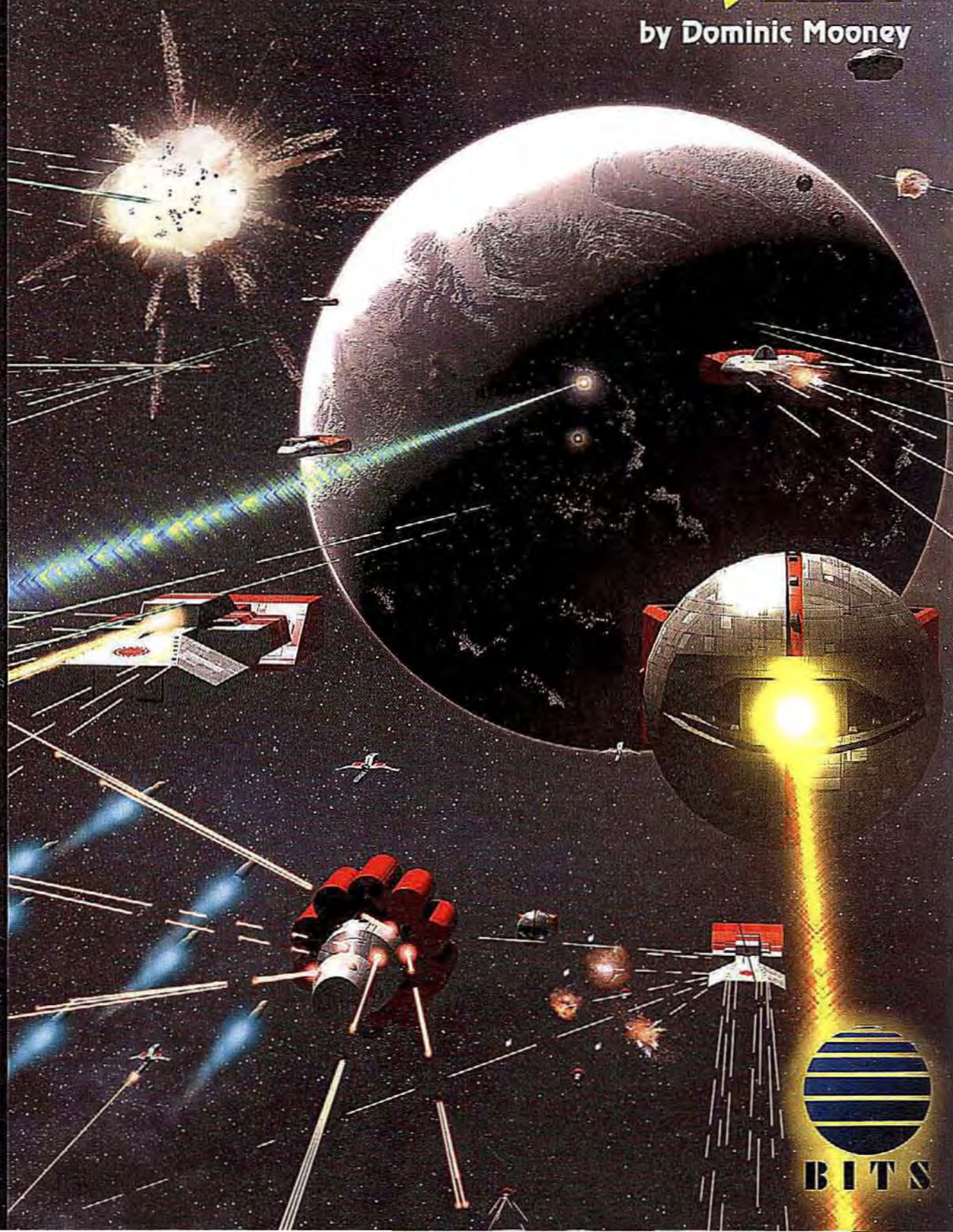# TRAVELLER
POWER PROJECTION
FLEET
by Dominic Mooney

BITS

"Acknowledged Masand Caldara control, ISS Solastra out."

Scout Commander Slair Llayh turned to his youthful second Drof Padural. "Another successful survey mission and home at last."

"Sounds good Slair, I'm looking forward... hey, what's that?"

"Looks like a... Jump re-entry... very close - it's only five thousand kliks astern. Fourteen k-tonnes. Looks about right for a light cruiser."

"Look, there's more... and those are far bigger!"

"Capital units. A couple of squadrons worth. What the zerk's going on Drof? I don't recognise the cruiser type and... their transponders are off... Holy Hish - those battleships look Zhodani to me!"

"The nearest cruiser, Slair - it's vectoring towards us. Zerks! Look at the acceleration!"

"Open comms! Send Signal GK! Piggy-back the sensor logs."

"May Day! May Day! Masand Caldara downport, this is ISS Solastra. We are under attack by Zhodani warships. Repeat, we are under attack from..."

"Broad spectrum EMS jamming, sir."

"Going evasive. We're going to need a lot of luck kid."

Multiple beams of incandescent coherent light crossed the void separating the toy-like Scout ship and the massive cruiser. It took just seconds to reduce the ISS Solastra to an expanding cloud of debris...

Just five minutes after the Solastra's last transmissions were decoded, the tactical situation was eminently clear to Rear Admiral Olean Graffin. The refuelling farm was going to be overrun in a matter of hours. Four squadrons of Zho battleships with their attendant escorts were now just fifteen light seconds out. With the majority of the 23rd Fleet at Jewell, his squadron of Plankwell class Dreadnoughts were outnumbered four to one. Long odds by most standards, even given his ships' superior technology. The holobowl allowed him to take in the forces available to him - by chance a squadron of strike cruisers had been delayed in-system, which might also shorten the odds, if only by a little.

The Solastra's fragmentary report and sensor data indicated one enemy squadron of the new 200kt 'Backfire' class battleships - relatively unknown to the Imperium and three of the more familiar Tleblnevr class. Intel indicated the 'Backfire's might be a challenging opponent. Graffin knew the courses of action available to him were limited and their outcomes a near certainty. He turned to his comms officer...

"Dispatch fleet couriers to Jewell, Mongo, Ruby, Lysen and Esalin immediately. This may be an isolated strike, but sector HQ and the 23rd need to know about this raid. For the Zho's to make a move like this, it looks like we might have a third frontier war on our hands. I want an immediate evacuation of the farm. All base staff to evacuate aboard the Clarion Conveyor. Civilian auxiliaries are to relocate to Emerald. The rest of us will cover the evacuation of the farm and then withdraw to Jewell and rendezvous with the 23rd.

PsiOps had identified the Imperial commander as Rear Admiral Graffin. The ship's computer told Admiral Detsprefistebr that Graffin was a pragmatic individual. It predicted he would attempt to withdraw and rendezvous with the 23rd fleet. Her own assessment agreed with the computer. The war plan called only for the destruction of the refuelling facility and Detsprefistebr was not a vindictive woman - should the enemy flee, they would not be pursued.

"Admiral, the enemy ships are clustering into a defensive sphere - presumably to cover them while they withdraw from the system."

A predictable man indeed. On the holoscreen bright arcs marked the predicted courses the Imperials would use to avoid contact.

"Admiral, the enemy squadrons are... on a convergent intercept."

"What? Confirm their identity."

"Alpha priority Plankwell dreadnoughts. Gamma priority Arakoine class strike cruisers. Delta priority fleet escorts and destroyers."

Intel hadn't mentioned the strike cruisers... and a surprise tactical decision from Graffin - had she underestimated him?

"One minute to engagement envelope. Escort screen has engaged. On my mark, all ships come to course fifty by eighty and make full speed for the Jump limit. Engage with missiles while in range."

Graffin surveyed his frenzied bridge crew's preparations for battle. "May Hish be with us," he muttered under his breath.

Detsprefistebr's face showed intense concentration as the blips manoeuvred on the holoscreen, then suddenly she stood up.

"The Imperials are going to try a passing engagement at maximum missile range; anything else would assure their destruction. Squadron Qulavlnir, expect a course change bringing the Imperials off your starboard flank. Come to an intercept course and engage."

"Mark! Come to new course, launch missiles. Deploy sand. Bring up the meson screens."

As one, the capital ships of two Imperial squadrons neatly and crisply came to their new heading.

"Admiral. Starboard flank Tleblnevr's vectoring to intercept."

Graffin cursed under his breath, but his voice remained steady.

"Continue as ordered."

The void filled with pin-pricks of light as the drives lit up on hundreds of missiles ejected from the Imperial ships, carrying nuclear bomb-pumped x-ray lasers and close proximity contact nukes.

Graffin was thankful that the Arakoine strike cruisers were renowned for their formidable missile armament; their presence considerably swelled the missile swarm.

"Deploy sand. Adjust course to keep it between us and the incoming Tleblnevr's."

Almost invisible against the darkness of space, clouds of synthetic reflective granules blossomed from the ships' launchers to form a defensive shield.

> "**Power Projection** — The employment of military assets to exercise control of the space between stars, typically through the use of capital class starships combined with close orbit and aerospace control operations, ortillery and planetary assault."
>
> — "An Officer Cadet's Primer", Fleet Admiral Sterrett, Imperial Interstellar Navy Academy, Sylea
>
> "**Power Projection** — The ability of a polity to apply all or some of its elements of national power - political, economic, informational, or military - to rapidly and effectively deploy and sustain forces in and from multiple dispersed locations to respond to crises, to contribute to deterrence, and to enhance regional stability."
>
> — NorAm Dept. of Defence, Definitions & Terms [pre-Second Imperium Terra]
>
> "**Power Projection?** It's all about going to other peoples' planets and making them do what we want!"
>
> — CPO Dav Vandenbroucke, Dreadnought 'Cleon 1st', Imperial Interstellar Navy

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Detsprefistebr resigned herself to losing perhaps half a squadron in the unforeseen passing engagement. Space became a sea of miniature suns as hundreds of nuclear warheads detonated. Her screens showed forty two percent of the missiles had been eliminated by point defence weapons and electronic countermeasures, but the EM pulses of the nukes corrupted sensor information from the area. However, Qulavlnir's action had brought the Imperial Plankwells within range of her 'ship killers' - the huge meson guns which formed the spines of her capital ships - now fully charged.

Accelerated at relativistic speeds, the bursts of mesons passed unnoticed through space until their carefully measured lifetimes expired and they decayed within the fabric of the Imperial ships, causing the explosive release of enormous amounts of energy. The meson fire tore into Graffin's ships, destroying critical ship systems and splitting one of the mighty Plankwells from stem to stern, its hull shattered by internal explosions.

Graffin knew within minutes that he had lost a third of his total command. His opponent seemed to have read what he was going to do and his fleet was suffering because of it. He could continue running and Jump out to Jewell as planned, or vector his ships around and engage the Zhodani with his own meson guns. Either choice had painful consequences but Graffin knew what he had to do...

CONTENTS & CREDITS

BITS and GZG

British Isles Traveller Support (BITS) is the UK publisher of licensed supplements (the "101" series of referee aids) and adventures, for Traveller®, Marc Miller's ground-breaking science-fiction roleplaying game of the far future.

BITS runs a fan club for UK Traveller enthusiasts and promotes Traveller at conventions, running games of Traveller (in all its incarnations), *Power Projection* and our sci-fi combat skirmish game *At Close Quarters*. For more details see www.bits.org.uk.

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Ground Zero Games is the UK publisher of the *Full Thrust* starship battles game and produces a huge range of metal starship miniatures for gaming. GZG's ship miniatures are highly recommended by BITS for use with *Power Projection*. GZG also publish SF ground combat rules and produce a huge range of metal SF miniatures and resin vehicles, all of which are perfect for use with our SF skirmish system *At Close Quarters* and for general use in all types of Traveller roleplaying games.

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Far Future Enterprises is the home of Marc Miller's Traveller and also publishes re-prints of the 'Classic' 'little black books', including the ship design rules *High Guard* - see www.FarFuture.net.

Welcome to Power Projection

Power Projection is a game of far future space conflict. It focuses on interstellar warfare between huge, powerful capital ships - battle-cruisers and dread-noughts - battling for worlds and star systems in clashes between human empires and alien races.

Capital ships are usually built around their primary weapon: a meson or particle accelerator (PA) weapon so large that it forms the spine of the ship's structure. These weapons utilise high energy physics to destroy their opponents. Meson weapons fire sub-atomic particles which pass through normal matter and decay in an explosive manner inside the hulls of enemy ships; such attacks are only stopped by meson screens or carefully crafted hull shapes. Particle accelerators fire high energy particles at tremendous velocity to impact explosively against the enemy's hull; the only defence against PA's is thick hull armour.

Power Projection can also be used for skirmishes between patrol and escort ships, where smaller scout or reconnaissance groups encounter each other. This gives a game with a different feel, where careful manoeuvring is even more critical to a ship's survival. The subset of rules needed for smaller skirmishes are also available in *Power Projection: Escort* (which includes some smaller ship designs).

The game *can* model combat between the 'tiny' ships typically used by adventurers in the roleplaying game **Traveller**, but their lives will end quickly and brutally if they go up against a big naval vessel. At best, smaller ships can hope to help protect their side's capital vessels by shooting down incoming missiles and deploying screens of sand to deflect beam weapon fire. They may also target smaller enemy ships, but their offensive capability is dwarfed by that of the capital ships.

Nomenclature

We've tried to avoid lots of buzz-words and TLA's (three letter acronyms) in these rules. Keywords appear in SMALL CAPITALS the first time they are used. References to other books are in *italics*. **Traveller** is such an important name we've kept it in bold. We use various formats to help make this book easy to read:

Key game rules may be highlighted like this.

Example: An explanatory example to assist in understanding how to apply a given rule.

WE REPRESENT THINGS THE PLAYER MIGHT WRITE LIKE THIS.

ⓘ *This is a useful piece of information which supplements the rules.*

❓ This is an optional rule which you may decide to include in your game, or ignore.

This box holds supplementary 'library' data.

Getting Started

You only need a few basic items to play *Power Projection* - counters, dice, etc. - as described in *What Do You Need To Play?* (p.4).

If you're not familiar with the roleplaying game **Traveller**, this section provides a short introduction to the **Traveller** universe and the major races that might come into conflict, though this is not key to playing the game. There is also a short discussion of the main aspects of space warfare to give you an understanding of the scales and some of the issues involved.

You need to understand how ships are grouped for command purposes (p.8) and how starships are described using SHIP STATUS DIAGRAMS (SSD's, p.10).

You need to know how to manoeuvre your ships (p.13), starting with the basics and adding in gravity effects only when you're familiar with vector movement.

Ships attack each other with spinal mount weapons (p.22) and smaller "secondary" beam weapons (p.23) - and missiles (p.26). After taking into account basic defensive capabilities such as armour (p.25), any resulting damage is applied to a ship's structure (p.28) and may disable individual ship components (p.29).

Once you can move ships around and fire their weapons, you can play your first *Power Projection* game using one of the scenarios in this book (p.40).

After you've understood the basics of each section, go back through and read the advanced/optional rules. You can then introduce whichever new features you wish, to spice up your space battles, from Black Globe screens (p.31) to psionics (p.34).

After a few space battles you may wish to play a more strategic game (p.44) - manoeuvring fleets between star systems, managing fleet logistics and the construction of new ships. You can focus purely on combat between starships or you can learn how to subdue planets (p.37), which also have their own defences.

You can supplement the ships described in this book with new ship designs, converted from **Traveller** source books (p.56) or designed from scratch using one of the sets of **Traveller** ship construction rules.

Finally, once you start making up new rules and new ship designs, please do let us know so we can share them with other players of *Power Projection* (see the contact details at the front of this book).

Power Projection: Escort

If you already own *Power Projection: Escort*, it's worth going back to basics as described above, because the introduction of spinal mounts requires a change in strategy. However, if you're feeling brave, just read straight through the whole of this rule book and start adding in advanced rules immediately.

What Do You Need To Play?

These are the bare essentials:

- Playing area
- Starship models or counters
- Starship Status Diagrams
- Tape measure or ruler
- Six-sided dice, hereafter referred to as "D6".
- Pencil.

Playing Area

Power Projection can be played on pretty much any flat playing area of at least 3 feet (1 metre) square, but ideally the larger the better. You can use the floor or a table - you can also lay a board on the table to protect it and/or enlarge the playing space.

You can create a 'starfield' by obtaining a large sheet of paper, card or cloth (e.g. a black bed sheet or felt sheet) and spraying it with a variety of different size dots of white, yellow and blue paint. Don't paint on planets, asteroids or other obstacles - for flexibility these are best represented by counters.

Starship Models or Counters

This book includes counters for a range of starships, planets and combat-related events (nuclear bursts, sand clouds, etc.). However, your battlefield will look more impressive if you use miniatures to represent the starships and planets. Check out your local games shop and the internet for suppliers of SF starships. Secondhand **Traveller** starship miniatures from past years may be available but tend to be the small ships owned by roleplaying characters, whereas these rules focus on much larger warships. BITS also recommends Ground Zero Games' starship miniatures (GZG's contact details are given at the front of this book).

If the miniatures are not already mounted on a stand, you can improvise using rigid wire stuck into a wood or plastic base. The advantage of a stand is that it provides a centre point for the starship from which all range measurements can be made. If you don't use stands, ensure your counters or miniatures have a 'centre' point marked on them.

If you are feeling adventurous you may even decide to scratch-build starships, planets, asteroids, missiles, etc. For example, a large gas giant can be represented by half a tennis ball (painted up with suitable swirling cloud patterns) sat on the table, a small gas giant by half a ping-pong ball, or a whole ping-pong ball mounted on a stand just like the starships. Sand cloud counters could be replaced with suitable size disks of cardboard or modelling clay, painted black with sand or glitter particles glued on to them.

Counters

You need counters to mark future ship positions, sand clouds, nuclear bursts, etc. The counters provided with this book can be strengthened by mounting them on card or laminating them (at your local copy shop). Counters can also be downloaded from the *Power Projection* web site, or you can create your own counters, provided they are roughly the same size. You are permitted to photocopy the counters provided with this rule book for your personal gaming purposes only.

Ship Status Diagrams

Ship Status Diagrams (SSD's) are a compact means of describing *Power Projection* starships using symbols to represent their movement, offensive and defensive capabilities. This book includes a pull-out booklet of SSD's for a wide variety of warships for the Imperium and Zhodani Consulate. You can also create an SSD for almost any **Traveller** starship by using the conversion rules starting on p.56 (using icons from the *Power Projection* web site). You are permitted to photocopy SSD's for your personal gaming use.

We recommend that you laminate the SSD's and use water-soluble marker pens to write on them, so that any marks can be cleaned off with water after each battle and the SSD's can be reused time after time.

Measuring Distance

Tape measures are the most flexible means of measuring the distances involved in playing *Power Projection*. Having multiple tape measures - one per player - will significantly speed up game play.

All distances are measured from the 'centre' of a starship, i.e. from the upright support of the miniature's stand or the marked centre point of a counter.

These rules use inches for measuring distances on the playing surface. However, if you have a small playing surface you may instead choose to use centimetres as the basic measuring units.

Dice

Power Projection needs only six-sided dice ("D6"). For larger ships and multiple players, it is useful to have a fair number of D6's to share out between players and when rolling large numbers of attacks. However, special tables are used in these rules to ensure that the hundreds of attacks possible from a dreadnought do not require hundreds of dice!

Keeping Track

Pencil and paper are needed for writing orders and for marking damage on the SSD's, but *Power Projection* intentionally minimises the amount of record-keeping required, to help keep game play moving quickly.

Space... It's Big

Power Projection space battles take place over relatively large distances. It takes time to manoeuvre across the emptiness of space and at the extremes of weapon range, even laser fire travelling at the speed of light may take half a minute to reach its target.

The basic movement unit (MU) in *Power Projection* is 75,000 km, i.e. 0.25 light-seconds (the distance light travels in a quarter of a second, since light travels at approximately 300,000 km per second).

A game turn represents 50 minutes (sorry it's not an hour, but it fits best with **Traveller**'s conventions on movement and combat).

A scale of 1 inch = 1 MU works well on a typical gaming table, though for battles where ships wish to manoeuvre beyond their opponents' weapon range, a playing area of at least 3' (1 metre) square is required, since most weapons can be targeted at up to 30 MU. For a smaller scale, use 2 cm, or $^1/_2$ inch per MU.

The Traveller Universe

The **Traveller** roleplaying game and its associated universe has been in development since 1977 when Game Designer's Workshop published the first rule books, written by Marc Miller. The setting is the 57th century, when human kind ("humaniti") has spread far and wide among the stars. Several human empires exist, bordering a variety of major alien domains.

In the traditional time period that **Traveller** is set, conflict between the human empires is far more common than between the aliens and humans, and this is reflected in the ship designs presented in this book. However, major human-alien confrontations occurred earlier in **Traveller** history and so *Power Projection* includes a conversion system allowing the ships of any **Traveller** race to be used in *Power Projection*.

Note that dates given in this book are based on those of the most powerful human empire - the Imperium. Each 'standard' year contains 365 days, numbering from the founding year of the Third Imperium (4518 AD). Non-Imperium dates are noted as such.

Star-spanning Empires

The key players in **Traveller** are mostly the "major races" - those which independently developed interstellar travel using "Jump" technology. There are three such human races: the Solomani, Vilani and Zhodani.

Solomani — Originating from Terra (Earth), these humans encountered the star-spanning Vilani empire of the First Imperium just nine years after the Solomani first developed Jump technology in Earth year 2087. The dramatic clash in their cultures led to a series of interstellar wars in which the slow, stale, bureaucratic Vilani were overwhelmed by the fledgling Terrans, leading to the establishment of the Solomani Second Imperium (also known as "The Rule of Man") in 2314.

Vilani — Dedicated to slow, stable technological development, these humans spread gradually over 4,000 years from their homeworld Vland to establish the First Imperium (the "Ziru Sirka" or "Empire of Stars") in Earth year 473 AD, clashing with neighbouring alien races during this expansion. Despite their initial successes, cultural rigidity caused technological stagnation, leading to defeat by the fast-growing Solomani realm. However, the Second Imperium suffered internal collapse, creating a twilight period of a thousand years with only weak, isolated pocket empires. One such, the Sylean Federation, became strong enough to give birth to the Third Imperium in Earth year 4518 AD (Imperial Year 0) under the leadership of emperor Cleon I. The Third Imperium reclaimed thousands of worlds from its earlier incarnations, leading once again to conflict with alien empires, particular the Vargr and Zhodani.

Zhodani — A human empire based upon the power of the mind ("psionics"), where lies and criminal acts are viewed as treatable mental illnesses. By -1000 (Imperial) the Zhodani recognised the limitations on effective rulership of their empire - spanning hundreds of light-years - and so ceased expansion. However, the

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Library Data Search: PERIODS OF CONFLICT

The main periods of conflict on the **Traveller** timeline are as follows (using the Imperial date system):

-2408 to -2219 Interstellar Wars (1st to *n*th) - The expanding Terrans battle against the vast, established Vilani First Imperium.

76 to 120 Pacification Campaigns - The fledgling Third Imperium tries to contain internal opposition and rebellion.

589 to 604 First Frontier War - The Third Imperium's expansion towards the Zhodani Consulate is repelled.

604 to 622 Civil War - Various internal factions within the Third Imperium fight for control of the empire.

615 to 620 Second Frontier War - The Third Imperium confronts the Outworld Coalition, formed from the Zhodani Consulate, neighbouring Vargr States and rebellious Sword Worlds.

979 to 986 Third Frontier War - A repeat match between the Third Imperium and a renewed Outworld Coalition.

990 to 1002 Solomani Rim War - The Third Imperium is forced to subdue Solomani factions fighting for independence.

1082 to 1084 Fourth Frontier War - Third Imperium against the Outworld Coalition (yes, again).

1107 to 1110 Fifth Frontier War - Third Imperium against the Outworld Coalition (no, they still hadn't learned...)

1116-1129 The Rebellion or "The Final War" - Following the assassination of the Imperial emperor, a messy conflict ensued between shattered Third Imperium factions, Vargr raiders, the Solomani Confederation, Aslan Ihatei Settlers and K'Kree raiders. Note: This conflict was written into **Traveller** canon in the *MegaTraveller* and *New Era* rules, but *GURPS Traveller* has reinterpreted both the origins and outcome of this period as an official 'alternative' **Traveller** timeline.

relatively tranquil Zhodani were disturbed by the aggressive growth of the Third Imperium, leading to repeated clashes between these two human powers from 589 (Imperial) for the next half-millennium.

Aslan, Vargr, K'Kree — The honorable leonid Aslan, canine piratical Vargr and violently vegetarian centaur-like K'kree all have empires bordering the Imperium.

Technology

The **Traveller** universe contains thousands of worlds ranging in technology from stone-age tribes to high-tech utopias. The technological prowess of a civilisation is ranked on a scale of 0 (the most primitive) up to 15 (the most developed Imperial worlds). Technology is a key driver for starship sensors, weapons, communications and computers so all ships have a TECH LEVEL (TL) rating. Space flight is rarely achieved by civilisations until they attain a Tech Level of at least 7, while typical Imperial fleets are built at TL14 or TL15.

