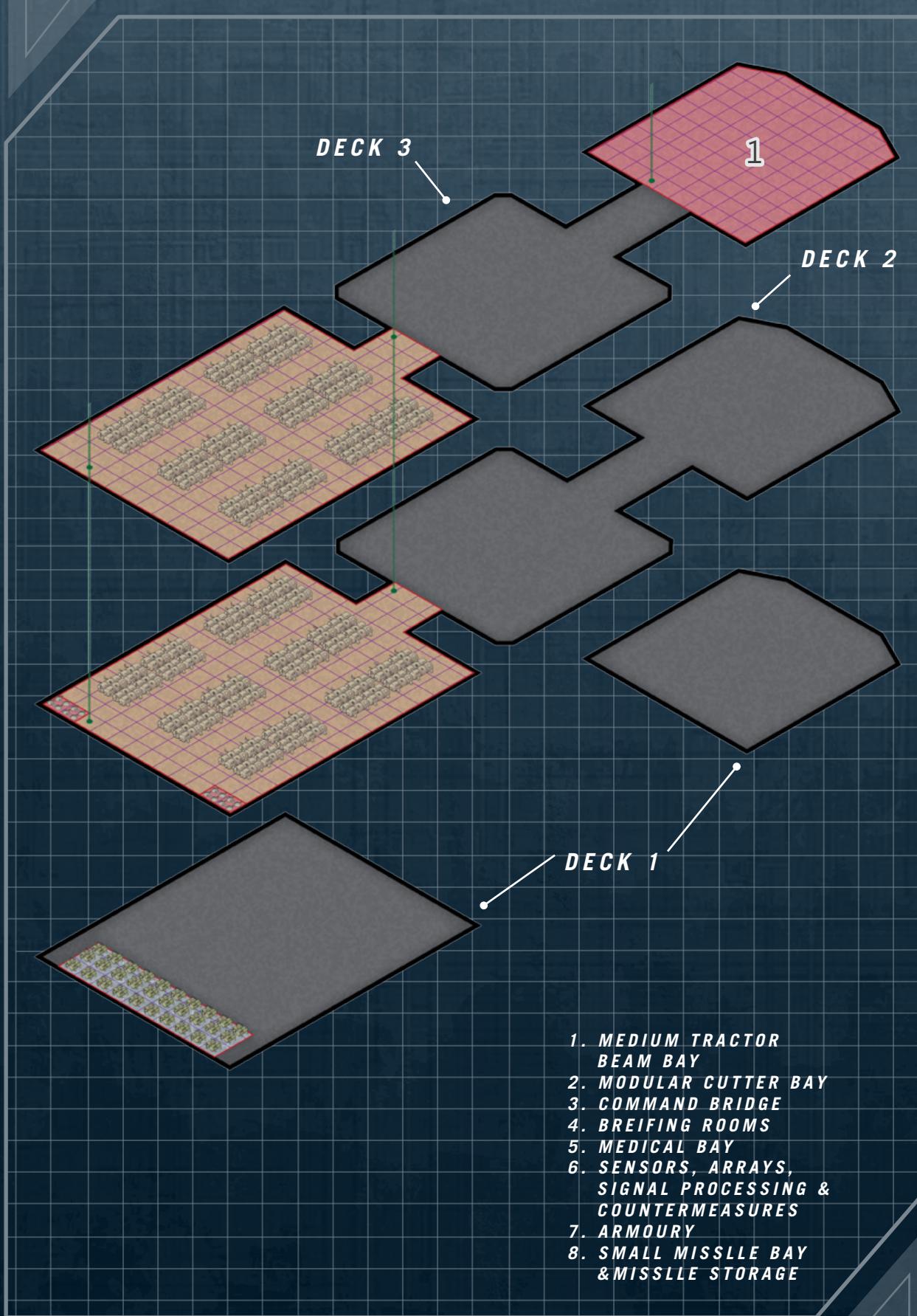
The *Plankwell*-class dreadnought is a more specialized ship than the multi-task oriented *Tigress*-class. Lacking the extensive troop complement and the large fighter screen, the Plankwell fulfills a more traditional battleship role, as the center of a fleet of supporting ships.