Since a ship's Tech Level dramatically affects its combat capability, this is reflected in its RELATIVE COMPUTING POWER (RCP) factor, from 1 (low) to 3 (high) - see p.8.

A Little Bit of Science

Traveller is often claimed to be reasonably 'hard' science-fiction (when compared, for example, to *Star Trek* or *Star Wars*). Before playing **Power Projection** it is worth discussing some of the truisms of space combat.

You Can't Hide

Space is vast, almost entirely empty and very, very cold (just a few degrees above absolute zero) such that even gases freeze solid. A ship's drives have to emit a lot of energy to provide any reasonable thrust (whatever the technology or fuel they use), so the energy from a manoeuvring ship is very easy to detect against the super-cold background of space.

Even if a ship turns off its drives, it has to maintain a reasonable internal temperature for its crew; it contains a power plant which has to power a lot of electrical equipment (life support, computers, etc.). These systems all emit heat (as a waste by-product) which must be shed from the ship to prevent it building up and cooking the crew. Even a carefully constructed 'stealthy' ship must find a way to get rid of this energy, and can therefore be detected using the advanced military sensors available to **Traveller** ships.

The problems astronomers have detecting potential Earth-impacting asteroids might make you think it's easy to hide in space. However, asteroids are typically as cold as the space around them, vary enormously in how bright (reflective) they are, and current telescopes and their associated computers only allow us to scan limited sections of the night sky relatively slowly.

Traveller ships have far improved sensor technology and computer processing power, plus ship sensors don't suffer the warping and attenuating effects of viewing space through a planet's atmosphere.

In summary, in **Power Projection**, it is generally pretty easy to detect the presence of other starships and extract a fair amount of information as to the ship's type and status, based on its energy emissions.

Seeing Isn't Everything

Sensors may appear to be all-seeing, but there *are* ways to confuse them. A ship's energy emissions are obvious against a backdrop of empty space, but are far harder to pick out if the ship is in front of a bright sun or hiding within the electrical storms of a gas giant.

There are also various electronic countermeasures (ECM) that can be used to jam or confuse an enemy's sensors. "Noise" jamming is only effective at short range due to the huge power required from a jammer to hide the emissions from even a small ship. However, hiding or spoofing your identity, or decoying targeting systems (whether beam weapons or missiles) are all feasible with appropriate ECM equipment. Identifying friend from foe (IFF) utilises coded recognition between ships of the same side, but the enemy may crack or steal the codes (a silent ship is *almost* always the enemy, but it *may* be one of your own ships which has suffered a transponder failure!)

So the issue is usually not whether you can see the enemy, it's whether you can identify them. Even if you can tell a target is a particular class of ship, that does not tell you its current armament, its active defences, or whether its drives are fully functional - these are the factors that determine whether you attack or flee, what weapons you bring to bear and what defences you must throw up to protect your own ships.

As a result, space combat is very heavily dependent on electronic counter measures to make you harder to hit and electronic counter-counter measures (ECCM) to counter or burn-through ECM. The large number of sensors and targeted weapons on a battleship, and the ease with which tactical data can be correlated between ships in the same fleet, means that the effects of ECM and ECCM tend to be aggregated across a fleet. To reflect this, and to simplify game play, **Power Projection** absorbs most of these complexities into technology-related bonuses to command, tactics and combat tasks, rather than having separate rules for each ship's target acquisition, tracking, jamming, etc.

Targeting at a Million Kilometres

In **Traveller**, targets can be tracked and fired upon at huge distances of several million kilometres - somewhat longer ranges than are shown in typical space opera films (e.g. *Star Wars* or *Star Trek*, where ships

generally target each other visually, yet weapon pulses take a perceptible time to travel to their targets!)

In *Power Projection*, a target may be 2,000,000 km away, which is nearly seven light-seconds distance. At this range, energy coming from the target takes nearly seven seconds to reach your ship's sensors, and energy from your own weapons takes seven seconds to reach the enemy ship, so by the time you've shot at the target, based upon 'current' sensor data, the enemy ship has had 14 seconds to move out of the way. Thankfully, the further the enemy ship has moved, the faster it must be going, and the more difficult it is for it to change course suddenly, which gives your targeting computers a reasonable chance of predicting a range of possible future target positions. To hit the target, your ship needs to 'spray' the area with energy.

On the other hand, when a beam weapon hits its target it has to concentrate sufficient power on a relatively small area over enough time to actually cause damage. Starship hulls have to be extremely tough to protect against vacuum, near-absolute zero temperatures, the hazards of solar radiation, shielding from drives, planetary magnetic fields, micrometeorites, etc. At a couple of million kilometres, even laser beams spread out, reducing the energy impacting on a given area of the target. The target may be moving and rotating, such that holding an energy beam on a few square centimetres of the target's hull for even a fraction of a second can be really difficult! This means beam weapons have to pack a lot of energy into each pulse to have any chance of penetrating the target's hull.

The *Power Projection* game turn is 50 minutes, so each attack roll does not reflect a single weapon strike but rather tens of minutes of area bombardment coordinated across a number of weapons batteries using computer prediction of the target's most likely position.

Three-dimensional Space

Of course, space is (at least) three-dimensional, but moving miniatures or counters around in 3D space is somewhat problematic! In order to keep the game simple and enjoyable, *Power Projection* is played in only two dimensions, for much the same reasons that *Full Thrust* and most other space battle games only use a 2D playing surface. Of course, if you work out a neat way of playing *Power Projection* in 3D, please let us know so we can pass on your ideas to other players.

Vector Movement

Having skipped the complexities of 3D space, we felt it was still key to include realistic vector movement. Almost all SF movies portray starships 'flying' through space like aircraft, but this is totally inaccurate. An aircraft moves under the influence of gravity, countered by lift from its wings as they move through the air. Ailerons/flaps change the flow of air around the aero-plane to turn it, just as a rudder steers a boat (aircraft simply move through a thinner medium than boats - air, rather than water). If an aircraft turns off its engine, air resistance will slow its forward movement and gravity will pull it down towards the ground. Very few aircraft can rotate on the spot except the Harrier jump jet)!

Space is very, very different. There may be gravity, but it's generally far weaker unless a starship moves in really close (on the *Power Projection* playing scale) to a planet or gas giant. There is no air or water to push against, so if a starship turns off its engine, it will continue to drift in the direction it was going until it hits something or enters a gravity well. A ship can 'drift' in a given direction while using its attitude thrusters to turn it to face in a different direction, or even spin or tumble the ship, all without changing its movement vector.

Space Terrain

As noted earlier, space is really, really big, so even large planets and gas giants can play relatively little part in the game if you wish. *Power Projection* includes rules for the effects of gravity on starships and their weaponry, but such effects are noticeable only very close to the surface of a planet. Asteroid belts are usually so thinly spread in space as to have negligible effect (the dense clumps of asteroids shown in SF films are not particularly representative of most real asteroid fields!) However, space 'terrain' can add significant colour, whether you want to 'slingshot' around a gas giant or capture a planet from its defending fleet.

Designer's Notes

These rules were developed over the last five years following my acquisition of a copy of *Full Thrust* and Steven Parsonage's conversion rules for **Traveller**. Playing these inspired me to develop the concept further, and over the last few years the project has evolved to something significantly different to both originals. As a guide in developing this game I have followed **Traveller**'s *High Guard* (second edition), initially published by Game Designer's Workshop in 1980, and available in *The Classic Books* reprint volume from FarFuture Enterprises. *High Guard* was an abstract system, so I have used the GDW publications *Mayday* and *Traveller: Book 2 - Starships* as further inspiration.

The game retains the flavour of *Full Thrust*, and some of its conventions. However, it is now significantly different to that game, and far more in line with the universe of **Traveller**. A vector movement system has been adopted, inspired by that in *Full Thrust: Fleet Book 1*; ironically, the changes we made to increase the **Traveller** feel ended up with rules that are similar to the *Full Thrust: Fleet Book 2* corrections, published later on by Ground Zero Games.

For simplicity, *Power Projection* uses just two terms to describe groups of starships. A FLEET is a strategic grouping of tens or hundreds of ships, with dreadnoughts, cruisers and their associated escorts and destroyers. A TASK FORCE is a smaller, tactical grouping of starships which operate as a cohesive force during a battle. A Task Force may be part of a Fleet, or sometimes may be comprised of ships from different Fleets.

All ships in a Task Force resolve their attacks in the same combat phase, leading to a compromise between Task Force size and how early it resolves its attacks. For two Fleets of roughly equal sizes, the Fleet fielding fewer, larger Task Forces will resolve all its fire before the opposing Fleet. However, the latter (with its greater number of smaller Task Forces) will have fire phases left at the end of the round when their opponent may have used up all their defensive capability. Task Force size is also limited by ship technology.

Typically each player handles one Task Force, but experienced players can run multiple Task Forces.

Command and Control

Computers are key to running a starship, but overall command and control is still in the hands of the senior crew. *Power Projection* uses a simple command hierarchy (shown in Figure 1) regardless of the crew race or the composition of ship types in a particular Fleet.

Each ship has a SHIP COMMANDER, but the movement and fire orders for a Task Force are decided by the TASK FORCE COMMANDER, who is usually the most senior of the Ship Commanders. Alternatively a Task Force Commander may be attached to a ship which already has its own Commander. The ship carrying the Task Force Commander is the TASK FORCE FLAGSHIP.

Several Task Forces may be co-ordinated by a FLEET COMMANDER whose ship becomes the FLEET FLAGSHIP. In battle, a Fleet Commander may sometimes control only a subset of their overall Fleet; other Fleet assets may temporarily be deployed in other star systems under the command of their Task Force Commanders.

The variation in the strategic and leadership abilities of these commanders is reflected by their FLEET TACTICS skill level. The level may be assigned randomly or 'purchased' (p.40), may reflect the skills of a 'real' commander from a **Traveller** canon source or even a player-character from your own **Traveller** game.

In the latter cases, the Commander of a ship operating independently of its Task Force, may opt to use their SHIP TACTICS skill in place of their Fleet Tactics skill.

Relative Computing Power

The computer power available to a ship to process sensor data, predict target positions, utilise electronic counter-measures (ECM), out-wit the enemy's ECM,
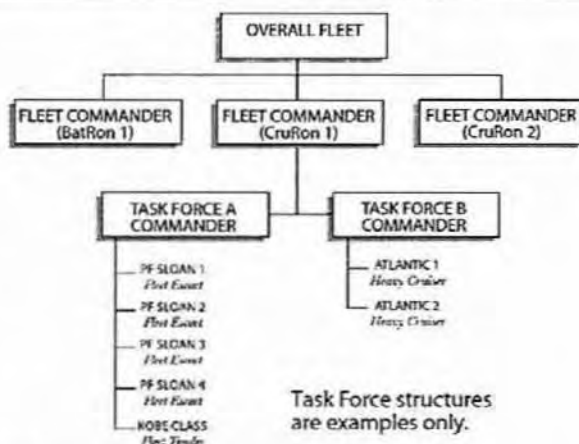
FIGURE 1: EXAMPLE COMMAND HIERARCHY

perform automatic evasive manoeuvres and track incoming threats varies significantly with the tech level of the ship. The Relative Computing Power (RCP) value provides a simple representation of the processing capability of a ship's computers, sensors, ECM and ECCM (electronic counter counter-measures).

The RCP is typically in the range 1 (low tech) to 3 (high tech) - see p.57. The attacking ship adds its RCP to its offensive modifier and subtracts the defending ship's RCP value. This gives a positive or negative RCP modifier which is applied to both spinal mount to hit rolls and rolls on the Secondary Weapons table.

Opposing fleets with similar tech levels will often have equal RCP values, which cancel each other out. In such cases, for faster game play, you may opt to simply ignore the use of RCP attack roll modifiers.

Task Force Size

The maximum number of ships in a Task Force is limited by their command and control capability. This is represented by the sum of the Fleet Tactics skill of the Task Force Commander and the lowest Relative Computing Power (RCP) of all ships in the Task Force.

Max No. of Ships = Fleet Tactics + Lowest RCP

The resulting maximum Task Force size is usually less than 10 ships; a player may opt for any Task Force to contain less than the maximum number of ships.

Example: A Fleet has 20 ships (all TL15 and so all RCP 3) and its Task Force Commanders all have Fleet Tactics skill of 2. The maximum Task Force size is 3 (RCP) + 2 (skill) = 5, so the Fleet could be split into four Task Forces, each of 5 ships.

Task Force Communications

To gain maximum benefit from co-ordinating their sensor and tactical data, every ship in a Task Force must remain within the LINK DISTANCE from the Task Force Flagship. Co-ordination becomes more difficult as com-

munications delays between ships become appreciable due to their separation, and comms and sensor links between the ships become less reliable due to enemy jamming and signal attenuation due to distance.

Sensor and communications capabilities are related to Tech Level and thus to the lowest Relative Computing Power (RCP) within a Task Force, as shown in Table 1.

TABLE 1: TASK FORCE LINK DISTANCE

Task Force RCP	Link Distance (MU)
1	5
2	10
3	15

If a ship moves beyond the Link Distance from its Task Force Flagship without formally being detached from that Task Force, it suffers a -1 penalty on its to hit rolls for spinal mount weapons and all rolls on the Secondary Weapons Damage table. This penalty applies until the ship comes back within Link Distance of its Task Force or is reassigned to a different Task Force.

Using the worst case RCP for Task Force size and Link Distance penalises high tech forces which have a low tech ship assigned to them. You may prefer to use each ship's own RCP to calculate its own Link Distance, or average the RCP across the Task Force (multiply each ship's RCP by its tonnage, sum the totals and divide by the total tonnage of the Task Force; round the result to the nearest whole number).

Example: A Task Force has two 10,000 dT ships with RCP 2 and one 5,000 dT ship with RCP 1. Multiplying RCP's by tonnage gives 2 x (2 x 10,000) + (1 x 5,000) = 45,000. Dividing by the total tonnage of 25,000 gives 1.8, which rounds to 2. Using the normal rules this Task Force would have a RCP of 1, but the optional rule increases this to RCP 2.

Transfering between Task Forces

Ships may transfer between Task Forces at the start of the movement phase by declaring the transfer in the Movement Orders. A new Task Force can be created by detaching one or more ships from an existing Task Force. The new Task Force gains the flexibility of acting independently, but may be disadvantaged if its new Task Force Commander is less skilled in Fleet Tactics.

Moving as a Task Force

To simplify and speed up movement for a Task Force, a player may elect to write Movement and/or Fire Orders for the group as a whole (e.g. directing all ships to fire all weapons of the same type at a single target).

Loss of a Task Force Flagship

If a Task Force Commander's flagship is destroyed, then the rest of the Task Force suffers because of the

interruption of the command and data streams co-ordinated through the flagship. Higher tech ships suffer a greater loss because they are typically more dispersed and more reliant on the communications feeds.

As a result, all ships in the Task Force suffer a penalty equal to their RCP on their initiative roll, spinal mount to hit rolls and rolls on the Secondary Weapons table, throughout the whole of the next game turn.

At the start of the next movement phase, the remaining ships in that Task Force must either be transferred to other Task Forces or a new flagship must be nominated in the movement orders (in secret if desired). The new flagship may be an existing member of the Task Force or a ship newly assigned from another group.

If there is no appropriately skilled Task Force Commander on the new flagship, its Commander is assumed to have a Fleet Tactics skill of zero. This may reduce the maximum Task Force Size (p.8) so that it must be broken up into multiple smaller Task Forces.

Loss of a Fleet Flagship

If the Fleet Flagship is lost, all Task Forces commanded by that flagship suffer a penalty equal to the Fleet Commander's Fleet Tactics skill on their initiative roll, spinal mount to hit rolls and rolls on the Secondary Weapon Damage table, for the whole of the next turn.

At the start of the next movement phase, a new Fleet Flagship must be nominated, usually by promoting a Task Force Flagship into the role. If the new Fleet Commander does not have a predefined Fleet Tactics skill level, this is assumed to be zero.

If the Fleet Flagship was also a Task Force Flagship, that particular Task Force suffers either the penalty for loss of its Task Force Flagship, or the penalty for loss of its Fleet Flagship, whichever is more severe.

Crew Quality

Each ship has a CREW QUALITY modifier, which represents the ability and experience of its crew. Combat veterans and highly trained crews have a positive modifier, while inexperienced and civilian crews have a negative modifier.

TABLE 2: CREW QUALITY MODIFIERS

Crew Quality	Crew Quality Modifier
Green (Civilian)	-1
Regular	0
Veteran	+1
Elite	+2

Since most military crews will be "regulars", you can often simplify play by assuming that the Crew Quality modifiers for each fleet cancel each other out and ignore the modifier for gaming purposes.

Starships in *Power Projection* are described using a SHIP STATUS DIAGRAM (SSD), an example of which is shown in Figure 2. The symbols on the SSD show the ship's key components and combat capabilities.

Traveller Starship Components

The primary components of a **Traveller** starship are:

Hull — available in a range of shapes, sizes and materials, hull size is measured in DISPLACEMENT TONS (dT), which equates to the mass of liquid hydrogen it displaces (about 14.5 cubic metres per dT). The hull may be armoured for protection and streamlined to allow the ship to fly within a planet or gas giant atmosphere.

Drives — the JUMP DRIVE provides interstellar travel and the MANOEUVRE DRIVE propels the ship while in normal space. The Jump drive requires 10% of the ship's volume in liquid hydrogen fuel per parsec travelled, while a comparatively small amount of fuel is required by the power plant which feeds the manoeuvre drive and all other power-consuming systems on the ship. Whatever the type of the maneouvre drive (reaction drive, thruster plate, solar sail, etc.) *Power Projection* is only concerned with the resulting thrust (in Earth gravities or G's) and turning capability.

Computers — are key to the operation of even the smallest starship. Networks of computers run everything from navigation and weapons targeting to monitoring life support and crew entertainment. The primary control centre for the ship is the BRIDGE, from where the senior officers direct operations.

Weapons — include BEAM WEAPONS (lasers, plasma and fusion guns, particle accelerators and meson guns) and MISSILES (conventional, nuclear and bomb-pumped laser warheads). Weapons may be mounted in small turrets, larger weapon bays or may be so large that they effectively form the 'spine' of the ship.

Defences — apart from armour, ships may carry field generators to disrupt nuclear and meson attacks, and use point defence weapons to destroy incoming missiles. The closest that **Traveller** gets to the forcefields of common SF genres is the rare, energy-absorbing BLACK GLOBE screen, which is exclusive to the military.

Crew — are still key to running any starship, whether commanding the vessel, manning weapons, performing damage control or as ship's troops. Some crew may be 'on ice' in cryogenic berths, to be awakened as required to replace crew casualties.

Cargo — the majority of starships are traders or liners but *Power Projection* focuses on warships, so cargo is rarely a consideration. However, logistics is key to strategic campaigns, so scenarios may include trying to protect or intercept critical military supplies.

Subcraft — are often carried by larger starships. In addition to small, unarmed shuttles, some ships carry FIGHTERS. Some ships are designed as Jump-capable
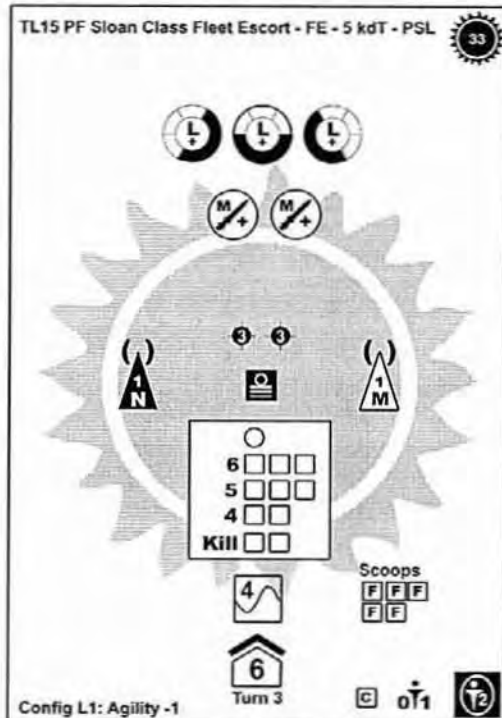
FIGURE 2: EXAMPLE SHIP STATUS DIAGRAM (SSD)

carriers for transporting 'battle rider' warships which, spared of the need to carry Jump drives and fuel, carry a heavier weapons load and better manoeuvre drives.

Hull Components

Structure boxes — these boxes represent the integrity of the starship hull and superstructure. The boxes are usually split into four rows, as evenly as possible with any shorter rows placed at the bottom. As a ship suffers damage, the boxes are crossed off along the top row. When the end of the row is reached, a THRESHOLD CHECK is made to see if any systems on the ship have failed due to the accumulated damage. Further damage is crossed off subsequent rows of boxes, with a Threshold Check required at the end of every row. If massive amounts of damage are taken in a single turn, the ship may suffer a catastrophic failure, resulting in its complete destruction. When all the boxes are crossed off, the ship is damaged to the point that it is either totally destroyed or all its systems have failed. (Threshold Checks may cause all its systems to fail, but while the ship still has some intact structure boxes, there is a chance the systems can be repaired.)

Each structure box represents between 500 and 2,000 displacement tonnes (dT) of hull volume.

Armour boxes — these boxes (well, actually circles!) represent a starship's enhanced structural integrity and hence its ability to resist damage from most types of attack.

Config LL: Agility A **Configuration Modifier** — this represents the ability of the hull to avoid damage from meson weapons, which focus their attack at a specific point within a target. Ships shaped like needles, wedges, cones and cylinders tend to be long and thin and are slightly more difficult to hit. A ship with a dispersed structure (e.g. separate sections held together by a frame) is more difficult to hit because the meson attack has a good chance of arriving in one of the empty spaces within its volume, causing little or no damage to the ship. Starships built within planetoids retain large expanses of solid rock which are not critical if hit by meson attack (in addition to providing the ship with armour against other forms of attack).

SL PSL USL **Streamlining** — "SL" indicates the ship is STREAMLINED and so capable of entering the atmosphere of any planet or gas giant. "PSL" shows the ship is only PARTIALLY STREAMLINED and can only enter a gas giant's outer atmosphere (e.g. to skim hydrogen fuel). "USL" ships are UNSTREAMLINED, being designed only for operation in deep space; the stresses of entering an atmosphere may well tear such a ship apart.

Drives

Manoeuvre Drive — this symbol shows the number of gravities ("G") of thrust a ship can generate for manoeuvring. Each game turn, a Commander allocates any or all of his ship's thrust to accelerate, turn, or fire retro-thrusters (p.14).

Turn Capability — this value shows the ship's ability to change its facing while manoeuvring. It ranges from 0, when a ship can either turn or thrust but not both, to a maximum of three turns in a game turn. This affects a ship's combat effectiveness and ability to out-manoeuvre opponents (p.14).

Jump Drive — this symbol displays the ship's interstellar drive capability - the number of PARSECS (units of 3.27 light-years) it can travel in a game week. In a tactical game this has little effect except for allowing ships to flee a battlefield, but in the strategic game it is a key measure of how far and fast a fleet can strike into enemy star systems.

To enter Jump, a ship expends one fuel box for each parsec it wishes to travel. It must also spend time charging the Jump drive for use (see p.35).
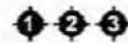
Fuel boxes — each box represents approximately 10% (or part thereof) of a ship's volume dedicated to storing liquid hydrogen fuel. A minimum of one fuel box is required to run the power plant which powers all the ship's systems. Any additional boxes are fuel for the interstellar Jump drive and, less commonly, reserves for its power plant.

Config LL: Agility A **Agility Modifier** — this number represents the ease with which a ship can execute evasive manoeuvres, ranging from +2 (very poor) to -1 (very agile) - see p.25. This is an inherent feature of the starship drive and power plant design, but relies upon having an operational manoeuvre drive.

Command and Control

Bridge — this symbol represents the nerve centre of the ship from which the senior officers direct the ship's operations. Damage to the bridge usually has catastrophic implications for the ship's ability to fight, so some ships also have secondary bridges.
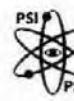
Computer — these symbols represent the ship's computers, avionics and sensor systems. Computers play a critical role in practically all ship operations. If all computer systems are destroyed, the ship is unable to Jump or use any weapons system (whether for attack or point defence), including repulsors and sandcasters; only nuclear dampers and meson screens will work.

Number is RCP

Crew

Damage Control — this symbol indicates the number of teams a starship crew can allocate to repairing damage during combat (p.30).

'D' is the DCP rating.

Frozen Watch — this symbol represents N opportunities (indicated by xN on the icon) for a ship to bring crew out of "low" berths (cryogenic freezers) to replace losses in battle (p.30).

Combat Capability — this represents the ship's troops and crew who are available for personal combat operations such as performing (or opposing) boarding actions (see p.33). The first value (X) is the offensive capability, the second (Z) the defensive capability. Not all ships can spare sufficient personnel for security teams, but larger naval ships often carry large units of highly trained marines.

x↑z

Psionic Capability — this indicates that a ship has psionic-capable personnel aboard, such as a teleport commando team, or officers with precognition/telepathy abilities (see p.34). Most ships do not have such capabilities - they are usually only found on Zhodani vessels.