For decades, the Imperial Fleet in the Spinward Marches has included at least one BatRon of *Plankwell*-class ships, but recently (1102), the last such squadron was rotated to the strategic reserve in Corridor Sector. Sentiment in Naval and Sector circles runs high in favor of the return of at least one BatRon to the Marches.

Plankwell-class dreadnoughts are named for notable admirals in the Imperial Navy. The class name is taken from Grand Admiral Olav hault-Plankwell, a sector admiral in the Spinward Marches who rose to Grand Admiral of the Marches and lead the defeat of the Outworld Coalition during the First Frontier War (589 to 604). Following his victory in 604, he lead the fleet to the Core, personally dispatched the Empress Jaqueline I, and took over the government.

DECK 6

DECK 5

7

6

5

7

8

5

7

8

2

3 4

5

2

DECK 4

1. MEDIUM TRACTOR
   BEAM BAY
2. MODULAR CUTTER BAY
3. COMMAND BRIDGE
4. BREIFING ROOMS
5. MEDICAL BAY
6. SENSORS, ARRAYS,
   SIGNAL PROCESSING &
   COUNTERMEASURES
7. ARMOURY
8. SMALL MISSLLE BAY
   &MISSLLE STORAGE

15M
30M

1 sq. — 50 Ton

DECK 3

1

DECK 2

DECK 1

1. MEDIUM TRACTOR
   BEAM BAY
2. MODULAR CUTTER BAY
3. COMMAND BRIDGE
4. BREIFING ROOMS
5. MEDICAL BAY
6. SENSORS, ARRAYS,
   SIGNAL PROCESSING &
   COUNTERMEASURES
7. ARMOURY
8. SMALL MISSLLE BAY
   &MISSLLE STORAGE

TL15		TONS	COST (MCᵣ)
Hull	500,000 tons, standard	-	25,000
	Radiation Shielding	-	12,500
	Reinforced	-	12.500
Armour	Bonded Superdense, Armour: 15	60,000	45,000
M-Drive	Thrust 6, size reduction x3	21,000	63,000
J-Drive	Jump 4, decreased fuel x2	50,005	93,759.38
Power Plant	Fusion (TL15), power 440.000	22,000	44,000
Fuel Tanks	J-4, 20 weeks of operation	191,000	-
Bridge	Holographic Controls	60	3.125
	Sensor Station x5	5	2.5
Computer	Core/100	-	130
	Core/90 (backup)	-	120
Sensors	Advanced x3	15	15.9
	Distributed Arrays	30	31.8
	Enhanced Signal Processing	2	8
	Military Countermeasures Suite	15	28
Weapons	Spinal – meson (TL15)	66,000	28,600
	Medium tractor beam bay (energy inneficient) x22	2,200	3,300
	Small missile bay (size reduction x3) x430	15.050	7,740
	Triple turret (beam laser, long range) x100	100	312.5
	Triple turret (sandcaster) x100	100	175
	Dual turret (fusion gun, high yield) x100	100	495
	Single turret (particle beam, intense focus) x100	100	105
	Point Defence Battery (Type III) x50	1,000	1,000
Ammuntion	Missile storage (7,680 missiles)	640	-
	Sandcaster barrel storage (6,000 barrels)	300	-
Screens	Meson Screen x7	70	140
	Nuclear Damper x9	90	90
Armoured Bulkheads	Bridge	6	1.2
	Command Bridge	8	1.6
	Jump Drive	5,001	1000.1
	Manoeuvre Drive	2,100	420
	Meson Screen	7	1.4
	Missile Storage	64	12.8
	Nuclear Damper	9	1.8
	Power Plant	3,200	640
	Sensors	6.2	1.24
	Small Bays	1,505	301
	Spinal Mount	6,600	1,320
Craft	Docking Space (50 tons) x285	15,675	3,918.75
	Full Hangar (50 tons) x15	1,500	3
	Heavy fighter x300	-	16,024.5