Offensive Systems

Each weapon symbol represents a battery - a number of turrets or bays of one weapon type, which are targeted and fired together. Batteries marked with a '+' contain more, or higher power, weapons than standard batteries. Each battery's FIRE ARC (see p.21) is shown around the edge of the symbol - a battery can only fire in those arcs which are marked as white; black arcs are blocked (by the ship's own superstructure, etc.).

Spinal Mount — this symbol represents the ultimate weaponry carried by ships in the Traveller universe. A spinal mount weapon is so large that it effectively

forms the keel of the ship and the rest of the starship is built around it. A hit by a spinal weapon is certain death to smaller ships, and will cause major damage even to battleships and dreadnoughts. Spinal weapons are either particle accelerators or meson guns, but are significantly more powerful than their battery-level equivalents. However, spinal mount weapons have a very limited arc of fire and require time to recharge between shots (p.22).

Laser Battery — contains turrets mounting laser weapons that project pulses or beams of coherent light to cause explosive damage to an enemy starship. Lasers are less effective at long range due to spreading and defocusing of the laser beam - this is particularly true of mining lasers (marked "Lm") which are only effective at much shorter ranges than their military equivalents. Laser weapons can also be employed in a point defence role (p.25) against missiles attacking the ship (or other nearby ships).

Energy Weapon Battery — contains turrets with plasma and/or fusion weapons which project pulses of super-heated material to cause explosive damage to an enemy starship. These weapons cause more damage than lasers but have a very limited range as the super-hot plasma rapidly spreads and dissipates. Like lasers, they can also be employed in a point defence role against incoming missiles (p.25).

Missile Battery — contains launchers for missiles with nuclear, high explosive (HE) or bomb-pumped laser warheads (p.26). The latter detonate a nuclear device some distance from their target, generating a burst of x-ray laser beams towards the target. HE and nuclear missiles are slightly more effective at longer ranges because once they have built up velocity they have greater kinetic impact and are harder to shoot down using point defence weapons. Since missiles have their own thrusters to manoeuvre them towards a target, they have no Fire Arc limitations. Missile batteries have a limited magazine capacity, and have a chance of running out of ammunition after each salvo is launched.

Particle Accelerator (PA) Battery — contains one or more weapons which accelerate bursts of charged particles at their target, causing a combination of radiation and explosive effects to the enemy vessel. The only effective defence against a PA is thick armour.

Meson Battery — represents one or more weapons which focus the explosive decay of a stream of high energy mesons (subatomic particles) within the target ship. These mesons do not pass through intervening space, and therefore are immune to all defences except meson screens (though the target's hull configuration affects the capability of the attack to cause damage).

Defensive Systems

Starships utilise a wide variety of defences, from the inherent design of the ship (its armour and hull configuration) to defensive screens and dedicated point defence systems. Some offensive systems can also be used to shoot down incoming missiles.

Nuclear Damper — can be focused on incoming nuclear missiles to cause premature detonation of the warheads, or suppress detonation, in either case reducing the effect of the missile attack. Dampers range from Level 1 up to Level 3.
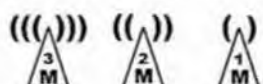
Meson Screen — provides a general screen against all attacks by meson weapons, causing premature decay of the mesons such that they explode harmlessly outside the ship's hull. Meson screens range from Level 1 up to Level 3.

Sandcaster Battery — these fire canisters which burst or spray out ablative sand to form a cloud which degrades any missile, laser or energy weapon beam which passes through it (the cloud's protective capability is also degraded at the same time) - see p.26. The cloud has the same vector as the starship which launched it, and so will drift away if the ship changes its vector. Sandcasters are either Level 1 or Level 2 (the latter being far more effective).

Repulsor Point Defence Battery — uses a primitive form of tractor beam technology to divert or literally shatter incoming missile strikes. Repulsors must be focused against specific missile salvos. Repulsor batteries are Level 1 or Level 2, the latter being more powerful.

Black Globe — a ship-encompassing screen (maximum flicker rate of up to n x 10%) which absorbs all incoming energy (p.31).

Other Systems

Cargo — each box represents approximately 5% of a ship's volume dedicated to cargo.

Fighter Squadron / Carried Vessel — this indicates the ship has hangar space for either a squadron (of up to 10 fighters), or a single larger vessel. The number of carried vessels which may be launched in a single turn depends on the ship's hull configuration (p.19).

Launch Tubes — this symbol represents a launch tube which may deploy or retrieve up to eight squadrons of fighters in a single game turn. *FH* = Heavy Fighter, *FL* = Light Fighter.

Turn Sequence

Each *Power Projection* GAME TURN represents 50 minutes of 'real' time. Each turn has movement and combat phases. Movement is planned and executed simultaneously; ships take turns to fire, their order determined by an initiative roll.

1. **Movement Orders** are written (*Simultaneous*)

   a) Declare use of **Psionics** (p.34).

2. **Movement Phase** (*Simultaneous*)

   a) Ships **Enter/Exit Jump** (p.35).

   b) Ships and fighters **Launch/Dock** (p.19).

   c) Move **Planets** and gas giants (p.18).

   d) Move **Starships** (p.13).

   e) Move **Sand Clouds** (p.18); remove sand clouds that contact nuclear detonation counters.

   f) Deploy **new Sand Clouds** (p.26).

   g) Move **Fighters** (p.19).

   h) Move inflight **Missiles** (p.26).

3. **Combat Phase** (*Sequential*)

   a) Determine **Initiative** (p.20).

   b) Player 1, Task Force 1 (i.e. Task Force with highest initiative):

   - **Fire Orders** are written (p.20).

   - Launch **new Missiles** (p.26).

   - Resolve **Damage** from Primary and Secondary weapons fire, including all missiles from this Task Force that contacted their targets this turn (p.28).

   - Resolve **Threshold Checks** (p.28).

   - Resolve **Boarding Actions** (p.33).

   c) Player 2, Task Force 1 (next highest initiative):

   - *Repeat as for b). If each player has multiple task forces, repeat b) and c) until all Task Forces have acted. If there are more than two players, extend the combat order accordingly.*

4. **Black Globe** discharge (p.33) (*Simultaneous*).

5. **Remove Nuclear Detonation** counters from the previous turn (*Simultaneous*).

6. **Damage Control** (p.30) (*Simultaneous*).

Library Data Search: MANOEUVRE DRIVES

Traveller starships use reaction drives, i.e. their engines produce thrust from the rear of the starship, pushing the ship forwards in its 'facing' direction. These starships comply with Newton's laws - movement of the craft is a 'reaction' to the thrust out the back of the ship. Various types of manoeuvre drive are used in **Traveller** depending on the tech level at which the ship is manufactured - from solar sails to plasma drives. However, the only **Traveller** drives sufficiently effective for space combat are those that can provide massive sustained thrust levels - which for most high technology ships means thruster plates.

Starship Movement

Movement in *Power Projection* is vector-based... but this doesn't mean it is hard to do! It doesn't need mathematics or a whole set of complicated geometry tools, just some common sense and a tape measure!

Vector movement means that a ship retains a VELOCITY VECTOR due to its previous manoeuvres. The vector has two parts - DIRECTION and SPEED - i.e. the ship is travelling at the given speed in the given direction.

A ship's FACING is the direction it is pointing, which may be different to the direction of its Velocity Vector, i.e. the direction in which it is moving. In Figure 3, two ships are travelling in the same Direction with the same Vector (shown by the arrow) but each has a different Facing. The ship's facing is key in determining the weapon systems that can bear on a target.

These ships have the same vector, but different facings

tactical display_

FIGURE 3: THE DIFFERENCE BETWEEN FACING AND VECTOR (DIRECTION OF TRAVEL)

Thrust Points

The manoeuvrability of starships is determined by the thrust rating of their manoeuvre drive. This is rated in the number of (Earth) gravities of acceleration the engines can generate, e.g. a "3G" drive is capable of providing three Earth gravities of thrust or, if you want to get technical, an acceleration of up to 29.4 m/s^2 (metres per second, per second), i.e. for every second spent accelerating at this rate, the ship's speed increases by 29.4 metres per second.

The number of THRUST POINTS a ship can use to manoeuvre in a game turn is equal to its thrust rating. Each game turn, a ship can spend any or all of its Thrust Points on any combination of three basic manoeuvres (within certain limits):

   a) Fire Main Engines

   b) Turn Ship

   c) Fire Retro-thrusters

Note that Thrust Points cannot be 'saved' for use in a subsequent turn, nor can they be used for extra manoeuvring at the end of the turn.

a) Fire Main Engines

Each Thrust Point spent on firing a ship's main engines increases the distance the ship moves in a game turn by 1 MU (as shown in Figure 4).

"Fire main engines"

New position next turn

+1 MU

Original position next turn before +1MU thrust

3 MU

Ship thrusts +1 MU
Original velocity 3 MU

tactical display_
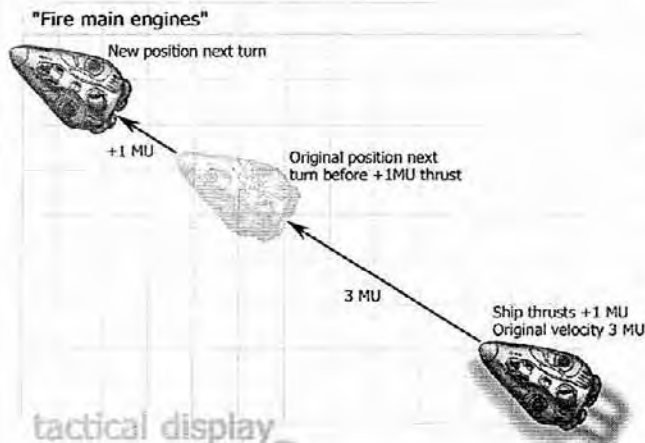
FIGURE 4: FIRING MAIN ENGINES TO ACCELERATE SHIP

b) Turn Ship

Rotating a ship to face in any direction costs one Thrust Point. The ship may turn to port (left or anti-clockwise) or starboard (right or clockwise). For simplicity the amount it turns is measured by the number of points it moves around a standard clock face (i.e. each point turned corresponds to a 30 degree change in the ship's facing). For example, if the ship is facing 2 o'clock and turns to face 4 o'clock, this is a starboard turn of 2 points (i.e. 60 degrees). The direction the ship ends up facing may actually be anywhere between 3 o'clock and 4 o'clock, to allow the ship to be pointed
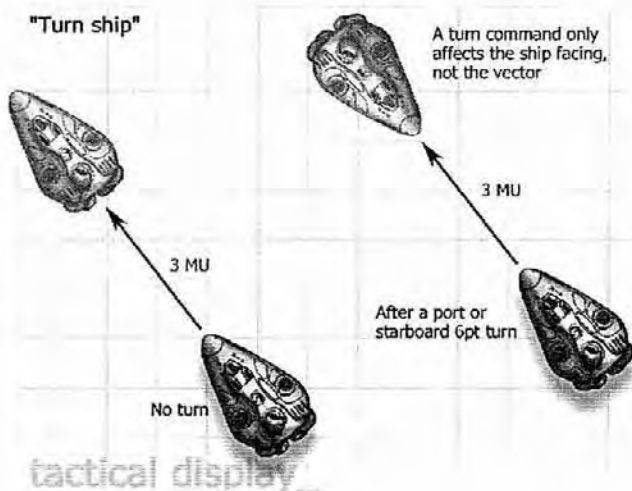
in the exact direction desired. An example of a full 180 degree turn (i.e. 6 clock points) is shown in Figure 5.

A ship's TURN CAPABILITY defines the maximum number of turn manoeuvres the ship may perform in a game turn. A ship with a Turn Capability of 0 (the minimum possible) may either turn, or fire its main engines/retro-thrusters, but may not do both in the same game turn.

Changing a ship's facing is achieved by angling the main drive output, firing smaller thrusters distributed around the ship, or a combination of the two. This uses only a fractional part of the main drive power but over a 50 minute game turn, even a huge dreadnought can turn itself about without putting excessive stress on its structure or crew. However, less agile, low Turn Capability vessels will still struggle to turn to meet threats. This is particularly important when trying to bring a spinal weapon mount to bear on a target.

ⓘ *A turning template is provided with these rules to simplify and speed-up turning during the game.*

? Turning a ship actually requires far less thrust than a 1G acceleration change. If you wish to model this more accurately, then Thrust Points need not be expended for turning, though the ship's Turn Capability still defines the maximum number of turns a ship can make in a round. This will speed up ship movement because more thrust is available for pure acceleration. However, the Turn Capability becomes subject to Threshold Checks - the Turn Capability is reduced by 1 for every Threshold Check failed.

c) Fire Retro-thrusters

Braking is applied by a ship using forward-facing manoeuvring thrusters. This is not particularly effective, so two Thrust Points must be spent on retro-thrusters to reduce the distance the ship moves in a turn by 1 MU (as shown in Figure 6).

"Turn ship"

A turn command only affects the ship facing, not the vector

3 MU

3 MU

After a port or starboard 6pt turn

No turn

tactical display_

FIGURE 5: TURNING THE SHIP TO CHANGE ITS FACING

"Fire retros"

Original position next turn before firing retros

After firing retros for 2 thrust points the new vector is now +2 MU long

-1 MU from thrusters

Original vector of +3 MUs

New +2 MU vector

New position next turn

Original velocity was 3 MU

tactical display_

FIGURE 6: FIRE RETRO-THRUSTERS

Movement Orders

For ease of interpretation, we suggest movement orders are written in a specific format (in the order they are to be carried out) as follows:

+X	Fire main engines for X MU acceleration
-X	Fire retro-thrusters for X MU deceleration
PY	Turn to Port Y clock points
SY	Turn to Starboard Y clock points
T+	Turn to face the ship's current vector*
T-	Turn to face the opposite direction to the ship's current vector*

*These are just special cases of turning the ship, avoiding the need to calculate the exact port or starboard turn required.

Movement Example

An example of one ship's movement phase is shown in Figure 7. A starship with a 5G manoeuvre drive and a Turn Capability of 2 begins the game turn with a 3 MU vector from right to left. The ship has 5 Thrust Points to use each turn, but the player decides to expend only 4 points this turn, and writes the Movement Order as:

P2 +2 S1

i.e. "P2" - turn 2 clock points (60°) to port (1 Thrust Point), "+2" - fire main engines for 2 MU acceleration (2 Thrust Points), "S1" - turn 1 clock point (30°) to starboard (uses 1 Thrust Point). These manoeuvres use a total of 4 Thrust Points; the remaining Thrust Point is wasted; it cannot be carried over to the next turn.

A step-by-step guide to the process of translating these movement orders into movement of the ship counter/model on the playing surface is given below.

The Movement Process

To move a ship you need its Movement Orders, its FUTURE POSITION COUNTER, an ORIGINAL POSITION
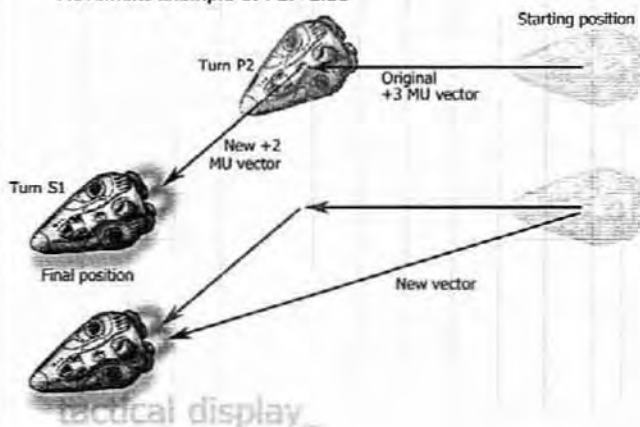
Library Data Search: RETRO-THRUSTERS

Why use retro-thrusters? Astute readers will have noticed that retro-thrusters are far less effective than turning the ship to oppose its current vector and firing the main engines. Retro-thrusters are just a form of orientation thrusters and so are only really effective when a ship wishes to gradually reduce speed while facing in the same direction, which is particularly important for ships with a limited Turn Capability.

Library Data Search: THRUSTER PLATES

Later editions of Traveller described starship in-system drives in more depth as using 'thruster plate' technology. These are blue/white glowing plates at the back of the starship, looking uncannily similar to those on the Millennium Falcon and other Star Wars starships. They are an ultra-high technology device which operates by pushing off the gravitational field of a solar system.

This sort of technology is sometimes called a 'handwave' as it is an imaginary solution to a real world physics problem. However, for game play purposes, they are treated as identical to pure reaction drives as they produce an identical effect. The main difference between a reaction drive and thruster plate technology is the fact that reaction drives have finite fuel supplies; thruster plates consume energy from the starship's power plant but this load uses only a minimal amount of fuel compared to that which starships require for their Jump drive, so they effectively have a limitless manoeuvre range.

COUNTER, and a long ruler or tape measure. The ship's model or counter shows its current position.

The Future Position Counter represents the position the ship will have at the end of the current game turn if it maintains its current vector (as shown in Figure 8). This counter was placed at the end of the previous turn (as part of the movement process). The counter does not define the ship's facing - this is shown by the pointing of the ship counter (or miniature).

The Original Position Counter records the position of the ship at the start of the turn, while the ship's manoeuvres are being applied, to simplify the calculation of the Future Position Counter at the end of the movement phase.

Movement: step one

Future position counter   Current ship position
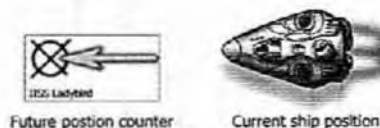
FIGURE 8: SHIP MODEL AND FUTURE POSITION MARKER AT END OF PREVIOUS GAME TURN

Movement Example 1: P2:+2:S1

FIGURE 7: MOVEMENT EXAMPLE

Current Vector

At the start of the movement phase, the player substitutes the Original Position Counter for the ship model and places the model immediately on its Future Position Counter, ensuring that it keeps the same facing it had in its original position, as shown in Figure 9.

Movement: step two

Ship replaces future postion counter (retains same facing)

Original position counter replaces ship

tactical display_

FIGURE 9: PLACING THE ORIGINAL POSITION COUNTER

(Note that the Original Position Counter may already have been placed under the model at the end of its previous movement phase, to speed things up).

Applying Movement Orders

The course manoeuvres for this turn are then applied to the ship model in the sequence given in its Movement Orders. Taking the example of Figure 7, the orders "P2 +2 S1" are applied as shown in Figure 10 (first, turn 2 clock points (60°) to port, fire the main engines for 2 MU acceleration and then turn 1 clock point (30°) to starboard).

Movement: step three

Turn before movement

Original position

Movement applied to ship

Turn after movement

tactical display_

FIGURE 10: APPLYING THRUST AND TURN ACTIONS (E.G. "P2, +2, S1")

Remember that any thrust actions (firing the main engines or retro-thrusters) are applied in the direction that the ship is facing at that point in the movement.

Predicting The Future Position

To find the new location of the Future Position Counter, simply measure from the Original Position Counter to the new position of the starship model, as shown in Figure 11 (in our example this is about 4.5 MU).

Movement: step four
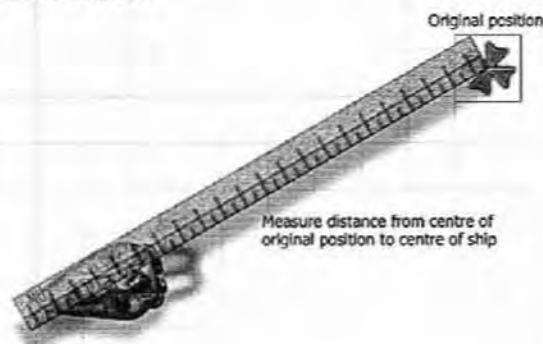
Original position

Measure distance from centre of original position to centre of ship

tactical display_

FIGURE 11: MEASURE CURRENT MOVEMENT VECTOR

Continue to extend the ruler or tape measure beyond the model, in the same direction, by an equal amount, as shown in Figure 12 (a further 4.5 MU in this case).

Now place the Future Position Counter at the end of this extended line, facing in the direction of the line.

Movement: step five
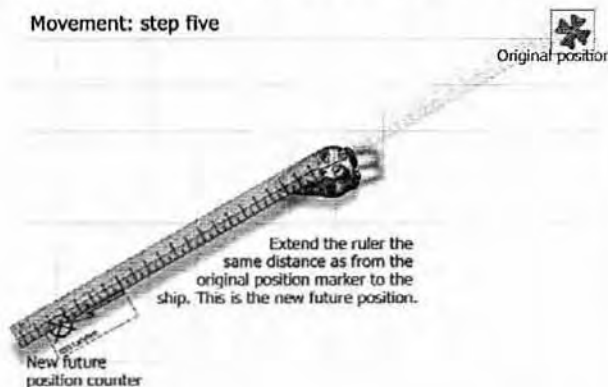
Original position

Extend the ruler the same distance as from the original position marker to the ship. This is the new future position.

New future position counter

tactical display_   zoom 66%

FIGURE 12: PLACING THE FUTURE POSITION MARKER

Finally, the Original Position Counter can be removed and - if you wish - placed under the model (removing the need to do this at the start of the next movement phase) - see Figure 13.

Movement: step six

Remove original position marker and tape. Movement complete.

tactical display_

FIGURE 13: POSITION OF MODEL AND FUTURE POSITION MARKER AT END OF MOVEMENT

Effects of Gravity

The movement of starships, missiles, etc. can be affected by the gravity of planets, gas giants and suns. Planets are pretty small on the *Power Projection* scale so their gravitational effects are usually ignored.

The gravity field for a gas giant or sun is represented on the playing surface by a template, which has bands marking the gravitational strength (rated, like starship drives, in G's of acceleration) at various distances.

Gravitational effects occur at the end of movement. When measuring out the location of the new Future Position Counter (Figure 12), check if the line between the ship model and the Future Position Counter crosses a gravity template. If it does so, identify the innermost gravity band entered by the line. Move the Future Position Counter towards the centre of the gravity template by a number of MU equal to the rating of the strongest gravity band entered (see Figure 14).

If a ship ends up within the maximum gravity band of a planet or gas giant, it will usually be destroyed if the

Library Data Search: GRAVITY WELLS

The Earth has a diameter of about 13,000 km, which is about $1/5$ MU, i.e. the Earth would be represented by a circle less than 5 millimetres across on the *Power Projection* playing surface. The Earth's gravity is only 1G (strictly speaking 1g, i.e. $9.81m/s^2$) at its surface. Since the effect of gravity drops rapidly with increasing distance from the gravity source, a ship counter would have to pass within a few millimetres of the Earth (on the playing surface) for the planet's gravitational pull to *significantly* affect its movement. As a result, the gravitational effects of normal planets can usually be ignored for the purposes of starship movement.

However, the gravitational field is far greater from larger bodies such as gas giants (such as our solar system's Jupiter) and especially from the huge mass of a star. The gravitational effect of such bodies extends far further than a planet (though it still becomes weaker quite quickly with increasing range from the source.

ship is not fully streamlined (see p.37). Even a fully streamlined ship will be destroyed if it comes within the 20G gravity boundary of a star or if it impacts the surface of a gas giant. *Power Projection* starships have a maximum thrust rating of 6G, so at high gravities, only a ship doing a very skillful slingshot manoeuvre has any chance of escaping the gravity well - they're as good as dead however thick their armour!

The template boundaries for gas giants and main sequence stars are given in the appendix (p.60).

? For a slightly more accurate representation of the effects of gravity (which allows you to perform a more realistic 'slingshot' manoeuvre around a gas giant) you may opt to alter the above rule slightly. The strength of the gravity vector is calculated from the innermost gravity ring crossed on the planetary template (as before), but the direction is determined differently. When locating the new Future Position Counter, find the closest point of approach to the gravity body; the direction the gravity vector should be applied is from the point of closest approach towards the centre of the gravity source. Move the Future Position Counter in this direction to find the ship's new predicted position, as shown in the example of Figure 15.

Gravity and movement

0.5G
1G
2.5G

0.5 MU

The future position marker is moved directly towards the centre of the gravity well by the amount shown on the template.

tactical display_
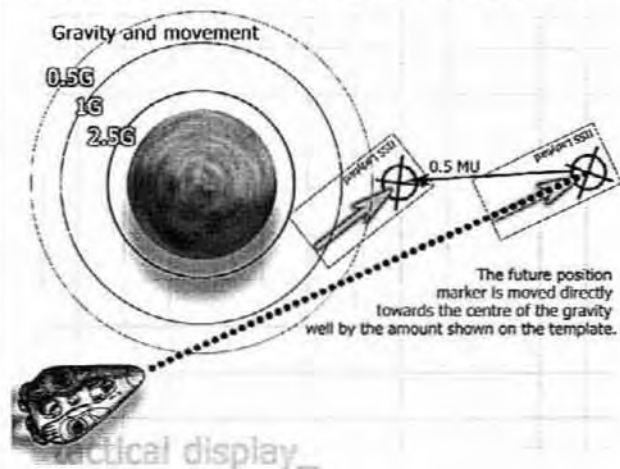
FIGURE 14: EFFECT OF GRAVITY ON SHIP MOVEMENT

Gravity and movement

Gravity vector of 2 MU applied to future position marker

2
5
11

Gravity vector towards centre of planetary body

Closest point of approach crosses 2G boundary

tactical display_
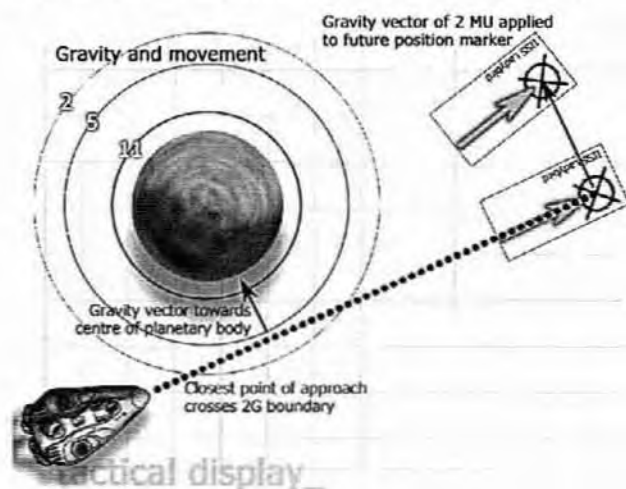
FIGURE 15: OPTIONAL GRAVITY RULE

Advanced Gravity Rule

The preceding rules overstate the effect of gravity - the gravity vector is only correct if the ship's entire movement phase was within the same gravity band on the gravity template. This will rarely be the case, so the gravity effect should be reduced. If you would like more realistic gravity effects and you're fast at mathematics or willing to use a calculator, use the following rule.

The advanced gravity rule works in a similar way to the optional gravity rule above (i.e. the gravity vector direction is determined from the closest point of approach to the planetary body). However, the gravity vector size is calculated differently:

- Establish which part of the ship's predicted vector (before modification by gravity) is within each gravity boundary.

- Divide each part of the vector by the overall vector length and then multiply by the corresponding gravity field strength.

- Add up these vectors to get the total gravity vector (round to the nearest half-MU).
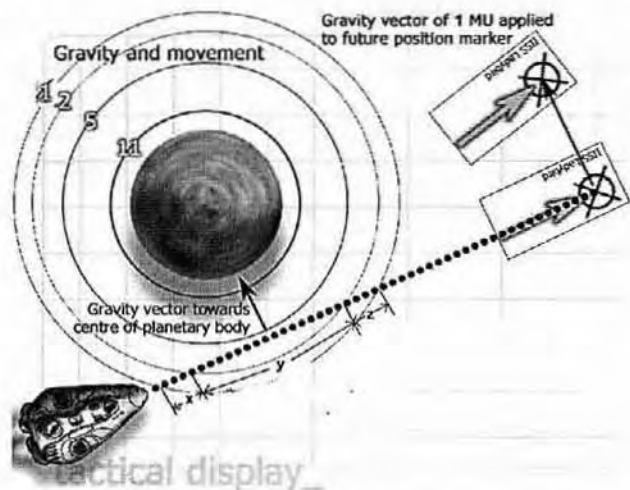
FIGURE 16: ADVANCED GRAVITY RULE

Example: In Figure 16, the sections of vector that are within each gravity band are x, y and z respectively. Given that the ship's vector is 12 MU long, x and z are approximately 1 MU long and y is 4 MU long. The components of the gravity vector are:

For x, (1 / 12) x 1G = 1 / 12 = 0.083 MU
For y, (4 / 12) x 2G = 8 / 12 = 0.667 MU
For z, (1 / 12) x 1G = 1 / 12 = 0.083 MU
Total = 10 / 12 = 0.833 MU

The gravity vector of 0.833 MU rounds to 1 MU, i.e. half the gravity effect applied under the more simple gravity effect rule. This is still not fully accurate, due to the step nature of the gravity bands, but it will allow you to plan more realistic slingshots and near-orbit manoeuvres around planetary bodies.

Moving Sand Clouds

Each sand cloud retains the vector of its launching vessel - the vector is recorded on the sand counter and its direction given by the small arrow on the counter.

Each turn after the sand was launched, move the sand in the direction and distance indicated on it, until the sand moves off the board, or is destroyed (i.e. is fired through by a beam weapon, is touched by a nuclear detonation counter, or touches the outer gravity ring of a planet or gas giant). However, if the battle is being waged in the gravity field of a sun, the sand's vector is affected by the sun's gravity (just like a starship) and the cloud is dispersed instantly when it enters the sun's 20G gravity band.

Moving Planets

For simplicity, it is normally assumed that planets and other stellar objects move sufficiently slowly that they may be regarded as immobile during a battle.

However, if you'd like planets to move, you need:

- a calculator,

- the mean orbital distance "A" of the planet from the star in astronomical units (AU; 1.0 AU is the distance from Sol to the Earth, i.e. 83,000,000 km),

- the mass of the star "M", relative to our own sun.

The following (simplified) equations then calculate the orbital period "P" of the planet (in 'standard' Earth years) and its orbital velocity "V" in MU per turn:

$$P = \sqrt{(A^3 / M)} \qquad V = 1.2 A / P$$

ℹ *These assume that the mass of the system's star is significantly greater than the mass of the planet, and the planet's orbit is perfectly circular. For more details, consult an appropriate text book such as Gillett's "World-Building", ISBN 0-89879-707-1.*

You also need to determine the path along which the body moves; even across the small region represented by the *Power Projection* playing area, a planet's path may curve slightly, centred on the sun around which it is spinning. Moons will follow a circular path around their mother world or gas giant.

Example: The Earth orbits Sol at 1.0 AU, and the relative mass of Sol (to itself!) is 1.0, so:

$$P = \sqrt{(1.0^3 / 1.0)} = 1.0 \text{ 'standard' Earth years}$$
$$V = 1.2 \times 1.0 / 1.0 = 1.2 \text{ MU / turn}$$

This result would be rounded to 1 MU / turn.

Carried Vessels

Vessels ranging from shuttles to dedicated battle riders can be carried by other vessels (fighters are a special case, covered in the next section).

Launching Vessels

Ships with no launch restriction indicated on their SSD may launch all their carried vessels in any game turn. Ships with a launch restriction may launch one ship per 5,000 displacement tons of hull, each turn, i.e. a 300,000 dT ship could launch 60 ships in a single turn!

Launches must be recorded in the Movement Orders and occur at the start of the movement phase.

A launched vessel starts with the same vector as its mothership, i.e. its Future Position Counter should be placed alongside that of its mothership, then its Movement Orders applied as normal.

Docking Vessels

A ship may only dock its subcraft at the same rate it can launch them. To dock with a mother ship takes two turns - an approach turn and a docking turn. The following conditions must be met:

- The two ships must start the approach turn within *N* MU of each other, where *N* is the sum of the two ships' current thrust ratings.

- At the end of the approach turn, the two ships must be within *M* MU of each other, where *M* is the lesser of the two ships' current thrust ratings.

- The order to dock is written into the Movement Orders for the docking turn; neither ship may manoeuvre during the docking turn.

- At least one of the ships must still have a thrust rating of at least 1G at the start of the docking turn.

The docking will succeed automatically if these criteria are met, unless either ship enters Jump, raises a Black Globe (whether flickering or fully on) or a sand cloud or nuclear burst counter ends up directly between the two ships at the end of the approach turn (i.e. while they are trying to keep within the required distance of each other prior to docking).

At the start of the docking turn the approaching ship successfully enters or attaches itself to its mothership and its model is removed from the table. It now cannot be fired upon directly, though it can be damaged indirectly if the mothership takes damage which causes that docking bay to fail a threshold check.

Example: The battle rider Arcus is heavily damaged and wishes to re-dock with its battle tender Triumph. Arcus' 6G manoeuvre drive has been damaged and is currently only rated 3G; Triumph's drives are 2G. The two ships start their approach turn within 5 MU

of each other (which is only just within the sum of their thrust ratings, i.e. 3 + 2 = 5G) and manoeuvre to keep within 2 MU (the lesser of the Arc and Triumph's current manoeuvre ratings) at the end of the approach turn.

Enemy ships are still firing at both vessels - one hit on the Arc causes its manoeuvre drive to fail a second threshold check, putting the drive totally out of action. Thankfully, at the start of the docking turn, the Triumph still has an operational manoeuvre drive and there is no sand or nuclear burst on a line directly between the two ships, so the Arc docks with Triumph successfully.

Fighters

Fighters are classified as either Light (typically carrying a single weapon type) or Heavy (usually with two or three weapon types). These weapons are handled in the same manner as their larger counterparts (using the Secondary Weapon Damage table), including the expenditure of sandcaster and missile ammunition.

Note that a fighter squadron is represented by just one or two structure boxes, i.e. they require just one or two points of damage to destroy the entire squadron.

Launching and Recovering Fighters

Each launch tube on a starship can launch or land 8 fighter squadrons per turn. Launches must be recorded in the Movement Orders and occur at the start of the movement phase. If using the simple fighter movement rules below, the fighters do not acquire the vector of their mothership (and so might get left behind)!

Moving Fighters

For simplicity, fighter squadrons are treated as a single unit. Fighters do not retain a velocity vector between game turns. They may move up to their full movement rating (usually between 1 MU and 12 MU) in whatever direction they desire, with unlimited Turn Capability. Their movement is not affected by gravity wells except that they are destroyed if they pass through a gravity band of 20G or greater.

If you'd like the additional complexity, fighters may use the same movement rules as other ships, retaining their velocity vector between turns (using a Future Position Marker) and being affected by gravity.

Initiative

The process of determining which ships act first is called **INITIATIVE** and is performed at the start of each game turn to represent the shifting tactical advantage within a battle. Winning initiative gives a fleet the opportunity to fire first, inflicting damage before their opponents can fire back.

Determining Initiative

Each Commander rolls D6
+1 if largest Task Force
+1 if most agile Task Force
+ Commander's Fleet Tactics skill

Each Task Force rolls a D6 and adds the Fleet Tactics skill of its most senior Commander (Fleet or Task Force), unless the Task Force emerged from Jumpspace this turn (in which case the Task Force needs a little time in normal space to co-ordinate its communications, sensor inputs and ship formation to truly benefit from its commander's tactical abilities).

Individual ship or Task Force Commanders may sometimes have a higher Fleet Tactics skill than the Fleet Commander. However, to gain the full benefit of co-ordinating the actions of the fleet, it is the Fleet Commander's skill level that is used for initiative, rather than the individual ship Commanders.

Remember to apply any negative modifiers if a Task Force (or Fleet) lost its flagship in the previous turn.

The largest Task Force (greatest *number* of ships, not the greatest *tonnage*) gets a +1 bonus.

The Task Force with the best **AGILITY** gets a +1 bonus. (Task Force Agility is determined by the least agile ship in the group, i.e. if your Task Force has mostly highly manoeuvrable ships with -1 Agility but a single sluggish ship with an Agility of +2, your overall Task Force Agility is +2; if your opponent's ships all have an Agility of +1, his Task Force has the better overall Agility and he gets the +1 bonus to initiative.)

If two or more Task Forces get the same initiative result, roll each again to determine which goes first.

The Task Force with the highest initiative result chooses whether to go first in the firing sequence.

If there are a large number of Task Forces in a battle, you may opt to simplify initiative by making just one initiative roll for each Fleet (using the Fleet Commander's skill), rather than for each Task Force.

If using only two or three Task Forces, roll initiative for each, but when a force gains initiative, its player nominates just one of its ships to fire; once all Task Forces have fired one ship, go round again in turn, nominating the next ship to fire in each Task Force, until all ships have fired. This means none of the players have to wait too long to get a turn.

Fire Orders

When a Task Force gains initiative, its player must write the **FIRE ORDERS** for all ships in that force, declaring the target(s) that each ship is firing on, and which weapon system(s) are used. If not declared for offensive purposes, laser and energy weapon batteries may be used for Point or Escort Defence later in the turn.

Once declared, the Fire Orders may not be changed even if the target ship is destroyed.

Fire is conducted, and damage assessed, then the player with the next highest initiative designates their first Task Force (or ship) to fire.

Writing Fire Orders

Writing Fire Orders is as important as writing Movement Orders - it avoids any potential arguments, particularly where fire from one of your ships destroys an enemy ship and other ships in your fleet still have orders to fire at the same enemy ship. You might prefer to have switched the other ships' fire to a new target, but the existing Fire Orders must be followed. In reality, the precise order of fire of the ships would vary; some would be firing simultaneously; the final destruction of the target might only occur some minutes after the fatal attack; and the ship might still appear combat-capable to the attackers' sensors, even after it had suffered critical internal systems failures.

The Fire Orders should show the following information: the firing ship, the weapon type (and any specifiers, e.g. whether missiles have standard or nuclear warheads), the number of weapons firing, and their target.

Example: The Zhodani cruiser Yetz is attacking two targets - the Imperial ships Agrippa and Cassandra. The Yetz decides to fire its factor 5 particle accelerator spinal mount at the Agrippa, and 2 high power laser batteries and 5 high power missile salvos at the Cassandra. The missiles are split into 3 high explosive (HE) and 2 nuclear warhead attacks. These Fire Orders could be written long-hand as:

CRUISER YETZ - SPINAL PA-5 x 1 @AGRIPPA

CRUISER YETZ - LASER (.) x2 @CASSANDRA

CRUISER YETZ - MISSILE (.) NUCLEAR x2 @CASSANDRA

CRUISER YETZ - MISSILE (.) HE x3 @CASSANDRA

Provided there is no argument over the meaning, this could be written more quickly in shorthand:

YETZ @ AGRIPPA - PA-5

YETZ @ CASS - 2 L., 2 M. (NUKE), 3 M. (HE)

Whatever notation you use, ensure that you write clearly and avoid any ambiguity that might lead to disagreement over what the Fire Orders meant.

Fire Arcs

All weapons are limited in the direction that they may fire, depending on the orientation of the ship, and the part of the ship the weapon is mounted on. The area around a ship is divided into six equal arcs, each of 60° (i.e. one segment is equivalent to two divisions on a clock face) with the Forward arc centred in the direction the ship is facing, as shown in Figure 17.

Standard Fire Arcs
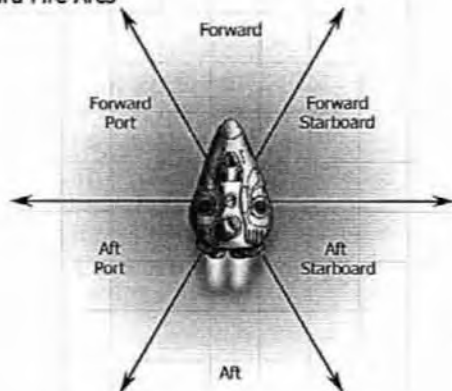
FIGURE 17: FIRE ARCS

Those arcs into which a weapon may fire are referred to as its FIRE ARCS. Most weapons can bear on several arcs (depending upon the battery's format and the size of the starship) while some (e.g. missiles) can fire in any direction. Larger ships will usually have more restrictive Fire Arcs for their turret and bay weapons.

The Fire Arcs shown on the Ship Status Diagram assume the forward Fire Arc (i.e. the ship's facing) is towards the top of the SSD. Remember that Fire Arcs are referenced against the ship's facing, not the direction of its movement vector.
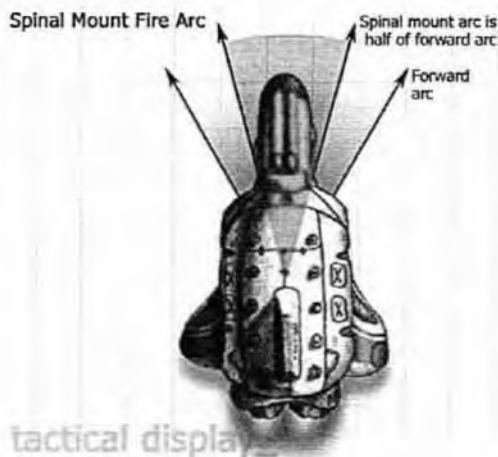
Spinal Mount Fire Arc

FIGURE 18: SPINAL MOUNT REDUCED FIRE ARC

The most limited Fire Arc is that of a spinal mount weapon. Such weapons usually point directly forwards and are pointed by manoeuvring the entire ship, so their target must be within a half-arc of their facing, as shown in Figure 18.

In reality, most ships could roll or turn during a game turn to bring just about any weapon to bear at any target, but we feel this compromises the game play, so weapons are restricted to Fire Arcs based on the ship's facing at the <u>end</u> of the movement phase.

Weapon Ranges

The range from the firing ship to its target is measured from the centre of the stand (or counter) of the firing ship, to the centre of the stand (or counter) of the target. The line between these points is the LINE OF SIGHT.

TABLE 3: WEAPON RANGES

Weapon Type	Short Range (MU)	Long Range (MU)
Energy (Fusion/Plasma)	10	n/a
Laser	10	30
Laser, Mining	5	15
Meson Gun	10	30
Missile	10	30
Particle Accelerator	10	30
Spinal Mount (any)	15	40

Beam Weapon Range Modifiers

Adjust the *effective* range to the target as follows:

+2 MU for each nuclear detonation counter through which the Line of Sight passes.

+2 MU per G of the strongest gravity band through which the Line of Sight passes.

Nuclear detonations emit large bursts of electromagnetic radiation which can degrade sensor scans in their vicinity. This affects targeting accuracy for beam weapons, so the effective range to the target for these weapons is increased by 2 MU for every nuclear detonation counter through which the Line of Sight passes.

Planets, gas giants and stars may degrade sensor scans due to their mass masking a target, or the intense electromagnetic radiation from the stellar body interfering with sensors. The gravity of a gas giant may be sufficient to deflect a particle beam or plasma bolt, while a star's gravity can even deflect the light pulse from a laser beam weapon.

To model gravity-related effects, for <u>each</u> gravity template along the Line of Sight (including the sun, if applicable), increase the effective range for beam weapons by a number of MU equal to twice the maximum gravity field through which the Line of Sight passes.
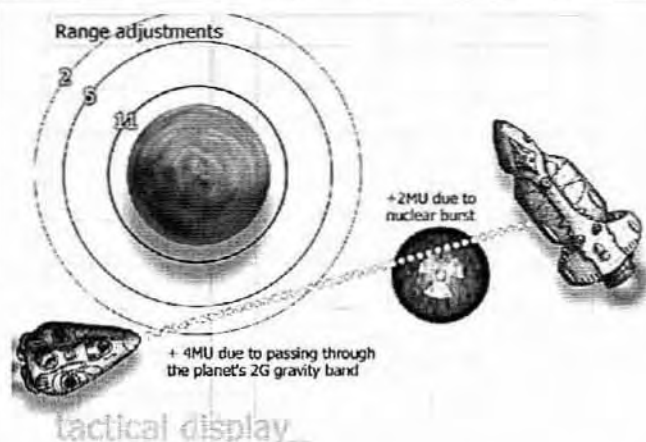
FIGURE 19: BEAM RANGE ADJUSTMENTS DUE TO GRAVITY AND NUCLEAR DETONATIONS

Example: In Figure 19, the Line of Sight between the two ships passes through the 2G boundary of the gravity template around the gas giant, and also passes through a nuclear detonation counter.

The measured range between the two ships is 8 MU but the effective range is 14 MU (+4 MU for passing through the 2G field, and +2 MU for passing through a nuclear detonation counter). This changes the range from short to long; if the target was already at the limit of a weapon's range, this could effectively put the target just out of targeting range.

Missile Range Modifiers

Missiles are affected slightly differently by nuclear detonations and gravity, as explained on p.27.

Primary Weapons - Spinal Mounts

Spinal mounts are the PRIMARY WEAPONS of capital vessels such as dreadnoughts and cruisers, and cause enormous amounts of damage. They are so devastating that all other weapon types are referred to as SECONDARY WEAPONS. Primary weapons are either huge Meson Guns or Particle Accelerators; both types have a longer effective range (40 MU; 10 light seconds) than other weapons.

Spinal Mount Attacks

Spinal mount attacks require a roll to hit the target, then damage is calculated if a hit is achieved.

To hit a target with a spinal mount, it must be within the Fire Arc of the weapon. This arc is smaller than that for all other weapons, and typically points towards the front of a starship (see Figure 18).

A spinal mount may only fire if it is charged - all ships are assumed to enter the game with uncharged spinal mounts (for game balance). It takes a full turn to

recharge a spinal mount weapon, i.e. a weapon that fires in game turn 1 cannot fire again until game turn 3.

Optionally, at the start of a battle, roll a D6 for each ship with a spinal mount - if you roll a 5 or 6, its weapon is charged and ready to fire in game turn 1. However, any ship which has just exited from Jump **must** have its weapon uncharged.

Hitting the Target

To determine whether a spinal weapon hits its target, roll a D6 and add or subtract the appropriate modifiers:

Roll 3+ on D6 to hit
+ Crew Quality of firing ship
+ Agility Modifier of target ship
-1 if Small target (hull size < 10,000 dT)
+1 if Meson Gun at Short Range
+1 if Particle Accelerator (at any range)
+ Relative Computing Power of firing ship*
- Relative Computer Power of target ship*

*If using the optional RCP rules.

If a PA spinal hits, proceed immediately to damage resolution. If a meson spinal hits, the attack may still be neutralised if the target ship has a meson screen or a specially designed defensive hull configuration.

Penetrating Meson Defenses

If a meson weapon hits a ship with meson screens or a hull configuration modifier, a further roll is required to focus the meson attack within the ship's hull. Cross-reference the target's configuration modifier and meson screen level on Table 4 to obtain the target number.

TABLE 4: MESON GUN PENETRATION

Configuration Modifier	Meson Screen			
	None	Level 1	Level 2	Level 3
None	Auto	7	8	9
L1	5	8	9	10
L2	9	10	10	10

Roll (target number)+ on D6 to penetrate defences
+ Meson Spinal Rating
+ Crew Quality of firing ship

If the roll is less than the target number, the attack fails to penetrate the hull and causes no damage.

Library Data Search: SPINAL MOUNT WEAPONS

In 'classic' Traveller, spinal mounts can fire every turn and start the game fully charged. However, playtests showed that the resulting battles became heavily biased in favour of the first ship to fire, so the recharging rules were introduced early on in the game's development. A further refinement was the lack of charged weapons at the start of a battle, added for similar reasons. The impact of these rules was to increase the focus on manoeuvre throughout the game. Feel free to allow spinal mounts to begin the game charged and to fire every turn, but the resulting games will be shorter, and require far less tactical manoeuvring, which may reduce your enjoyment of the game.

Example: The Bartholemew fires its factor 4 spinal meson gun at the Agrippa, which has a level 2 meson screen and a "L1" hull configuration. Cross-referencing these on the table gives a target number of 9. The Bartholemew's player rolls D6 + 4 (meson gun factor) + 0 (average Crew Quality). The result will be in the range 5 to 10, i.e. a 1 in 3 chance of getting 9+ and penetrating the Agrippa's defences.

Interpreting this result in more detail, you can compare the target numbers for each defence on its own. The L2 screen alone has a target of 8 and L1 configuration alone gives a target of 5. It can be seen that the screen is a far better defence; effectively, the hull configuration has no effect for this example attack, as the Bartholemew cannot fail to roll at least 5 (D6 roll of 1, +4 for the meson gun), so a result between 5 and 8 indicates the attack was blocked purely by the meson screen.

Damage from Spinal Mounts

Both Particle Accelerator and Meson spinal weapons do the same base damage - D6 per factor, e.g. a factor 5 spinal mount does 5D6 damage.

Damage = D6 per point of Spinal Mount Rating

However, damage from Particle Accelerators is reduced by the target's armour: remove one die of damage (highest rolls first) per point of armour. (It is possible to eliminate all damage dice by this method.)

All spinal mount attacks that hit (provided its damage is not reduced below three dice) require the target to make a **SPINAL MOUNT THRESHOLD CHECK** (see p.29).

Example: The Yetz fires its factor 5 PA spinal mount at the Agrippa, which has 2 points of armour. The Yetz's player rolls 5 damage dice, getting 2, 4, 5, 1 and 6. The 2 armour points cause the two highest dice (5 and 6) to be removed, reducing the damage from 18 points to just 7 points (2 + 4 + 1).

Armour Burn-Through

Some spinal mounts are so powerful that their attacks blow away large parts of the opponent's hull, and thus can cause a reduction in the target's armour (in addition to any reduction due to Threshold Checks).

If the attacker's spinal mount rating is at least 4 points greater than the target ship's <u>current</u> armour rating, reduce the target's armour rating by 1.

Example: The Yetz's factor 5 PA does not rip a hole through the 2 points of armour of the Agrippa (though the armour might still be reduced in the normal way by Threshold Checks). However, when the Yetz directs its fire at the Cassandra, which has only 1 armour point, its spinal mount rating is now 4 greater than its target's armour rating, so the Cassandra's armour is reduced by 1 (i.e. to zero).

Secondary Weapons

The term **SECONDARY WEAPONS** covers all starship weapons except spinal mounts. Individually, secondary weapons are much weaker than spinal weapons, but can be used *en masse* to overwhelm a target. Such weapons are classed as either beam (lasers, energy weapons, small PA's and meson guns, etc.) or missiles. Smaller weapons are mounted in turrets or barbettes, with larger ones in dedicated weapon bays.

Note that missile fire and impact is handled in the Missiles section (p.26) but the damage resolution for missiles is identical to all other secondary weapons.