TL15		TONS	COST (MCR)
Systems	Armoury	442	110.5
	Briefing Room x40	160	20
	Command Bridge, holographic controls	80	468.75
	Fuel Processor (50,000/tons day)	2,500	125
	Launch Tube (50 tons) x3	1,500	750
	Medical Bay x72	288	144
	Recovery Deck (50 tons) x3	1,500	750
	Repair Drones	5,000	1,000
	Workshop x12	72	10.8
Staterooms	Standard 4,619	18,476	2,182
	High x3	18	2,309.5
Software	Advanced Fire Control/3	-	18
	Anti-Hijack/3	-	10
	Auto-Repair/2	-	10
	Battle System/3	-	36
	Broad Spectrum EW	-	14
	Electronic Warfare/3	-	24
	Evade/3	-	3
	Jump Control	-	-
	Launch Solution/3	-	16
	Library	-	-
	Manoeuvre/0	-	-
	Screen Optimiser	-	5
	Virtual Crew/2	-	10
	Virtual Gunner/2	-	10
Common Areas		4,262	426.15
Cargo		3,787.8	

TOTAL: MCR 333,624.3885

POWER REQUIRMENTS

1,500	300,000	100,000	1,500
LAUNCH TUBE	MANOEUVRE DRIVE	BASIC SHIP SYSTEMS	RECOVERY DECK

200,000	2,500	16
JUMP DRIVE	FUEL PROCESSOR	SENSORS

Although some older battleships of greater displacement remain in service, the *Tigress*-class dreadnought is the largest line-of-battle vessel currently in service with the Imperial Navy in the Spinward Marches. Each BatRon of *Tigress*-class vessels is virtually a fleet unto itself, as each ship carries thirty squadrons of heavy fighters (with ten FHs per squadron). A BatRon of eight ships carries 2,400 heavy fighters.

At present, only one *Tigress*-class BatRon is deployed in the Spinward Marches, assigned to 212th Fleet, at Rhylanor. Additional *Tigress*-class BatRons are generally assigned one per sector.

Within the sphere, layered decks hold the various on-ship functions such as quarters, computer and electronic equipment, fuel treatment, and maintenance areas. Appended to the back of the sphere is a large heavy fighter launch and recovery installation. Fighters are launched to the rear, to starboard, and recovered from the rear, to port; this arrangement prevents them from entering the meson beam when it is in use, as well as providing some armored bulk between the fighters and the enemy.

Note all the software can't run at it's full rating together. What is running at any given time is determined by the needs of the ships crew at the time. A full crew is carried but virtual software may by used if necessary due to loses.

366,666

HULL POINTS

CREW

CAPTAIN, PILOT X3, FIGHTER CREW X660, ASTROGATOR, ENGINEER X2,739, MAINTENANCE X1,000, MEDIC X69, GUNNER X2,496, ADMINISTRATOR X500, OFFICER X746, TROOP X500

RUNNING COSTS

MAINTENANCE COST
MCr27.802032375/month

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PURCHASE COST
MCr 333,624.3885

DECK 28

DECK 27

DECK 26

DECK 25

11

13

14

12

3

3

3

3. SPINAL MOUNT SHIELD
11. ARMOURY
12. COMMAND BRIDGE
13. SENSORS, ARRAYS,
    SIGNAL PROCESSING &
    COUNTERMEASURES
14. BREIFING ROOMS

21M

42M

1 sq. — 100 Ton

DECK 24

4

3

DECK 23

3

DECK 22

3

3. SPINAL MOUNT SHIELD
4. MEDICAL BAY

DECK 21

3

DECK 20

3

DECK 19

9

3

10

3. SPINAL MOUNT SHIELD
9. LAUNCH TUBE
10. RECOVERY DECK

DECK 18

9

3

10

DECK 17

9

3

10

3. SPINAL MOUNT SHIELD
7. DOCKING SPACE
8. FULL HANGER
9. LAUNCH TUBE
10. RECOVERY DECK

DECK 16

3

7

8

DECK 15

3

DECK 14

3

DECK 13

5

6

3. SPINAL MOUNT SHIELD
5. SMALL MISSLE BAY
6. MISSLLE STORAGE

DECK 12

DECK 11

3

3

DECK 10

4

3

DECK 9

1

2

1. MEDIUM TRACTOR
   BEAM BAY
2. WORK SHOP
3. SPINAL MOUNT SHIELD
4. MEDICAL BAY

DECK 1-8 FUEL DECKS