Secondary weapon attacks are resolved using the **SECONDARY WEAPON DAMAGE TABLE** (Table 5), which combines the chance of hitting, and damage inflicted, into a single D6 roll. Each weapon battery is rated as standard or high power on the ship's SSD (e.g. "L" for a standard laser battery, "L+" for a high power battery). This defines the starting row on the table, which is then adjusted up and down the table by offensive modifiers, defensive modifiers, Crew Quality and target Agility.

Positive modifiers increase damage (shift up rows on the table) and negative modifiers decrease the damage potential (shift the row downwards). No attack can be modified to a row higher than *Enhanced Damage 6* or lower than *Reduced Damage 4*.

Once all offensive and defensive factors have been applied to determine the row, the attacker rolls a D6, and cross-references the result on Table 5 to find the number of structural boxes destroyed by the attack. If the result is "-", no damage is caused - this may mean all the weapons in the battery missed their target, were absorbed by sand clouds, failed to penetrate the target's armour, or a combination of these effects.

Example: The Yetz fires a L+ high power laser battery at the Agrippa, 20 MU away. The Agrippa is a lumbering hulk with a +2 Agility modifier, but is heavily armoured (armour rating 2). The Line of Sight between the ships crosses a level 1 sand cloud. The total row modifier is -1 (+2 for target Agility, -2 for target armour, -1 for sand cloud), so the attack is shifted down one row on the table, from the High Power (+) Battery row to the Standard Battery row. The Yetz's player rolls a 6 on D6, indicating 2 points of damage are inflicted on the Agrippa.

Re-rolls

To model hits on critical systems and chain-reaction failures, a roll of 6 on the Secondary Weapon Damage table usually triggers a re-roll. This re-roll is made on the same row of the table and any additional damage rolled is added to the damage from the first roll. Rolling yet another 6 will trigger a further re-roll, and continues to do so until no re-roll is indicated.

COMBAT - TABLES

TABLE 5: SECONDARY WEAPON DAMAGE

Attack Factor	D6 Die Roll					
	1	2	3	4	5	6
Enhanced Damage 6	-	1	2	2	2	3*
Enhanced Damage 5	-	1	2	2	2	2*
Enhanced Damage 4	-	1	1	2	2	2*
Enhanced Damage 3	-	1	1	1	2	2*
Enhanced Damage 2	-	-	1	1	2	2*
Enhanced Damage 1	-	-	1	1	1	2*
High Power (+) Battery	-	-	-	1	1	2*
Standard Battery	-	-	-	1	1	2
Reduced Damage 1	-	-	-	1	1	1
Reduced Damage 2	-	-	-	-	1	1
Reduced Damage 3	-	-	-	-	-	1
Reduced Damage 4	-	-	-	-	-	0**

*Re-roll on a 6, and add both results. Multiple re-rolls are possible.
**Roll a second D6; on 4, 5 or 6, one point of damage is scored.

**Attack Factor = Weapon Type (Standard/High Power)
+ Firing Weapon Modifiers + Crew Quality
- Defensive System Modifiers + Target Agility**

TABLE 6: FIRING WEAPON MODIFIERS

Weapon Type	Situation	Modifier
Energy Weapons	Short range	+2
Lasers$	Short range	+1
Meson Guns	Short range	+2
Meson Guns	Long range	+1
Missiles*#	Nuclear warhead	+2
Missiles*	High intensity fire	+2
Missiles#	Second movement	+1
Particle Accelerators	All ranges	+1

*These factors must be declared in the Fire Orders when the missiles are launched - their warhead cannot be changed in flight.
#These modifiers do not apply to bomb-pumped laser missiles.
$Short range is 6 MU for lasers fired from a BPL missile.

TABLE 7: DEFENSIVE SYSTEM MODIFIERS

Attacker's Weapon Type	Target's Defence System	Effect$
Lasers, Energy Weapons, Missiles, PAs	Armour Level N	-N
Lasers, Energy Weapons, Missiles	Line of Sight passes through Sand Cloud Level 1 / 2	-1 / -3
Meson Guns	Meson Screen Level 1 / 2 / 3	-2 / -4 / -6
Meson Guns	Hull Configuration Level 1 / 2	-2 / -4
Missiles	Point Defence (per standard Laser or energy battery)	-1*$
Missiles	Point Defence (per high power Laser battery)	-2*#$
Missiles (Nuclear & HE warheads)	Repulsor Level 1 / 2	-6* / -7*
Missiles (Nuclear warheads)	Nuclear Dampers Level N	-N

*Each such defence is effective against one selected missile salvo only.   #May alternatively be allocated as a -1 modifier to two different missile salvos.
$Only effective against BPL missiles when these missiles are detonated within 6 MU of the defending ship.
$All defences, except Sand Clouds, are degraded if the defender is using a Black Globe - see p.32.

TABLE 8: THRESHOLD CHECK FAILURE RESULTS

System	Effect of Failure
Bridge	Roll a D6: 1-5: Bridge inoperable for a number of turns equal to the number rolled (can be repaired by Damage Control); 6: Bridge inoperable permanently (cannot be repaired during battle). While the bridge is inoperable, the ship cannot manoeuvre or fire and its Agility Modifier is reduced to +2. However, sand-casters, nuclear dampers, Black Globes and meson screens still function.
Carried Vessel Bay	Crossed off when check failed. If the bay is carrying a vessel, that craft cannot be launched. If the bay is empty it is now too damaged for a returning vessel to dock in the bay.
Combat Capability	Reduce both offensive and defensive ratings - first hit halves rating (round down); second hit destroys.
Computers	Crossed off when check failed. When all units are crossed off, the ship may not fire or enter Jumpspace. Repulsors, lasers and energy weapons may not be used for area or point defence.
Damage Control	First failed check halves rating (round down); second failed check destroys.
Fighter Bay	Crossed off when check failed. Cannot be repaired. If the bay is currently carrying fighters, those fighters are either inoperative or cannot be launched due to the damage. If the bay is empty, it is now too damaged to dock or receive returning fighters.
Fuel Boxes	Crossed off when check failed. When all units crossed off, may not manoeuvre or fire weapons (except missiles and sandcasters), no screens function, Agility Modifier is reduced to +2, and cannot Jump.
Jump Drive	First failed check halves rating (round down); second failed check destroys (ship cannot enter Jump).
Launch Tubes	Crossed off when check failed. Cannot launch or land fighters with this tube (one squadron can still be launched or landed per 5,000 dT of the mother ship).
Manoeuvre Drive	First failed check halves rating (round down) and increases Agility Modifier to +1 (unless already worse); second failed check destroys and reduces Agility Modifier to +2.

All other systems subject to threshold checks are crossed off when the check is failed. The following systems cannot be repaired during battle: Armour, Cargo, Combat Capability, Damage Control, Frozen Watch, Fuel.

Relative Computing Power

A ship's targeting, sensory and electronic counter-measure capability is represented by its Relative Computing Power (RCP; see p.57). The attacking ship adds its RCP to its offensive modifier and subtracts the defending ship's RCP value to give a positive or negative RCP modifier for the Secondary Weapons Damage table and the spinal mount To Hit roll.

Example: The Zhodani Chtetiak (TL12, RCP2) fires upon the Imperial Benella (TL15, RCP3). When the Chtetiak fires at the Benella, the RCP modifier is +2 -3 = -1, i.e. attacks by the lower tech warship are less effective, because its targeting systems are less accurate and its sensors less able to withstand the ECM of the higher tech Imperial ship. However, if the Benella attacks the Chtetiak, the RCP modifier is +3 -2 = +1, giving the Imperial ship a significant benefit.

If you feel the RCP is providing one side with too great an advantage, feel free to ignore this rule.

Crew Quality

The firing ship's Crew Quality modifier is applied as a row modifier on the Secondary Weapon Damage table.

Defensive Modifiers

Table 7 shows the effects of various defences that may be deployed by a ship. Defences may be GENERAL or SPECIFIC: General defences apply against all attacks on a ship; Specific defences are targeted against selected individual attacks. A meson screen is an example of a General defence - all meson weapon attacks against the ship are affected by its meson screen.

Point defence using a laser battery is a Specific defence - it can only be used once in each game turn against one specified attack, i.e. against one missile salvo within a flight of missiles.

Within these limits, ships may allocate whatever defences they see fit against attacks, and a combination of General and Specific defences can be used against each attack. Weapons such as lasers may only be used for point defence if they were not used for offensive fire in the same game turn.

Agility Modifier

All ships have an Agility Modifier, representing the ability of the ship to manoeuvre to avoid enemy fire. Positive modifiers indicate that the ship is less agile and easier to hit, while negative modifiers indicate that the ship is more manoeuvrable and its position less predictable, so it is less likely to be hit.

The Agility Modifier of the target ship is applied in the same way as other defensive modifiers to shift the attacker's row up (+ve) or down (-ve) Table 5.

Point Defence Fire

Energy weapons and laser batteries that have not been used for offensive fire in a game turn may be used to try to shoot down incoming missiles instead. Each battery used for POINT DEFENCE must be targeted against a specific missile SALVO (i.e. the fire from one missile battery; not a whole group of salvos) and contributes a modifer to that salvo's roll on the Secondary Weapons Damage table. Bomb-pumped laser missiles are only subject to Point Defence fire from their target if they detonate within 6 MU of it.

A weapon's Fire Arc is ignored for Point Defence - it can fire whatever the direction of the missile attack.

Example: The Zhodani ship Chtetiak fires four missile salvos at the Imperial ship Lisani (which has not yet fired this turn). The Lisani has three high power laser batteries (L+). The captain of the ship allocates two batteries to Point Defence, keeping the third battery for offensive or defensive needs later in the turn. The two L+ batteries give a total defensive modifier of -4 (see Table 7), which can be split across the missile salvos. For example, the -4 modifier could be applied to just one missile salvo, though this would allow the other three salvos to hit home unmodified. Alternatively, the defensive fire could be applied to two salvos, giving each a -2 modifier (the other two salvos would be unmodified) or a -1 modifier could be applied to all four salvos.

Escort Defence Fire

ESCORT DEFENCE fire is where one ship contributes to another vessel's anti-missile defences. The escort must be within 6 MU of the direct line of travel of a missile salvo impacting the target that game turn.

The batteries used for Escort Defence contribute the same defensive modifiers as if used for Point Defence from the target ship, and are subject to the same restrictions - they must not already have been fired that game turn and cannot subsequently be fired again that turn. Just as for Point Defence, the weapon's Fire Arc is ignored and it can be used in any direction.

Bomb-pumped laser missiles are subject to Escort Defence fire if their track comes within 6 MU of an escort, but the Line of Sight of the laser shot (after detonation) does not count as part of the missile track.

Example: The Agidda is escorting the Lisani when the latter is attacked by four missile salvos from the Zhodani Chtetiak (see the preceding example). The missile salvos pass within 6 MU of the Agidda so its commander decides to allocate a single high power laser battery to bolster the Lisani's defences. The L+ battery adds a further -2 modifer, to be split against the missile salvos as the Agidda's player feels fit.

Sandcasters

Sandcasters differ from other defences in that they protect an area of space rather than a specific ship. With the exception of meson and PA attacks, all secondary weapon fire that passes through a cloud of sand created by a sandcaster is subject to a defensive modifier.

Depending upon the number of sandcasters in a battery, it will be rated Level 1 or Level 2. A Level 2 battery produces a denser, more effective cloud, but a ship may opt to deploy the sand more thinly and place two Level 1 clouds in place of a single Level 2 cloud.

Sand is deployed towards the end of the movement phase. Each sand cloud counter may be placed anywhere within 5 MU of the launching ship. A cloud cannot be placed directly 'under' a ship, i.e. a single sand cloud cannot provide 360° protection (most warships are too large for a single sandcaster battery to effectively deploy sand around the entire ship). Protection against attacks from all directions can be achieved by deploying multiple sand clouds around the ship.

Every attack whose Line of Sight passes through sand clouds suffers the defensive modifier of the strongest cloud of all those crossed (the modifiers are not cumulative if the attack passes through multiple clouds).

At the end of each firing phase, all sand clouds which have had a beam weapon attack pass through them are degraded by a single level, i.e. a Level 1 cloud is removed, and a Level 2 cloud is reduced to Level 1.

Sandcasters have limited ammunition and must make a reload check after firing in exactly the same way as missile launchers (see p.27).

Each sand cloud has the same velocity vector as the ship which launched it (sand counters have a vector arrow on them to represent this). The cloud's vector cannot be changed, so if the launching ship changes direction, the cloud will drift away from it.

? Optionally, sandcasters may be used for Point Defence against missiles and beam weapons, provided they have not been used earlier in the turn. Each Level 1 sandcaster contributes a -1 modifier, and each Level 2 sandcaster a -3 modifier; these can be totalled up and divided between individual missile salvos or beam attacks as desired, but the maximum modifier from sand on any one attack is -3. (A reload roll must be made for each sandcaster fired.)

If this rule is used, boarding actions require the target ship's sandcasters to be disabled.

> **Library Data Search: SANDCASTERS**
>
> Sandcasters fire canisters which activate a given distance from the launching ship and disperse a cloud of particles (nicknamed 'sand') which absorbs and disperses beam weapon energy, thus reducing its accuracy and effective damage. The sand cloud may also interfere with sensor signals, reducing their targeting accuracy.

Missiles

Unlike other secondary weapons, missiles may take a considerable time to traverse the distance between the firing ship and their target, so they do not always hit home in the same turn that they were fired.

Each battery fires a group of missiles termed a SALVO. Each salvo is a separate attack against the target. However, for ease of play, multiple salvos fired by one ship against one target may be represented by a single missile counter. Careful note must be kept (on the Fire Orders) of the actual number of salvos represented.

Missile warheads may be HIGH EXPLOSIVE (HE), NUCLEAR or BOMB-PUMPED LASER (BPL). Nuclear strikes cause more damage to their targets but are susceptible to being disabled by nuclear dampers. Any nuclear salvo (or group of salvos) which explodes, causes a nuclear detonation counter to be placed at the detonation point. Just like sand clouds, this degrades the targeting capability of any attack which passes through the nuclear detonation counter, i.e. friendly fire is affected just as much as enemy fire.

For BPL's, the Fire Orders must specify the range from the target at which the warhead detonates. The maximum range is 10 MU (beyond this, the laser beams will miss). If detonated within 6 MU of the target the attack gains a +1 bonus on Table 5, but becomes subject to Point Defence fire. A nuclear detonation counter is placed at the point of detonation of each BPL salvo.

The type of warhead must be declared in the Fire Orders. Different batteries may target the same opponent with different warhead types.

Missile Movement

Missiles always accelerate at their maximum thrust of 10G, i.e. they move 10 MU in the turn they are launched and 20 MU in the second "inflight" movement turn. Missiles only carry sufficient fuel for two turns of movement. Since this also fuels the power plant which feeds the electronics, the whole missile becomes useless and is simply removed from the table if it does not detonate by the end of its second turn of movement.

Missiles need not be launched directly at the target ship in the first turn, but must move 10 MU in a straight line. This may be used to confuse the opponent as to the intended target of the missiles (by not firing directly towards that target), or may be useful in placing the missiles in the anticipated path of a target for their second inflight turn of movement. In the second movement turn, the missiles must move 20 MU in a straight line directly towards their target.

ⓘ *Missiles could weave to evade Point Defence fire, but to simplify play (and to avoid players curving missiles around sand clouds) missiles must move in a straight line for each of their movement phases.*

? For greater realism, you can implement full vector movement for missiles. Each missile salvo gets 10 Thrust Points to spend in each missile movement phase. However, playtesting showed that this added a lot of complexity for relatively little gain in playability.

Should you wish to use this rule, you may opt to allow missiles to vary their thrust such that they can expend the total of 20 Thrust Points over more than two turns, e.g. drifting for several turns before turning on their thrusters when close to the designated target.

The designated target of a missile strike may not be changed even if that target is destroyed or crippled; the missiles may be allowed to strike home, or be discarded, or detonated at the end of their movement (this may also be used to deliberately place some nuclear detonation counters for defensive purposes).

Missile Range Modifiers

Adjust the distance a missile salvo moves in a turn:

- **-2 MU for every nuclear detonation counter** which is in its movement path that game turn.

- **-1 MU per G of innermost gravity band** which is in its movement path that game turn.

The first factor represents degradation of missile sensors by the radiation burst, forcing the missiles to slow down to regain or refine the sensor lock on their target.

The gravity effect is based on the highest gravity band crossed on each gravity template in the missile's path. Missiles passing through a strong gravity field might be sufficiently slowed that they fail to reach their target.

***Example:** The Imperial Benella fires a missile salvo at the Zhodani ship Chtetiak, 6 MU away. The line of sight for the missiles crosses three nuclear detonation counters, each of which reduces the missile salvo's movement by 2 MU, such that its initial 10 MU movement is reduced to just 4 MU in the first turn (the missiles have great trouble maintaining a sensor lock on the Chtetiak due to the electromagnetic interference from the nuclear blasts).*

When the inflight missile movement phase is reached in the next game turn, the Chtetiak has accelerated away 14 MU from the missiles. The nuclear detonations are old enough to have been

removed at the end of the last turn and there are no other obstacles on the Line of Sight between the missiles and the Chtetiak. Since the missiles travel 20 MU this turn, they catch up with the Zhodani ship. Whether these missiles are repulsed or shot down by Point Defence fire is resolved in the first missile phase of the firing player's turn.

? Optionally, all missiles can strike home in the turn they are launched, i.e. they travel their full 30 MU in a straight line towards their target. This eliminates the need to use counters to record their progress.

Missile Reloads

Missile batteries have limited ammunition, and cannot continue firing indefinitely. To simulate this, after each battery fires, the player should roll a D6: if the roll is a 6, all ammunition in that battery's magazine has been expended, and it may not fire again in this game (an empty battery may still be damaged from a Threshold Check failure). The reload check should be made immediately after the battery has fired.

The same ammunition rules apply to sandcasters.

For both missile launchers and sandcasters, when their magazine is empty, put a dot in the icon on the SSD to show this (if the weapon is subsequently destroyed, ensure you put a full cross through it, to distinguish it from simply having an empty magazine).

? Nuclear and bomb-pumped laser warheads are far more expensive than HE, so you may opt to roll D6 for each ship at the start of the game to determine which warheads it has available: 1-3 HE only; 4-5 HE and nuclear; 6 HE, nuclear and bomb-pumped laser.

? The reload rule requires no paperwork to keep track of ammunition usage, but you might opt to do so, using check boxes or a tally system on a separate sheet of paper (***Power Projection** assumes a missile turret stores 3 missiles per launcher*). However, this could become tedious for large numbers of ships. A similar system can be used for sandcaster reloads.

High Intensity Missile Fire

A player may declare a ship is making a high intensity fire attack with one or more of its missile launchers. The ship unleashes every missile stored in the magazines for those launchers, i.e. these launchers automatically fail their reload check. This gives a one-off bonus of +2 when rolling the attack on the Secondary Weapon Damage table. All defences apply as usual.

Nuclear Detonations

Each missile strike using nuclear weapons results in the placement of a nuclear detonation counter. The counter simulates the effects of the radiation (including electromagnetic pulse, or EMP) temporarily interfering with sensor systems, making vessels beyond the

nuclear burst harder to detect (reducing the range of beam weapons and slowing missile movement).

Each nuclear counter remains in place until the end of the <u>following</u> turn and, as it has no retained velocity, it stays in the same place. There is no impact on a ship passing through a counter, although a sand cloud which contacts a nuclear detonation counter during movement will be dispersed (i.e. destroyed) by it.

A nuclear detonation counter is also placed in the last location of a ship that has lost all its structure boxes to represent its final catastrophic demise!

Massed Fire

Larger warships such as dreadnoughts pose a distinct problem when using secondary weapons, due to the sheer number of batteries that they possess - perhaps hundreds - each of which would require a separate die roll on the Secondary Weapon Damage table.

To simplify and speed up this process, you may <u>opt</u> to use the Massed Fire table (Table 9), which scales up the structural damage from the Secondary Weapon Damage table for a group of 10 batteries. Due to the limitations of using a single D6 roll, the exact spread of damage for each row is an approximation, but this is probably preferable to making the 10 individual damage rolls (unless you really like rolling lots of dice!)

The table row is determined using the normal offensive and defensive modifiers, but only one roll is made on the table for every 10 batteries (of the same type). (Note that battery-based defensive modifiers must also be applied in groups of 10, otherwise the individual fire table should be used.)

TABLE 9: MASSED FIRE

Attack Strength	D6 Die Roll					
	1	2	3	4	5	6
Enhanced Damage 6	12	15[1]	16[1]	17[2]	19[2]	21[4]
Enhanced Damage 5	11	13[1]	15[1]	16[2]	17[2]	18[4]
Enhanced Damage 4	10	12[1]	13[1]	14[2]	15[2]	17[4]
Enhanced Damage 3	8	10[1]	11[1]	12[2]	13[2]	15[4]
Enhanced Damage 2	6	8[1]	9[1]	11[2]	12[2]	14[4]
Enhanced Damage 1	5	7[1]	8[1]	9[2]	10[2]	11[4]
High Power (+) Battery	3	5[1]	6[1]	7[2]	8[2]	10[4]
Standard Battery	3	5	6	7	8	10
Reduced Damage 1	3	4	5	5	6	7
Reduced Damage 2	1	2	3	4	4	6
Reduced Damage 3	-	1	1	2	2	4
Reduced Damage 4*	-	[1]	[1]	[2]	[2]	[4]

[N]Superscript numbers indicate the number of re-rolls on the same line of the Secondary Weapons Damage table.

*Superscript numbers on this row indicate the number of re-rolls on the Reduced Damage 1 row of the Secondary Weapons table.

Where a superscript number is given in Table 9, this shows the number of additional rolls that should be made on the same row of the Secondary Weapons Damage table. For faster play you may opt not to bother making these additional rolls.

Example: The Belarish has 24 L+ batteries firing (after all modifiers) on the Enhanced Damage 1 row. The player rolls 2 and 4 on D6 for two lots of 10 batteries, giving 7 and 9 damage respectively, and 3 extra rolls on the Secondary Weapons Damage table. Adding the last 4 batteries, gives 7 rolls on Table 5, the result of which is a further 5 damage. The total damage for the 24 attacks is 21 points, having required only 9 rolls rather than 24!

Resolving Damage

There are two types of damage in *Power Projection* - STRUCTURAL damage, and THRESHOLD damage. Structural damage represents the degradation of the hull and superstructure of a starship. Threshold damage represents the failure of critical ship systems due to accumulated damage (or a lucky hit).

For each Task Force firing phase, resolve <u>all</u> Structural damage suffered by a ship (i.e. all attacks against that ship) before determining whether a threshold check is required. This simplifies play by avoiding Threshold Checks part way through a fire phase.

Structural Damage

The amount of Structural damage which can be taken by a starship is represented by up to four rows of structure boxes (an example is shown in Figure 20).

Each point of Structural damage from a spinal mount attack, or from the Secondary Weapon Damage table, results in a structure box being crossed off, starting at the top row and working from left to right.

When the last structure box in a row is crossed off, a THRESHOLD DAMAGE CHECK must be made (see below). If sufficient damage is taken to cross off two or more row ends during the same firing phase, a CATASTROPHIC DAMAGE CHECK must be made, followed by the usual Threshold Damage Check (see below).

Once all four rows of boxes are crossed off, the ship is completely destroyed. (Note that armour is only crossed off due to failing a Threshold Check or a hit by a particularly power spinal mount weapon.)

```
        OO
   6 □□□□□□□□□□
   5 □□□□□□□□□□
   4 □□□□□□□□□□
KILL □□□□□□□□□□
```

FIGURE 20: STRUCTURAL BOXES FOR A 30,000 DT SHIP WITH 2 ARMOUR POINTS

Threshold Damage Checks

When the last box is crossed off in any row of a ship's structure boxes, its player must make a Threshold Damage Check for every operational component shown on the ship's SSD.

The number at the start of each row of structure boxes is the THRESHOLD CHECK NUMBER for that row. A component fails its Threshold Damage Check if the player rolls the Threshold Check Number or greater on D6.

Example: For the ship shown in Figure 20, the "6" at the start of the first row indicates the threshold check number for that row is 6, i.e. when the last box is crossed off on that row, the player must roll a D6 for each component on the SSD - any component for which he rolls a 6 has failed its check. Similarly, the Threshold Check for the second row would fail if the roll was 5 or 6; the check for the third row would be failed on a roll of 4, 5 or 6.

The chance of failing a threshold check increases as the structural damage mounts up. The last row says "Kill" because when all boxes on that row are crossed off the ship has been destroyed (so no Threshold Checks are required)!

Components which fail a Threshold Check are usually rendered inoperative and should be crossed off the SSD (though they may be repaired, so use pencil or a wipe-off marker pen). Some components may only be *degraded* by a Threshold Check failure - these special cases are given in Table 8.

Spinal Mount Threshold Check

A hit from a spinal mount may trigger an immediate Threshold Damage Check, whether or not the attack resulted in a row of structure boxes being crossed off. This check is performed for each ship component just as for a normal check, but the Check Number depends on the spinal mount rating as shown in Table 10.

TABLE 10: SPINAL MOUNT THRESHOLD CHECK

Spinal Mount Rating*	Check Number
2 or lower	No check#
3 - 4	6
5 or higher	5

*This is the *effective* rating, i.e. the spinal mount rating reduced (for Particle Accelerators only) by the armour rating of the target.

Optionally, if the *effective* spinal mount rating (or less) is rolled on D6, then a Threshold Check is made with a Check Number of 6.

Catastrophic Damage Checks

A Catastrophic Damage Check occurs when a starship suffers a massive amount of damage, i.e.

(a) when two or more rows of structure boxes are crossed off in a single firing phase,

(b) when one row of structure boxes is crossed off due to a single spinal mount hit.

This Threshold Check is made before any other checks. The Check Number is one less than for the equivalent Threshold Damage Check (e.g. if the first two rows have been crossed off in a single firing phase, the Check Number for the second row is 5; the Catastrophic Check Number is reduced by 1, to 4).

A single D6 is rolled for the Catastrophic Damage Check; if the roll is equal to, or greater than, the Catastropic Check Number, the entire next row of structural boxes is immediately crossed off, and *another* Catastrophic Damage Check is made immediately for that next row.

Given the increased chance of failing a second Catastrophic Damage Check, this can quickly result in a starship being destroyed due to a chain reaction of internal failures and explosions!

Even if the ship survives the Catastrophic Damage Check, it must still make a normal Threshold Damage Check for each of the ship's components. The Threshold Check Number for this check is the same as for the Catastrophic Damage Check, i.e. reduced by 1 from the normal Check Number. This reflects the fact that more than one Threshold Check point has been crossed, but for simplicity the player only rolls one set of checks, so they are made a little harder.

Example: The Lisani takes hits from multiple Zhodani ships, accumulating sufficient damage in one fire phase to cross off the whole of its first and second rows of structure boxes. The ship must therefore make a Catastrophic Damage Check.

The normal Check Number for the second row of structure boxes is 5, so the Catastrophic Check Number is 4. The player rolls a 5 on D6, failing the check and causing the Lisani's third row of structure boxes to be crossed off immediately. The player must roll another Catastrophic Damage Check, now with a Check Number of 3! Thankfully he rolls a 1, avoiding a cataclysmic explosion engulfing the ship. However, the Lisani must still make the usual Threshold Damage Checks for its entire SSD, at the slightly reduced Threshold Check Number of 3.

Massed Threshold Checks

Some ships have a large number of identical systems that will need to be checked at the same time. For example, a dreadnought may have hundreds of secondary weapons. For large numbers of checks against identical systems the following table can be used to replace every 10 die rolls with a single roll. Simply roll once on the appropriate row for the Threshold Check Number to find the number of failed checks.

Note that the values given are only an approximation to the results you'd get if you actually rolled ten threshold dice, but they're close enough for game purposes.

TABLE 11: MASS THRESHOLD CHECK

Threshold Check Number	D6 Die Roll					
	1	2	3	4	5	6
6	0	1	1	2	3	4
5	1	2	3	4	5	6
4	3	4	5	5	6	7
3	4	5	6	7	8	9

Example: The Belarish has to roll a Threshold Check for its 24 L+ batteries, at Check Number of 6. The first two sets of 10 batteries are rolled for (3 and 5 on D6) on Table 11, giving 1 + 3 = 4 failures. The remaining four batteries are rolled individually.

Damage Control

During a battle, a ship's crew can try to jury-rig repairs to damaged systems. Such repairs only last the duration of the battle being fought; more permanent repairs must be made at the end of a battle (see the Strategic Rules, p.52).

Each Damage Control Party (DCP) on a ship may make one attempt per game turn to repair any eligible system. All DCP's must be allocated a specific repair task before any of the repair rolls are made. Multiple DCP's may work on the same system, but only one level of damage may be repaired per turn, however many DCP's made their repair roll. If two DCP's are working on the same system and one party succeeds before the other party has made its roll, the latter party may not be reallocated to repair a different system - they are assumed to have been working alongside the successful team.

Each DCP rolls a D6 and adds their Crew Quality modifier; if the result is a 6 or higher, the system they were working on is immediately repaired.

Those systems which take only one Threshold Check failure to destroy are returned to normal operation. Systems which are degraded by Threshold Check failures (see Table 8) are repaired by one level. Some systems are too complex to repair during battle (see Table 8).

Damage Control Parties may only repair damage on their own ship, except:

- Ships with carried vessels may pool their Damage Control Parties and allocate them as desired across any of the ships currently docked to the carrier.

- Following a successful Boarding Action, the player controlling the victorious ship may opt to transfer some of their DCP's on to the boarded ship.

Example: Two veteran Damage Control Parties are allocated to the Lisani's Jump-2 drive, which is currently inoperative due to severe battle damage. The first DCP rolls a 5, +1 for their veteran Crew Quality, making a total of 6 - they manage to repair one level of damage to the Jump drive, i.e. the drive is restored to Jump-1 capability. The other DCP may not repair the Jump drive further this turn (nor may they be reassigned to repair another system), as they are assumed to have been contributing to the first DCP's efforts. However, in the following turn either or both teams could attempt to restore the drive to full Jump-2 operation.

You may opt to limit battlefield repairs as follows. If a system is successfully repaired by a DCP, but then suffers damage again, it may not be repaired back to the same level during a battle - it will require permanent repairs to be carried out.

Frozen Watch

The FROZEN WATCH is a store of crew members who have been cryogenically frozen in "low berths", ready to be awoken to replace battle casualties.

By default a ship can only activate its Frozen Watch once during a game. However, the Frozen Watch icon on the SSD may have "xN" on it, indicating that there are N such sets of spare crew.

Activating the Frozen Watch restores the ship's Damage Control Parties, Offensive Combat Capability and Defensive Combat Capability to full strength.

You must declare that the Frozen Watch is to be activated for a particular ship in its Movement Orders. The new crew are activated immediately and may be used for boarding actions and damage control from the start of the following turn (it takes a little while to recover from their cryogenic 'sleep' before they can take on their shipboard duties).
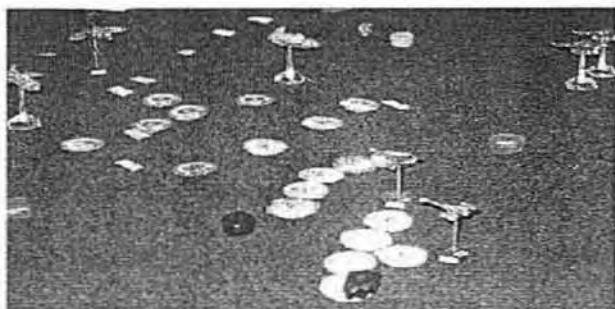
IMPERIAL AND ZHODANI BATTLESHIPS CLASH IN THE HAZARDOUS "MOONEY FRUIT GUM" ASTEROID BELT (PART OF THE EXTENSIVE PLAY-TESTING OF POWER PROJECTION, GEN CON 2002)

Empress Troyhune Planetoid Monitor (PX)
50,000 dT - TL 15 - MCr 17,436

The *Empress Troyhune* was originally built in the Mora/Moral Spinward Marches system in 1067, and was later sold to Rorise / Mora for system defence. The ship was ferried there by the Imperial Navy using a larger battle tender. The design is not optimised - over 9,000 dT of hull space remains for fittings and turrets are not all loaded at maximum capacity. However, it still presents a formidable opponent for the unwary.

TL15 Empress Troyhune - PX - 50 kdT - USL (106)

Config L2: Agility -1

FH

FH

6
5
4
Kill

Turn 3
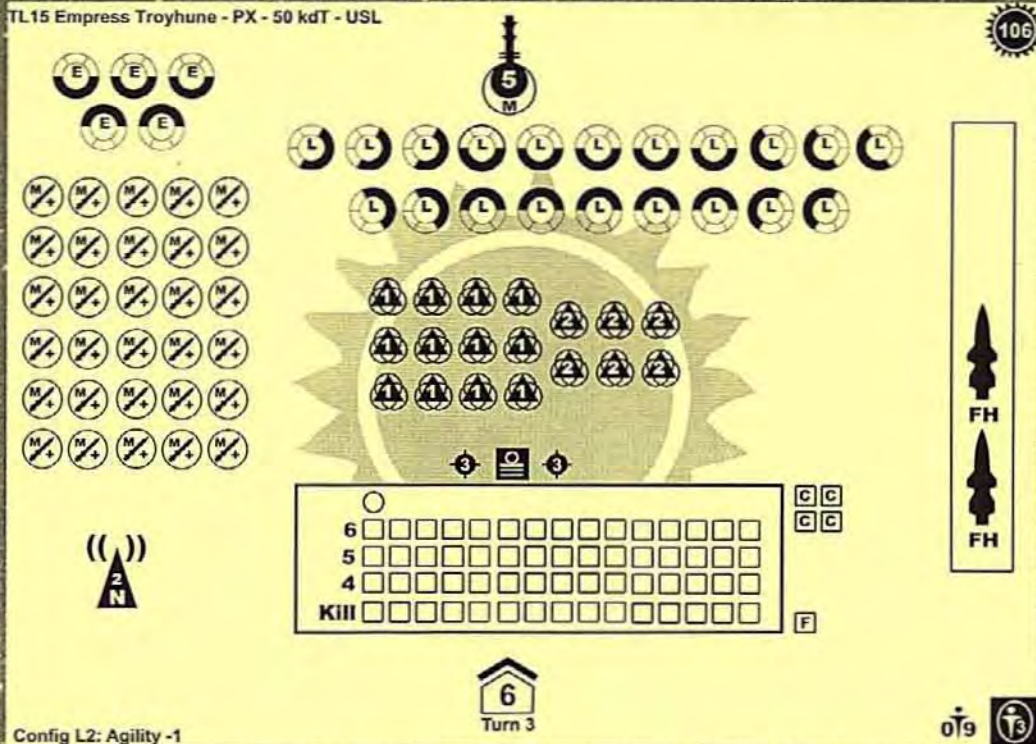
Azhanti High Lightning Frontier Cruiser (CF)
60,000 dT - TL 14 - MCr 34,227

Slow, lumbering and obsolete, the *High Lightning* Class Frontier Cruisers are a surprising retention in the Imperial arsenal. However, the high Jump capability, heavy spinal mount and 8 fighter squadrons provide a degree of flexibility not seen in many other classes. Some of these ships may be found transferred to Imperial Client-States; others serve on the borders, and a number have been placed *In Ordinary* in lieu of future needs.

TL14 High Lightning - CF - 60 kdT - PSL (108)

FL FL
FL FL
FL FL
FL FL

15dT launch
tubes x2

6
5
4
Kill

Scoops / Purifiers
F F F
F F F

Config N/A: Agility +2

Turn 0

30 8
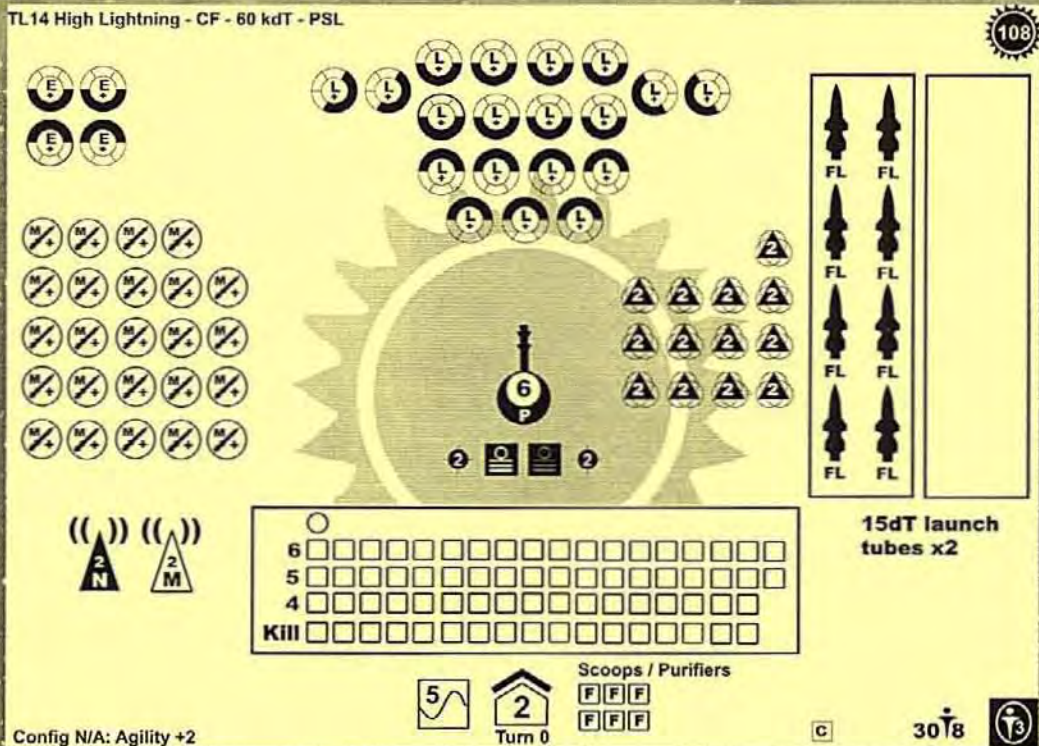
PF Sloan Class Fleet Escort (FE)
5,000 dT - TL 15 - MCr 3,334

The *PF Sloan* class fleet escort is one of the more powerful fleet escorts used by the Imperium. The ship has been designed from easily manufacturable components to speed repair work and original build. They are typically deployed in numbers whenever fleet elements are present in system, and are capable of standing in the Line of Battle for a short period.

TL15 PF Sloan Class Fleet Escort - FE - 5 kdT - PSL (33)

Config L1: Agility -1   Turn 3
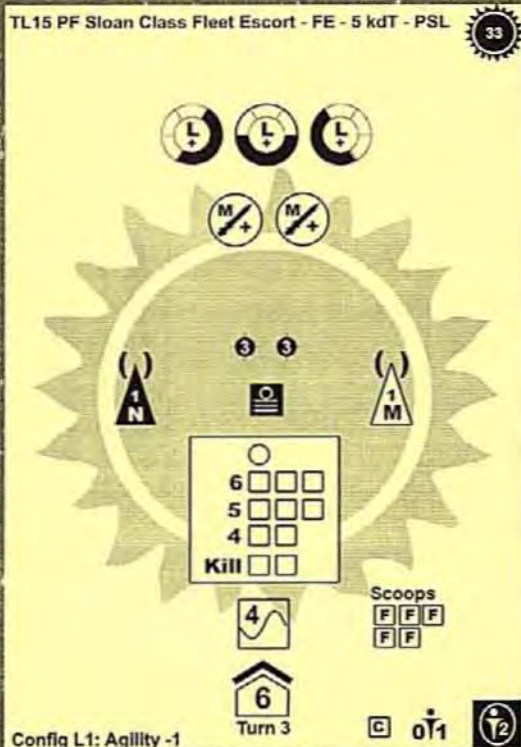
Nolikian Class Battle Rider (BR)
20,000 dT - TL 15 - MCr 18,627

This Imperial Battle Rider is an early TL 15 deployment. Though it packs a fair punch, it is not the best example of its type.

TL15 Nolikian Class Battle Rider - BR - 20 kdT - SL (67)

Config L1: Agility -1   Turn 2

Gionetti Class Light Cruiser (CL)
30,000 dT - TL 15 - MCr 18,306

The Gionetti was designed as a fast reaction ship but is often deployed as a flagship for small task forces. The original design was vulnerable to spinal meson weapons due to its lack of a meson screen. This was rectified by refitment and new builds to "Flight 2" standard which costs MCr 18,622 but includes a L2 meson screen, sacrificing one of the dock bays which held three 50dT cutters. These ships are sometimes referred to as the Riepe class, after the lead ship of the new builds.

TL15 Gionetti Class Light Cruiser - CL - 30 kdT - SL (82)

Config L1: Agility -1   Turn 2
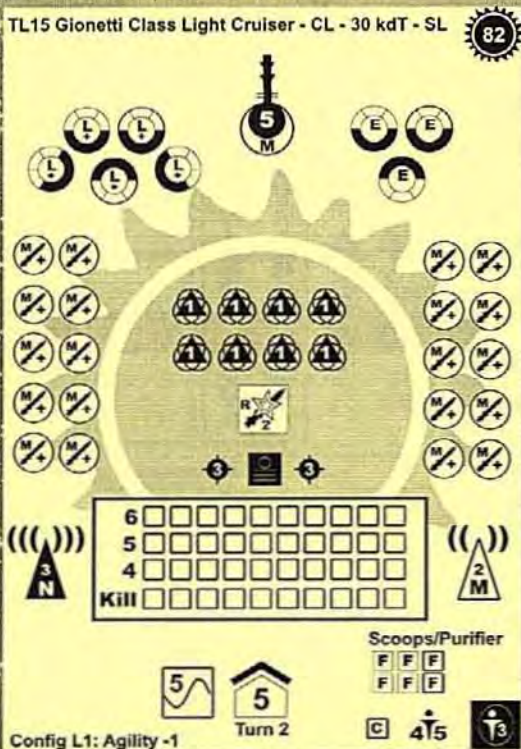
Zhdiak Class Light Destroyer (DL)
4,000 dT - TL 14 - MCr 3,612

The *Zhdiak* is a very common class of light destroyers, designed to escort merchant and auxiliary vessels and to defend them against raiders. 4,000 tons is considered to be the minimum size for mounting a viable mixed armament of missiles and beams. The ship also has good screens, and light armour. The vessel is very agile, and has the Jump-3 performance necessary for following Consular fleets.

TL14 Zhdiak Class Light Destroyer - DL - 4kdT - SL (28)

Config L1: Agility -1   Turn 3

Atlantic Heavy Cruiser (CR)
75,000 dT - TL 15 - MCr 47,545

The *Atlantic* cruiser is a common sight across the Imperium with some 794 vessels produced, and over 500 still in service. However, the vessels are now coming to the end of their service life and may well be replaced with a new class, rather than upgrading to meet current first line standards. The Atlantic is often used on independent missions, especially beyond the Imperial Borders. Approximately 60 units have been paid off and sold to Imperial Client states including Aslan Colonial governments and friendly Vargr Nations in the Corridor sector.

TL15 Atlantic - CR - 75 kdT - PSL   130

Scoops / Purifiers

6
5
4
Kill

3 N   2 M

Config N/A: Agility -1   4   5 Turn 2   C   (20)0↑10   ①3

Kokirrak Class Dreadnaught (BB)
200,000 dT - TL 15 - MCr 135,102

The *Kokirrak* Class is often deployed as a command and control vessel, and four Batrons of these ships are deployed in the Spinward Marches. Usually, one of these Batrons is broken up on independent controls. The *Kokirrak* is near the end of its service life; examples have started to be paid off and transferred to allied states and Colonial Fleets. About half of these vessels are equipped with Black Globes (Factor 4/ Flicker rate 40%). The screen capacitors store 14,400 Energy Points and can discharge 2,000 EP per turn.

TL15 Kokirrak - BB - 200 kdT - PSL   212

6
5
4
Kill

3 N   3 M   BG 4   Scoops / Purifiers

4   6 Turn 3   C   3   3   0↑31   ①4

Config N/A: Agility -1

Wind Class Strike Carrier (SC)
75,000 dT - TL 15 - MCr 46,437

Designed and created as a result of the Frontier Wars against the Zhodani, the *Wind* Class Carrier epitomises the fighting carrier concept. Armed with a spinal mount, and defenses suitable for fleet or independent action, the *Wind* Class is a much more flexible ship than the *Skirmish* Class yet still carries the same number of fighters. However, to gain these benefits the *Wind* Class is more than twice the size, and nearly three times the cost. Is it three times as survivable? The debate continues...

TL15 Wind - SC - 75 kdT - PSL   130

Scoops / Purifiers

50dT launch tube x1

Config N/A: Agility -1   Turn 3   4 / 13

Lurenti Class Battle Tender/Carrier (CB)
300,000 dT - TL 15 - MCr 203,095

The *Lurenti* Class Battle Tender is used as a mothership for up to 7 *Nolikian* Class Battle Riders. The *Lurenti* and her riders are considered to be a complete BatRon in their own right. (Traveller purists will notice that this ship differs from the one presented in the *Spinward Marches Campaign* book for 'Classic' Traveller. This is because the design in that book was broken, and did not follow the design rules. The above design matches the quoted specification).

TL15 Lurenti - BT - 600 kdT - USL   368

CV Nolikian BR#1 20kdT   CV Nolikian BR#2 20kdT   CV Nolikian BR#3 20kdT   CV Nolikian BR#4 20kdT

CV Nolikian BR#5 20kdT   CV Nolikian BR#6 20kdT   CV Nolikian BR#7 20kdT

Note: Lurenti Class has a 'Dispersed Structure' so all fighters and Riders may launch simultaneously.

Purifiers

Config L2: Agility +1   Turn 1   100 / 87

Skirmish Class Light Carrier (LC)
29,000 dT - TL 15 - MCr 15,860

The *Skirmish* Class Light Carrier is a small, slow fighter carrier characterised by a heterogenous mix of secondary weapons and a large complement of heavy fighters. The lack of a spinal mount or meson screens mean that the *Skirmish* class is usually deployed in the reserve due to the potential for damage by enemy vessels. Current Imperial Navy thinking is vacillating between the fighting carrier concept (a carrier capable of functioning as a cruiser in battle) and the dedicated single role carrier (as outlined here). Presently, the Navy is favouring the single role functional concept rather than the Jack-of-All-Trades.

TL15 Skirmish - LC - 29 kdT - PSL   (81)

Scoops / Purifiers
F F F
F F

50dT launch tube x1

4 ~   2 Turn 1   0↑5   (T3)

Config N/A: Agility 0

Plankwell Class Dreadnaught (BB)
200,000 dT - TL 15 - MCr 120,495

The *Plankwell* Class is a traditional battleship, constructed using modular techniques to provide a cost effective and easily built ship. They are named after famous Admirals of Imperial history. Until 1102, they were a common sight in the Spinward Marches, but all units have been rotated back to the strategic reserves in the Corridor Sector from the borders as part of the Imperium's move to a defense in depth strategy.

TL15 Plankwell - BB - 200 kdT - PSL   (212)

Scoops / Purifiers
F F F
F F

4 ~   5 Turn 2   ◆ ▣ ◆   0↑24   (T4)

Config N/A: Agility -1

Ghalalk Class Armoured Cruiser (CA)
50,000 dT - TL 15 - MCr 27,928

The *Ghalalk* (or *Planet*) class is one of the Imperial Fleet workhorses, undertaking a wide variety of roles in peace time and supporting the battlefleets in war. Its use of a PA spinal mount is used by the Imperium to ensure that opponents have to build armoured vessels to counter its heavy punch, which is also more accurate than the deadly meson spinal. The Ghalalk carries 200 Marines and is capable of performing orbital assaults and supporting bombardments with its heavy missile armament.

TL15 Ghalalk - CA - 50 kdT - PSL

106

Scoops / Purifiers

6
5
4
Kill

Config N/A: Agility -1

4 5
Turn 2

40 5

Tigress Class Dreadnought (BB)
500,000 DT - TL 15 - MCr 362,721

A truly frightening starship, the *Tigress* is the largest battleship serving on the Imperial borders (the *Lurenti* class is bigger but is not considered a 'line of battle' vessel). Carrying the most powerful spinal mount, an awesome array of missiles and other secondary weapons and 30 squadrons of heavy fighters, a single *Tigress* can almost act as a fleet on its own. However, it is more vulnerable than a squadron of smaller dreadnoughts, mainly as a result of the designer's failure to duplicate vulnerable and vital components such as the bridge.

TL15 Tigress - BB - 500 kdT - PSL

335

FH FH FH FH FH FH

FH FH   FH FH   FH FH

FH FH   FH FH   FH FH

FH FH   FH FH   FH FH

FH FH   FH FH   FH FH

50dT Launch Tubes x3

6
5
4
Kill

Config N/A: Agility -1

Scoops / Purifiers

4 6
Turn 2

0 82

Sand Cloud L7 -1 (×13 counters)
Sand Cloud L2 -3 (×10 counters)

FORWARD · FRONT · FORWARD
SPINAL
FWD PORT P1 · P2 · P3
FWD PORT
AFT PORT P4
AFT PORT P5
AFT P6 · S6 · AFT S5
AFT STBD S4
AFT STBD S3
FWD STBD S2
FWD STBD S1

ID:

CUT OUT CENTRE SECTION
AND HOLD OVER SHIP TO BE
MOVED / TURNED

CL **CL** **CL** **CL** **CL**

CL **CL** **CL** **CL**

Large Gas Giant
2.7G
Large Gas Giant
0.5G 1.0G 2.5G

Small Gas Giant
1.2G
0.5G 1.0G

Small Gas Giant
1.2G
0.5G 1.0G

FE

TT **PX**

BR **BR** **BR**

BR **BR** **BR**

BR **BR** **BR**

FE **FE** **FE** **FE**

Kobe Class Bulk Carrier
50,000dT - TL13 - MCr 22.177

The *Kobe* is a civilian bulk carrier, but its modular design and high performance made it too expensive for most civilian customers. The Imperial Navy recognized its merits and modified several to suit a number of roles. The *Kobe* carries its cargo in 2000-ton modules which can be used as fuel tanks, missile magazines or freight containers. The ship carries only enough fuel for Jump-3 internally, though it can use container fuel to make a Jump-4. Special Rule: Each failed Threshold Check means the loss of one cargo container (2000 dT)

TL13 Kobe - Bulk Carrier - 50 kdT - PSL
(92)

C C C C C
C C C C C

Note: The Kobe Class has Cargo in 2000dT bulk modules. As an exception to the rules, each module has its own SSD icon above and is threshold checked individually.

6 □□□□□□□□□□□□□□□□□□
5 □□□□□□□□□□□□□□□□□□
4 □□□□□□□□□□□□□□□□□□
Kill □□□□□□□□□□□□□□□□□□

Scoops / Purifiers
F F
F F

Config N/A: Agility 0

Turn 1

5|7 (T3)

Idlev Superbattleship (BH)
560,000 dT - TL 14 - MCr 444,645 (Carried vessels add MCr 18,068)

The *Idlev* is probably the last of its type, a super-battleship and troop carrier. It is Zhodani Consulate's ultimate power projection platform. However, naval design philosophy has shifted towards more efficient, smaller vessels dedicated to a specific role, e.g. the *Viepchakl* for pure space combat. The *Idlev* is even bigger than the Imperium's vaunted *Tigress* class, and its performance is similar (within the limits of tech level 14). However, *Idlev* class ships are rarely deployed without significant support, as the are too valuable to risk losing.

TL14 Idlev - BH - 560 kdT - PSL
(325)

6 □□□□□□□□...
5 □□□□□□□□...
4 □□□□□□□□...
Kill □□□□□□□□...

Scoops / Purifiers
F F F F

Config N/A: Agility -1

Turn 2

240|95

ladiadisiz Class Fleet Tanker (CT)
480,000 dT - TL14 - MCr 177,579

The *ladiadisiz* is a massive, slow Jump-3 tanker with adequate screens and self-defense armament. Its fuel capacity is sufficient to make two consecutive Jump-3's and to refuel one *Viepchaki* class battleship or one *Aatsdivr* class battle tender, enabling the battleships to make a Jump-3 stand-off raid, or to penetrate enemy territory at a depth of 6 parsecs. Though the *ladiadisiz* is an old design, it is still perfectly serviceable today because it requires lower tech components than its equivalents. The tanker carries 76,000 tons of extra fuel for distribution. Note that this is additional to the standard tankage to support Jump.

TL14 ladiadisiz - TF - 480 kdT - PSL

307

Config N/A: Agility +1

Scoops / Purifiers

Turn 1

48†53

Gnat Class Light Fighter
8.5 dT - TL 15 - MCr 148.7 / sqdn

Gnat - FL - 8.5dT ea
TL14 - MCr148.7/Sqdn
PSL - Config NA - Agility +2

Fighter Squadrons

4

Rampart Class Light Fighter
15 dT - TL 15 - MCr 158.3 / sqdn
(Carried on *Azhanti High Lightning* class.)

Rampart - FL - 15dT ea
TL15 - MCr158.3/Sqdn
SL - Config L1 - Agility -1

Fighter Squadrons

12

Sylea Class Heavy Fighter
50 dT - TL 15 - MCr 1053.3 / sqdn

Sylea - FH - 50dT ea
TL15 - MCr1053.3/Sqdn
SL - Config L1 - Agility -1

Fighter Squadrons

12

Anzh Class Heavy Fighter
96 dT - TL 14 - MCr 2004.7 / sqdn
(Carried on the *Idlev* class.)

Anzh - FH - 96dT ea
TL14 - MCr2004.7/Sqdn
SL - Config L1 - Agility -1

Fighter Squadrons

12

Baql Class Light Fighter
25dT - TL 14 - MCr 648.1 / sqdn

Baql - FL - 25dT ea
TL14 - MCr648.1/Sqdn
SL - Config L1 : Agility -1

Fighter Squadrons

12

Kitl Class Heavy Fighter
60 dT - TL 14 - MCr 1340.2 / sqdn
(Carried on *Drialia* class.)

Kitl - FH - 60dT ea
TL14 - MCr1340.2/Sqdn
SL - Config NA : Agility -1

Fighter Squadrons

12

The *Driafria* class strike carrier is a fairly recent addition to the Consular Navy. Similar to the Imperial *Wind* class, it combines the characteristics of a cruiser and a carrier. The Zhodani hope this will make the ship more survivable in the often chaotic tactical environment on the frontier.

TL14 Driafria - CS - 100 kdT - SL

(140)

25dT launch tube x1

60dT launch tube x1

Scoops / Purifiers
F F
F F

6
5
4
Kill

3

5
Turn 2

Config n/a: Agility -1

10|31

---

detailed system map

UPP

hex

system name

budget/economic points

starport construction capacity

primary

0 1 2 3 4 5 6 7 8

9 10 11 12 13 14 15 16 17 outer

deep space

stellar data

designation

type

O	100 D
B	
A	mark on details
F	
G	
K	
M	

orbit table

Orbit ☐☐	AU ☐☐☐	MU
0 ☐☐	0.2 ☐☐☐	399
1 ☐☐	0.4 ☐☐☐	798
2 ☐☐	0.7 ☐☐☐	1396
3 ☐☐	1 ☐☐☐	1995
4 ☐☐	1.6 ☐☐☐	3191
5 ☐☐	2.8 ☐☐☐	5585
6 ☐☐	5.2 ☐☐☐	10372
7 ☐☐	10 ☐☐☐	19947
8 ☐☐	19.6 ☐☐☐	39095
9 ☐☐	38.8 ☐☐☐	77393
10 ☐☐	77.2 ☐☐☐	153988
11 ☐ ☐	154 ☐☐☐	307179
12 ☐☐	307.6 ☐☐☐	613559
13 ☐☐	614.8 ☐☐☐	1226321
14 ☐☐	1229.2 ☐☐☐	2451844
15 ☐☐	2548 ☐☐☐	5082411
16 ☐☐	4915.6 ☐☐☐	9804983
17 ☐☐	9830.8 ☐☐☐	19609169
outer		

strategic ident symbols

uninhabited world

habitable world
P=starport type
S=size

empty orbit

gas giant
L=large
S=small

double box indicates main world

planetoid belt

enhanced strategic display_

Kefchenzh Class Armoured Cruiser (CA)
52,000 dT - TL14 - MCr 41,882

An old, but serviceable cruiser, designed during the Third Frontier War and a mainstay of Consular Fleets for over a century. The design has been upgraded several times (this data is for 3rd Flight, first launched 3452.2; a 4th Flight will feature improved sensors, computers and screens). Unlike modern cruisers, the ship has a PA main weapon instead of a meson gun. While less effective against heavily armoured vessels, the PA is useful against typical opponents, such as the Imperial *Ghalak* class, which have only moderate armour. Secondary armament follows current Consulate doctrine, with lots of missiles being supported by laser and energy weapon turrets. The ship has powerful screens and defensive weapons, making up in part for the mediocre armor protection. These vessels are combat units and do not, as a rule, carry troops though they can support ground operations.

TL14 Kefchenzh - CA - 52 kdT - SL

101

Scoops / Purifiers
F F
F F

6
5
4
Kill

3 | 5
Turn 2

Config L1: Agility -1

5 10

Shianzpla Class Battleship (BB)
300,000 dT - TL13 - MCr 207,104

The *Shianzpla* is an obsolete Zhodani battleship that has been kept in service because of its Jump-4 capability, which very Zhodani ships have. The Consulate is refitting its remaining vessels of this class with an improved spinal mount, better electronics and screens, although none of these improved vessels have been recommissioned yet. The *Shianzpla* is unsuited for fleet operations due to its low acceleration. It is usually deployed in specialized "deep raid" missions, when its comparably high Jump capability is called for.

TL13 Shianzpla - BB - 300 kdT - PSL

225

6
5
4
Kill

Scoops / Purifiers
F F F
F F

4 | 2
Turn 1

Config N/A: Agility +1

30 45

Viepchakl Class Battleship (BB)
200,000 dT - TL14 - MCr 179,051

The *Viepchakl* is the most numerous Zhodani battleship in the sectors bordering the Imperium. Its streamlined, sleek shape belies the fact that it relies on brute force to beat its opponents. The *Viepchakl* is among the most heavily armoured and screened ships in known space, and its armament is surpassed only by far larger vessels. Its status as the backbone of the Zhodani battlefleets means the class is constantly being upgraded with the newest electronics and screens (the TL 15 model has L3 Nuclear Dampers and Meson Screens).

TL14 Viepchakl - BB - 200 kdT - SL

(198)

Config L1: Agility -1

Scoops / Purifiers

Turn 2

20↑34

Vrapkenchkinj Class Light Battlecruiser (BC)
56,000 dT - TL14 - MCr 43,652

The *Vrapkenchkinj* class "Large Light Cruiser" is an outstanding example of a design philosophy that emphasizes striking power over staying power. Its meson gun spinal mount packs a tremendous punch, but the ship has only minimal armour and very little in the way of secondary armament. Analysts predict that such a vessel could be successful against large fleet units during the initial stages of an engagement, but could hardly survive a prolonged battle against a balanced force.

TL14 Vrapkenchkinj - BC - 56 kdT - SL

(105)

Scoops / Purifiers

Turn 2

Config L1: Agility -1

6↑9

Anzha Class Battle Rider (BR)
28,000 dT - TL14 - MCr 35,316 (MCr19 for subcraft)

The *Anzha* class battle rider is a superb combat vessel with good screens, armour and effective weapons combined with high agility and thrust. Its primary weapon is the most advanced spinal mount the Zhodani Consulate deploys, identical to that deployed in the 560 kiloton *Idlev* super battleship!

TL14 Anzha Class Battle Rider - BR - 28 kdT - SL

(74)

6
5
4
Kill

Config L1: Agility -1

Turn 3 — 6

Scoops F F

3 7
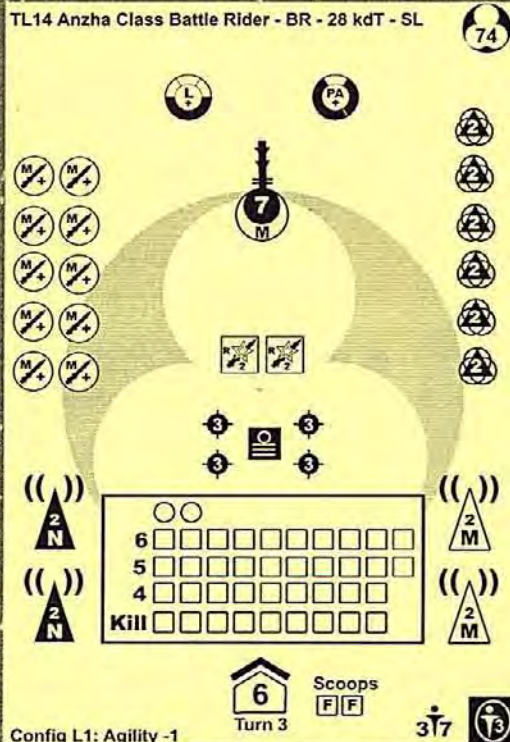
Zhdavidlits Class Light Cruiser (CL)
14,000 dT - TL14 - MCr 12,748

Based on an abandoned destroyer project, this become the smallest Consular warship to mount a spinal meson gun. This class participates in major and minor fleet actions and are used to 'show the flag' where a true capital ship is not required. They are often deployed as flagships for destroyer task forces or escorted convoys.
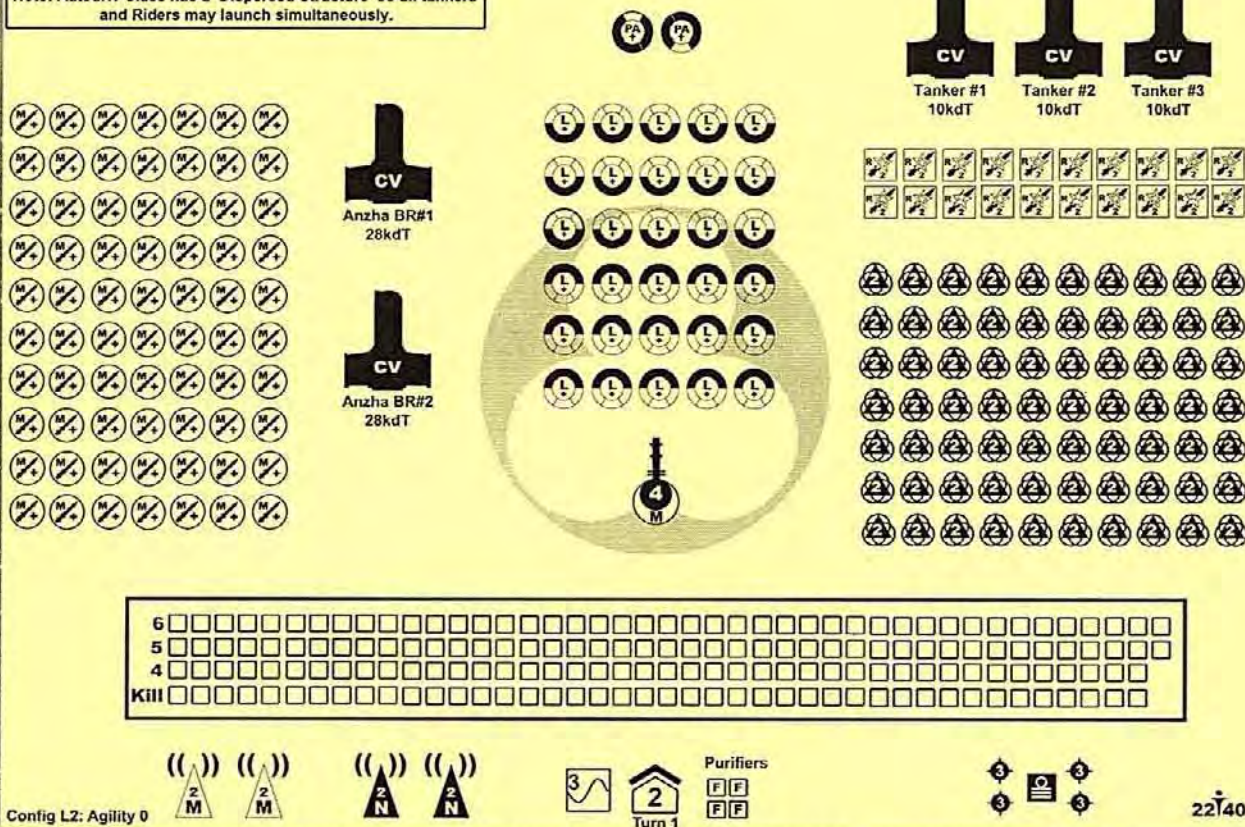
TL14 Zhdavidlits Class Light Cruiser - CL
14 kdT - SL

(52)

6
5
4
Kill

Scoops/Purifier
F F F
F F

Config L1: Agility -1

3 — Turn 2 — 5

C — 2 3

Aatsdivr Class Battle Tender (BT)
220,000 - TL 14 - MCr 90,066 (MCr 56,165 of carried craft for 2 x Anzha, 3 x Tanker)

Originally conceived to carry three of the new *Anzha* class battle riders, the design was changed late in the process to replace one *Anzha* with 3 *Asentschtefr* 10,000 dT tankers to provide an independent refueling capability. The ship is built around a long central strut, with accomodation and command sections at the bow, and drives and fuel tanks to the rear. The carried craft are attached to pylons that protrude from the central strut right behind the command section. Unlike many of its Imperial rivals, the *Aatsdivr* has powerful weapons and screens, equivalent to some cruisers. However, this armament is intended for self defence - the lack of armour and low manoevre capability leaves the ship vulnerable.

TL14 Aatsdivr - BT - 220 kdT - USL

(208)

Note: Aatsdivr Class has a 'Dispersed Structure' so all tankers and Riders may launch simultaneously.

CV Tanker #1 10kdT
CV Tanker #2 10kdT
CV Tanker #3 10kdT

CV Anzha BR#1 28kdT

CV Anzha BR#2 28kdT

6
5
4
Kill

Config L2: Agility 0

3 — Turn 1 — 2

Purifiers
F F
F F

22 40

Black Globes

A Black Globe is a spherical field that absorbs all energy that tries to pass through it, in either direction. Since light is energy, the ship appears to be surrounded by a sphere of blackness; you cannot see what's within, nor can the starship see out while its globe is fully active. In addition, the ship cannot manoeuvre, as the energy emissions from its drives would overload the globe. As a result the ship loses its defensive Agility modifier.

The energy absorbed by the globe is stored in energy sinks (also called 'capacitors') on the vessel which is projecting the field. If the capacitors are ever overloaded, the resulting energy release is so great and so sudden that it instantly destroys the ship!

More advanced Black Globes exist which allow a ship to 'flicker' the globe very rapidly. This provides short instants where the globe is off, allowing the ship to 'see' out (i.e. use its sensors), manoeuvre, fire weapons and radiate off energy stored within the globe energy sinks. However, all these activities are still somewhat constrained, even if the globe only flickers 'on' for relatively small periods of time; a safety window is required for any energy emissions, to ensure that the ship does not inject energy into its own globe (even if it does not overload the globe, it would still have less capacity to absorb enemy attacks).

Black Globe Orders

The orders for Black Globe usage must be included in the Movement Orders for the ship, indicating the flicker rate as a percentage (from 0% to 100% in steps of 10%). If the globe is fully on, the orders must include the number of turns before it will be turned off.

Example: The following orders indicate that the Tremor will turn on its Black Globe fully for 3 turns:

TREMOR - BG *100%* 3 TURNS

Black Globe Hidden Movement

Ships that activate their Black Globe either beyond weapons sensor range of enemy ships (40 MU) or immediately upon exiting from Jump, can - to some degree - hide from their opponents. Since a globe does not radiate or reflect energy, the ship within will effectively be invisible to most sensors. However, there is still a chance of detecting the globe, especially when it passes in front of (and hence obscures) distant stars or closer bodies such as planets and other ships.

However, this also makes it more difficult to manoeuvre the ship as its commander cannot see out, so cannot avoid obstacles, enemy ships or incoming missiles.

The player replaces the ship model with a Black Globe for the period that the globe is fully on but otherwise moves the ship normally for the number of turns given

in its Movement Orders. The Black Globe may not be turned off earlier than given in the Movement Orders unless the globe takes damage from incoming attacks.

As soon as the globe is switched off, or flickers, the Black Globe marker is replaced with the ship model.

Manoeuvring in a Black Globe

If a ship has a Black Globe fully raised it may neither change velocity nor facing. It must retain the velocity vector that it had when the globe was turned on. Flickering globes allow a ship to turn and manoeuvre to a limited degree, as shown in Table 12.

TABLE 12: EFFECT OF BLACK GLOBE ON MANOEUVRE			
Globe Flicker Level	Agility Modifier (Minimum*)	Turn Capability (Maximum**)	Thrust Points Lost
10 to 30%	0	2	-1
40 to 60%	+1	1	-2
70 to 90%	+2	0	-3
Fully on	+3	No manoeuvre or turn	

*If the ship's Agility Modifier is already higher than this adjusted value, use the ship's existing modifier.
**If the ship's Turn Capability is already lower than this maximum level, use its existing Turn Capability.

Targeting a Globed Ship

Any ship with its Black Globe turned fully on is difficult to detect due to its lack of energy emissions, so any enemy ship attempting to fire upon it must first achieve a weapons lock (roll for this every turn):

Roll 5+ on D6 to target a fully globed ship:
+1 if firing ship has RCP of 3
+2 if globed ship is within 10 MU
+1 if ship turned its globe on while within 40 MU
+1 if globed ship passed through nuclear detonation this turn

Defensive Effects

A Black Globe blocks a ship's own sensors, screens and Point Defence weapons, even if they are synchronised with the 'gaps' in the globe's flickering. The combat effects of all the ship's 'local' defences (including armour, hull configuration, repulsors, Point and Escort Defence fire, nuclear dampers and meson screens, but excluding sand clouds deployed outside the screen) are degraded, according to the globe's flicker rate:

10-30% - All 'local' defences work normally.

40-60% - All 'local' defensive modifiers are reduced by half* (rounding down), e.g. a Level 2 repulsor's defensive modifier drops from -7 to -3.

70-90% - All 'local' defensive modifiers are reduced by three-quarters* (rounding down), e.g. a Level 2 repulsor's defensive modifier drops from -7 to -1.

100% (fully on) - No benefit from 'local' defences.

* *For Point or Escort Defence, total all modifiers before halving, then allocate to specific salvos.*

The ship's Agility Modifier is also degraded as given in Table 12, due to the ship's limited ability to manoeuvre.

The reduction in the effective armour and Configuration Modifier also applies to spinal mount attacks.

Note that *other* ships may still use Escort Defence fire against missiles targeted at the globed ship.

Example: *The ISS Tremor's Black Globe is set to a 50% flicker rate. The ship has armour 1, L1 hull configuration, and L1 repulsors, but while the globe is flickering, the armour and hull configuration modifiers round down to zero and the repulsor modifier is halved from -6 to -3. The Tremor also has two L+ batteries reserved for Point Defence, which would normally provide a total modifier of -4 to apply to incoming missile salvos, but while the globe is flickering this is halved to -2.*

ⓘ *These rules are approximations which ensure that defences still reduce the damage which penetrates a Black Globe, but that the damage absorbed by the globe is not unduly reduced. Ideally the damage impacting the screen should be calculated first, ignoring any inappropriate defences, then the proportion that penetrates the globe calculated, applying the additional defences such as armour. However, the simplifications given here are intended to maximise playability.*

Firing at a Black Globe

Roll damage normally for all attacks against a globed ship, taking into account its reduced defensive modifiers. Keep track of the damage points caused by each weapon type.

Use Table 13 to calculate the damage points absorbed by the Black Globe - the remaining damage is applied to the ship's structure as normal.

TABLE 13: DAMAGE ABSORBED BY A FLICKERING BLACK GLOBE

Flicker Rate	Total Damage									
	1	2	3	4	5	6	7	8	9	10
10%	0*	0*	0*	0*	1	1	1	1	1	1
20%	0*	0*	1	1	1	1	1	2	2	2
30%	0*	1	1	1	2	2	2	2	3	3
40%	0*	1	1	2	2	2	3	3	4	4
50%	0*	1	2	2	3	3	4	4	5	5
60%	1	1	2	2	3	4	4	5	5	6
70%	1	1	2	3	4	4	5	6	6	7
80%	1	2	2	3	4	5	6	6	7	8
90%	1	2	3	4	5	5	6	7	8	9
100%	1	2	3	4	5	6	7	8	9	10

*Roll D6: on 1-3 no damage is absorbed, on 4-6 the Black Globe absorbs 1 point of damage.

If more than 10 points of damage are inflicted, simply add multiples of the damage from the "10" column to the appropriate units column, e.g. for 23 points of damage, add the result from the "10" column twice and the "3" column once.

Example: *The ISS Tremor is hit by lasers for 6 points of damage, by secondary particle accelerators for 3 damage and by 2 points of nuclear missile damage. Table 13 shows that the globe absorbs 3 points of laser damage, 2 points of PA damage and 1 point of missile damage is absorbed by the globe. The remaining 3 + 1 + 1 = 5 points of damage penetrate the globe and impact the ship.*

Black Globe Energy Storage

The energy absorbed by a Black Globe from weapons fire depends upon the weapon type. Multiply the number of damage points absorbed for each weapon type by the multiplier shown in Table 14 to determine the number of Energy Points (EP) the screen absorbs.

TABLE 14: WEAPON ENERGY MULTIPLIER

Weapon Type	Damage Multiplier
Laser	x 1
Energy Weapon	x 2
Missile (Standard)	x 2
Missile (Nuclear)	x 90
Particle Accelerator	x 3
Particle Accelerator (Spinal)	x 5
Meson Gun	x 10
Meson Gun (Spinal)	x 6

Example: *From the preceding example, the total energy absorbed by the Tremor's Black Globe is: Lasers: 3 damage x 1 = 3 EP; Secondary PA: 2 damage x 3 = 6 EP; Nuclear Missiles: 1 damage x 90 = 90 EP. The ship's Black Globe capacitors must therefore absorb a total of 99 EP.*

Had the globe been fully on, it would have absorbed a massive 195 energy points, i.e. 6 x 1 = 6 EP (lasers), 3 x 3 = 9 EP (PA's), 2 x 90 = 180 EP (nuclear missiles)!

If a globe touches a sand cloud, the cloud is destroyed but the globe absorbs 2 EP (Level 1 cloud) or 6 EP (Level 2 cloud).

If a globe touches a nuclear detonation counter, the counter is removed and the globe absorbs 5 EP.

Outgoing Fire through a Black Globe

Outgoing weapons fire is degraded when shooting through a flickering Black Globe, as the ship can only fire in the short intervals that the globe is off. Roll damage against the target as normal, then work out how many damage points would have been absorbed by the Black Globe if this were *incoming* fire. Reduce the overall damage inflicted by this amount; the balance of the damage is scored against the enemy ship. The enemy ship gains the benefit of its defences as usual.

ⓘ *The Black Globe does not actually absorb the energy of outgoing fire - the effectiveness is simply reduced because the weapons fire has to be timed to occur when the globe is flickering 'off' and the ship can also only receive sensor data during these periods, so its targeting capability is significantly reduced.*

Discharging Absorbed Energy

A Black Globe is limited by its ENERGY CAPACITY (the energy it can store) and its DISCHARGE RATE (the rate at which it can discharge energy while the globe is off).

The Energy Capacity (in EP) depends on the quantity of energy storage capacitors for the ship's Jump drive plus any additional capacitors installed specifically for the globe (see p.59).

The Discharge Rate is also part of the ship design and is a maximum - if a ship is flickering its globe, its effective Discharge Rate is reduced by the flicker rate.

Example: A globed ship with a maximum Discharge Rate of 100 points of damage per turn can only radiate 80 points if its flicker rate this turn is 20%.

At the end of each game turn, total the energy absorbed by a ship's Black Globe, add it to any energy still stored from previous turns, and deduct the energy discharged this turn. If the total energy remaining in the ship's capacitors exceeds its Energy Capacity, the ship is instantly destroyed as the globe implodes.

Jump Drives and Black Globes

If desired, a ship may activate its Black Globe immediately on exit from Jumpspace. Ships must drop their Black Globe just before Jump entry. In either case, regard the Black Globe as being on throughout the ship's time in normal space.

Boarding Actions

Boarding must be noted in the Movement Orders.

A boarding action may only be attempted against a ship which has no remaining offensive weapons systems or repulsors (if sandcasters are allowed for Point Defence, these must be disabled too). If any weaponry is still active, the boarding shuttles will be destroyed before they even reach their target.

The boarding ship must start within 6 MU of its victim and, after movement, the two ships' Future Position Counters must still be within 6 MU of each other. This reflects the limited range of the shuttles used to transfer troops between the ships. It is assumed that any ship with an OFFENSIVE COMBAT CAPABILITY (the first number on the Combat Capability icon) has sufficient shuttles to transport its troops for a boarding action, regardless of any carried ships shown on its SSD.

If the criteria above are not met, the attempt is unsuccessful but no casualties or other effects are felt.

Resolve the boarding attempt as follows:

Attacker: Roll D6 + Offensive Combat Capability
Defender: Roll D6 + Offensive Combat Capability + Defensive Combat Capability

The group with the higher result wins and so gains (or retains) control of the ship. The loser takes casualties equal to the difference in the two results. The winner takes only half this number of casualties (rounded up).

The attacker's casualties only reduce his Offensive Combat Capability (as only these troops are involved in the boarding action). Casualties to the defender come from their Offensive Combat Capability first but if this is reduced to zero, any remaining casualties come from their Defensive Combat Capability.

To retain control of a boarded ship, at least 1 point of Combat Capability must be transferred on board. This can be from the Offensive or Defensive Capability of the attacking ship, though at least 1 point of Defensive Capability must remain on the attacking ship. If the attacker cannot afford to put a prize crew on the captured ship, it may be scuttled (automatically blown up). The prize crew counts only as Defensive Combat Capability and may not attempt to board other ships.

Once a ship has been boarded, subsequent Movement Orders may include shuttling Damage Control Parties aboard (by transferring part of the boarding ship's DCP rating to the captured ship) though the ships must remain within 6 MU just as for a boarding action.

Example: The Yetzprezl closes with its damaged opponent Exodus. Yetzprezl's Combat Capability is 2/3 (offensive 2, defensive 3), while Exodus has been reduced to 1/1. The Yetzprezl manoeuvres successfully to remain within 6 MU of the Exodus for one turn and declares a boarding action.

The Yetzprezl's player rolls 4 on D6, giving an attack factor of 4 + 2 (offensive) = 6. Exodus' player rolls 2 + 1 (offensive) + 1 (defensive) = 4. Yetzprezl wins the boarding action, causing 6 - 4 = 2 casualties to Exodus, effectively wiping out its entire remaining offensive and defensive capability. Yetzprezl's troops take half as many casualties, reducing its offensive capability by 1; its defensive capability is unaffected.

The Yetzprezl's Combat Capability is now 1/3 and its player chooses to put 1 point of prize crew aboard the Exodus, giving it a Combat Capability of 0/1, and reducing the Yetzprezl's Combat Capability to 1/2.

With its weapons knocked out, the Exodus is not much of a prize, so the Yetzprezl transfers one point of DCP from itself to the Exodus to begin repairs.

Psionics

The enhanced mental powers known as psionics include telepathy, clairvoyance and teleportation.

Psionic Scanning

If a player has psionic personnel aboard a vessel he may opt to use telepathy or clairvoyance to spy on the enemy, by writing "Psionic Scan" in the Movement Orders for that Task Force and indicating the enemy Task Force to be scanned.

At the start of movement, the player declares the use of psionics and defers movement for that Task Force until after the scanned unit has moved. The scanning Task Force may then adapt their Movement Orders in any way they wish to react to their opponent's moves. This simulates their ability to manoeuvre based on psionic predictions of the opponent's movement.

Should two psi-capable forces use psi-scans against each other in the same turn, each must show the other their Movement Orders for the affected unit(s). Each player then re-writes their Movement Orders for those units in secret, before actually carrying them out. This reflects the double-bluff effect of each group being able to predict to *some* degree their opponent's movement.

To reflect the huge mental effort required to use psionics over long distances, it is suggested that a limit on

its usage should be agreed between the players prior to starting the battle. A suggested limit is one use per Task Force, or two uses per Fleet, in any battle.

Psionic Commandos

Elite Zhodani commando units with psionics are trained in teleportation, allowing them to board and attack an enemy vessel. To use this tactic, the player should write "Psionic Assault" in their Movement Orders.

The ship launching the assault must start the turn within 6 MU of the target ship, and still be within 6 MU of the target ship at the end of that movement phase. If the two ships separate further than 6 MU, the attack fails (due to the limited teleport range of the psi troopers). Attacks automatically fail against ships with Black Globes whether fully on or flickering - teleporting through a globe is effectively impossible.

If the attack is successful, the attacker gets 5 sabotage points to spend on one or more Damage Threshold Checks against any system on the target ship.

Each point spent corresponds to a 1 in 6 chance of damaging a system, i.e. a single point spent attacking a system gives a Check Number of 6; if all 5 points were spent attacking that system, the Check Number would drop to 2 (i.e. the system fails on a role of 2+ on D6). Alternatively, the points may be spread across a number of systems. If a single threshold failure on a system merely degrades its performance, the attack may be split into more than one attempt to damage the same system.

All points must be allocated to systems <u>before</u> making the Damage Threshold Checks.

Each commando unit may make two attacks per game.

Example: The Zhodani Y'chek closes with the Imperial Timbrell, managing to keep within 6 MU of its target at both the start and end of the movement turn. The Y'chek mounts a psi commando assault to disable the Timbrell's manoeuvre drive (currently undamaged and rated 4G).

Since two Threshold Check failures are required to knock out the drive completely, the Y'chek's player opts to spend 4 of their 5 sabotage points on a first assault on the drive (giving a Check Number of 3+) and the remaining point on a second assault on the drive (Check Number 6).

He rolls 2 on D6 for the first assault, causing no damage - the commandos were either intercepted by the Timbrell's crew, or their explosive charges weren't effective. However, his second roll is a 6, so the second assault successfully causes damage to the drive and halves its capability to 2G.

(Note that it is the attacking player who rolls these Threshold Checks.)

Jump Drive Operations

Starships may use their Jump drives to enter or flee a star battle. For strategic campaigns, Jump capability becomes a critical factor in determining how quickly tactical information can be carried between stars and how deep a fleet can strike into enemy space.

Jump Entry

The planned use of a Jump drive must be noted in a ship's Movement Orders, including the Jump distance (in parsecs) and destination, e.g.

LISANI: JUMP-3 TO EMERALD

A ship may only enter Jump if it has sufficient fuel available, i.e. one fuel box for each parsec to be travelled. An additional fuel box is always required to support the power plant for other key functions such as life support, computers, etc. so the Jump must not consume the last fuel box.

A ship may perform normal manoeuvre operations up to the point that it enters Jump, but it takes time for the drive to build up sufficient energy to initiate Jump:

- If nothing more than missiles or sandcasters are used while preparing for Jump, the ship may enter Jump the turn after it declared its intent to do so.

- If other weapons are used while the ship is preparing to Jump, it may not enter Jumpspace until the second turn after declaring its intent to do so.

- If the ship fires or charges its spinal mount weapon, this uses so much energy that any existing Jump order is cancelled and another Jump order may not be given until the next turn.

A ship may also cancel its Jump at any point prior to entering Jumpspace by noting this in its Move Orders.

Once the ship enters Jumpspace it must cross off one fuel box per parsec to be travelled (put a dot in the

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Library Data Search: JUMP DRIVES

Traveller starships travel between star systems using a faster-than-light (FTL) "Jump" drive. Such drives require a significant expenditure of power (and hence fuel) to transfer the ship into the Jumpspace continuum and bring it out again at the intended destination point.

Jump drives have a range listed in parsecs (an abbreviation for parallax seconds; one parsec is approximately 3.27 light years). In the era that *Power Projection* is set, Jump technology is limited to manufacturing drives with a maximum range of 6 parsecs. Jumps further than 6 parsecs have only been achieved during accidents, i.e. misjumps where the ship may travel in a random direction for many parsecs.

The peculiarities of Jumpspace mean that every Jump takes approximately one standard week, no matter the distance travelled. Ships are totally isolated while in Jumpspace - they may not communicate with other ships in Jumpspace, nor with ships in normal space. Once in Jump, a ship may not break out of Jumpspace until it reaches its destination... at least, no ship that has done so has survived to tell the tale.

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middle of each box). Note that these fuel boxes may still be damaged in battle, even though they are empty.

Effects of Gravity

The gravity of massive bodies warps Jumpspace such that ships may not safely enter nor exit Jump within 100 diameters of a planet, sun or other massive object. Table 15 shows the 100 diameter limits (in MU) for various massive bodies, based upon the Universal World Profile (UWP) code used in **Traveller**.

TABLE 15: JUMP EXIT LIMITS

Planet UWP	Average Diameter	Example	100 diameter limit (MU)
0/S	< 1,000 km	Asteroids	1
1	1,600 km	-	2
2	3,200 km	Luna	4
3	4,800 km	Mercury	6
4	6,400 km	Mars	9
5	8,000 km	-	11
6	9,600 km	-	13
7	11,200 km	-	15
8	12,800 km	Earth	17
9	14,400 km	-	19
10 (A)	16,000 km	-	21
Small GG*	50,000 km	Uranus	70
Large GG*	140,000 km	Jupiter	185

*Gas Giants are grouped into just two size categories by **Traveller**.

Jump entry *may* be performed within 100 diameters of a massive body. However, this results in a significant chance that the ship could suffer a misjump:

Roll 12- on 2D6 to avoid misjump
+4 if entering Jump within 100 diameters of a body
+9 if entering Jump within 10 diameters of a body
+1 if the ship is civilian

If the result is 13+ the ship misjumps; if the result is 16+ the ship is destroyed.

Misjump Effects

When playing a one-off battle, a misjumped ship is effectively lost, as it will exit from Jumpspace many parsecs from the battle. If it arrives behind enemy lines it may be destroyed; it may be stranded in an area of empty space with no planets or gas giants to refuel from; even if it arrives in friendly territory, it will take many weeks to find and rejoin its fleet.

For a campaign, it is important to work out where the misjumped ship arrives, as it may still be able to play a part in future battles. Roll D6 and consult Figure 21 to find the direction of the misjump on the Star Map (see the Strategic Game rules for details of **Traveller**'s interstellar mapping system.)

Roll D6 for the number of weeks in Jumpspace (if more than 1 week, Jump sickness reduces the Crew Quality modifier by one level for one week after they emerge).

Roll D6 to find the number of D6 to be rolled for the misjump distance; roll that number of dice and total their scores to give the number of parsecs travelled.
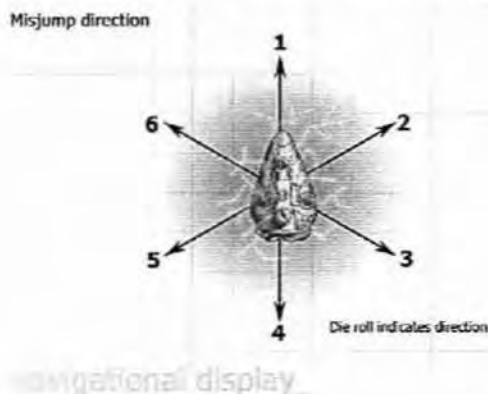

Misjump direction

Die roll indicates direction

navigational display_

FIGURE 21: DETERMINING MISJUMP DIRECTION (D6)

Any ship that misjumps suffers damage to its drive as if it had failed a Damage Threshold Check, i.e. its Jump rating is halved (reduced to zero if already damaged).

If the ship exits Jump in an empty hex on the Star Map (i.e. one which does not have a star system) the ship is lost in deep space and will take no further part in the game as it would take years, and exceptional luck, for the ship to return to friendly space using its slower-than-light manoeuvre drives.

Similarly, if the ship arrives in a hex which is off the Star Map, it is assumed to be lost.

Example: The ISS Coral is under heavy attack and tries to Jump out of system while within 11 MU of an Earth-size planet. The player rolls 9 on 2D6, +4 for being within 100 diameters of the planet, to total 13 - which indicates a misjump. He rolls 4 on D6 for direction, so the misjump takes the ship 'south' on the Star Map. Rolling 3 on D6 indicates the distance is the sum of the next three D6 rolls: 2 + 4 + 5 = 11 parsecs. The Jump takes 5 (on D6) weeks, meaning the crew will be subject to Jump sickness for a further week after they exit Jumpspace! At least the system they end up in happens to be inhabited and friendly; things could have been much worse...

Jump Exit

Jump exit into a system may not be performed within 100 diameters of a massive body (see Table 15) - any attempt to do so causes the ship to be precipitated out of Jumpspace at the 100 diameter limit.

The player controlling the emerging ship designates the target Jump exit point in its Movement Orders (for

example noting the distance of the emergence point in MU from the two nearest edges of the playing area).

The ship emerges from Jump at the start of the movement phase of the game turn. In this first turn after emergence, a ship gains no Fleet Tactics bonuses, as it takes a while to collate tactical data concerning the star system and the locations of its own ships (which may not exit Jump at exactly the same time, nor in the same positions relative to each other, due to the vagaries of Jumpspace).

Typically a ship will not emerge exactly where it intended. Roll two D6 and subtract the lower die result from the higher. Subtract the Crew Quality modifier (treating any result less than zero, as zero) to find the distance in MU the ship emerged from its intended target point.

Roll D6 and consult Figure 21 to determine the direction of displacement from the target point (direction '1' in the Figure is in the direction that the ship is facing on emerging from Jumpspace).

Example: The elite crew of the Y'chek intend to exit Jump at a point 1 MU from the 'north' edge of the gaming table and 3 MU from the 'east' edge with a facing due 'south' (as shown in Figure 22). Rolling two dice for distance gives 2 and 5. Subtracting the lower from the higher (5 - 2) gives a deviation of 3 MU, reduced by the elite Crew Quality modifier (+2) to just 1 MU. Rolling 2 on D6 for direction indicates the deviation is forward and starboard of the ship's facing, resulting in the exit point shown in Figure 22.
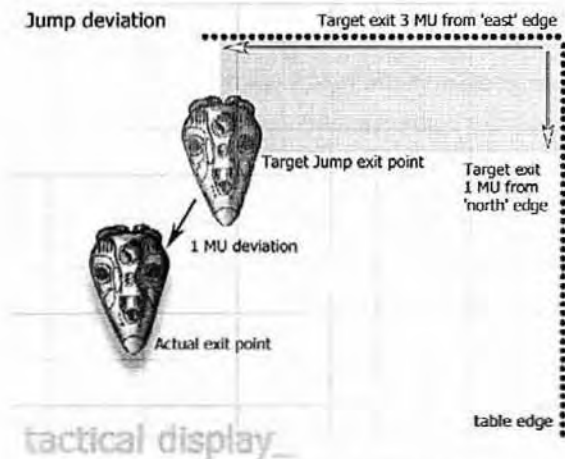

Jump deviation

Target exit 3 MU from 'east' edge

Target Jump exit point

Target exit 1 MU from 'north' edge

1 MU deviation

Actual exit point

table edge

tactical display_

FIGURE 22: JUMP EMERGENCE ACCURACY

The Planetary SSD

Each planet is represented by a PLANETARY STATUS DIAGRAM which is held by the player who controls the planet. An example PSD is shown in Figure 23.

CLOSE ORBIT is the area of space within 1 MU of the planet's surface, or the area of space inside a circle 1 MU out from the 0.5G gravity limit, whichever is furthest out. This is the area in which orbiting starships, fighters and orbital defences may be found.

SURFACE HEXAGONS represent the planet's surface and top layers of the planetary crust. Surface facilities and shallow bunkers are found in these areas. Each hexagon represents a 60^0 arc of the surface, which defines the Fire Arc for weapons installed in it.

The DEEP HEXAGON represents the deeper parts of the planetary crust, where well-protected facilities such as meson gun sites (or particle accelerator sites on vacuum worlds) may be deployed.

For a gas giant, the Surface Hexagons represent its outer atmosphere where ships may hide or scoop fuel. There is no Deep Hexagon as nothing can survive the crushing gravity deep within a gas giant.

At the start of the game, the player who controls the planet declares the orientation of the PSD relative to the playing area by writing down which edge of the playing table is aligned with Fire Arc 1 on the PSD.

Planetary Rotation

If you have calculated (or decided) the planet's rotation period (the length of it's 'day'), you may opt to represent this effect on the planet's Fire Arcs.

The direction of rotation is chosen at the start of the game by the player controlling the planet. Divide the planet's rotation period (in hours) by 5 and round to the nearest whole number, to get the number of game turns taken for the planetary Fire Arcs to shift round by one arc (i.e. by 60^0).

Example: The Earth rotates in 24 hours, so it rotates one Fire Arc every 5 turns (24 / 5 = 4.8, which rounds to 5).

Visibility of Orbital and Planetary Forces

The PSD, and hence the facilities installed on it, are not visible to other players until an opponent's ship reaches Close Orbit (within 1 MU of the planet). However, if one of the planetary weapons fires, it must be declared and revealed on the PSD.

A ship in Close Orbit can manoeuvre to keep the planet (or gas giant) between it and its opponents. Any ship which starts the game in Close Orbit, will remain invisible to its opponents who are in the Fire Arc directly opposite that of the orbiting ship.
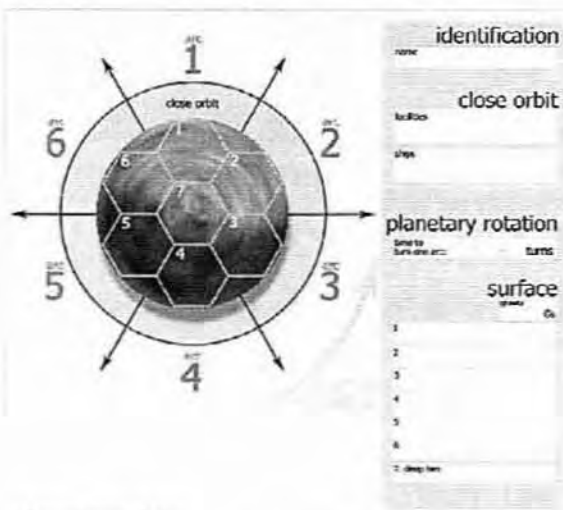

FIGURE 23: EXAMPLE PLANETARY SSD

A ship may also hide within the upper atmosphere of a gas giant (its "Surface Hexagons" on the PSD). Any ship which starts the game hidden will remain so until it moves, opens fire, or an enemy ship comes within 5 MU of the centre of the gas giant (at longer ranges, sensors cannot resolve ships within the gas giant's electromagnetically 'noisy' atmosphere).

Optionally, you can simplify these rules by allowing ships and facilities in Close Orbit to be visible to all other ships at all times.

Entering Orbit

To enter orbit, a ship must be moving sufficiently slowly and closely to a planet or gas giant:

- The ship must be within 1 MU of the planet.

- The ship's vector must be smaller than 1 MU (i.e. its Future Position Counter must be no more than 1 MU from the ship counter), and

- The ship must have an operational manoeuvre drive, with a thrust at least equal to the world's gravity at 1G.

If a ship achieves these conditions, it is considered to be in Close Orbit and can be transferred to the appropriate Close Orbit arc of the PSD.

If a ship in Close Orbit has its manoeuvre drive knocked out, it will continue to orbit for 2 turns before the world's gravity pulls it down into a death spiral...

Landing on a Planet

Once in Close Orbit, a ship may do the following:

- Land on a planet by expending Thrust Points equal to the world's surface gravity. If the world has an atmosphere code of 0-1, even unstreamlined (USL) ships can land. If the atmosphere is 2-4, only PSL and SL ships can land. If the atmosphere is 5+, SL

ships can land, but PSL ships must expend twice the normal Thrust Points to do so, otherwise it will crash and be destroyed.

- Move between adjacent Close Orbit arcs, expending 1 Thrust Point for each arc moved.

Taking Off from a Planet

Missiles and ships launching from a planet's surface must expend 1 Thrust Point for each G of the planet's surface gravity in order to enter Close Orbit (this is in place of the usual vector movement effects of gravity). The ship's remaining Thrust Points can be used to:

- Manoeuvre the ship off the PSD on to the main gaming table. The ship has no initial vector when leaving Close Orbit and starts its movement from the side of the planet gravity template that corresponds with the Close Orbit arc from which it left. The ship's initial facing is directly outwards from the planet.

- Move between adjacent Close Orbit arcs, expending 1 Thrust Point for each arc moved.

Example: The ISS Exchequer has a 5G drive and is taking off from a starport in arc 1 of a world with a surface gravity of 2G. Reaching Close Orbit costs 2 Thrust Points, then the ship expends 1 Thrust Point to move to Close Orbit arc 2 before leaving orbit. It is now placed on the main gaming table on the arc 2 side of the planet's gravity template. It then expends its remaining 2 Thrust Points to give it a vector of 2 MU directly away from the planet.

Planetary Assaults

Once control of space is established and defending forces driven off, the *Power Projection* commander often has another challenge - the subdual or capture of enemy worlds. These rules focus on the space combat issues of subduing a planet rather than the capture of a planet through the use of ground forces.

Firing at Targets in Close Orbit

Ships and orbital facilities in Close Orbit may fire on, and receive fire from, any ship outside Close Orbit, subject to the usual range modifications due to the planet's gravity bands. The only exception is where a

> **Library Data Search: PLANETARY ASSAULTS**
>
> These rules assume that none of the tactics displayed in the 'Black War' period of **Traveller's** Rebellion are being employed. In the Black War, starports, industrial facilities and populations became legitimate targets and the various factions adopted a scorched earth policy of denial and counter-denial operations which resulted in the total destruction of planetary economies and massive civilian casualties. In *Power Projection* it is assumed that a world is being taken because it is needed for its resources, technology or other strategic reasons, such that the attacking forces wish to subdue the world while minimising damage to the surface.

ship is considered to be hidden (see *Visibility of Orbital and Planetary Forces* on p.37).

Ships and orbital facilities in Close Orbit may be engaged without penalty by other ships in any Close Orbit arc other than the arc directly opposite (which is obscured by the planet). There are no gravitational range modifications in such close range combat.

Surface to Ship Combat

Planetary weapons systems may fire at targets both within and beyond Close Orbit, as shown in Table 16.

TABLE 16: LIMITATIONS OF PLANETARY WEAPONS

	Target is within...		
Weapon Type	Close Orbit	Short Range	Long Range
Energy weapon	Yes*	No	No
Laser	Yes*	Yes	Yes#
Meson gun	Yes*	Yes	Yes#
Missiles	Yes*	Yes	Yes#
PA	Vac only*a	Vac onlya	Vac onlya#
Deep Meson gun	Yes#	Yes#	Yes#

*Surface weapons (except missiles) may only fire at targets in the same Close Orbit arc as the surface weapon is located.

#The defender must have a functioning sensor platform (a ship or orbital facility with at least one intact computer box) in Close Orbit to relay targeting data.

aPA's may only fire beyond Close Orbit if they are located on a vacuum world.

Missiles launched from a planet must expend Thrust Points equal to the world's surface gravity to reach orbit). The missiles' remaining Thrust Points may then be used to move into space or to move between orbital Fire Arcs at a cost of 1 MU per arc crossed. Once the missiles leave Close Orbit they must move in a straight line, as per the normal missile movement rules (p.26).

Example: A planetary defence missile salvo is fired from arc 1 of an Earth-like planet and targeted at a ship in Close Orbit on the far side of the world (arc 4). This requires the salvo to traverse 3 arcs, at a cost of 1 MU per arc (given the 1G surface gravity) plus 1 MU for launch, reducing the salvo's first turn movement by 4 MU to just 6 MU. However, this is quite sufficient for it to reach its target.

Ship to Surface Combat

Meson guns, lasers, energy weapons and missiles may be used to attack surface facilities (though energy weapons may only be used from Close Orbit) as summarised in Table 17.

If the vessel is firing from Close Orbit, it can only fire at surface targets within the same planetary Fire Arc.

TABLE 17: ATTACKING SURFACE TARGETS

Weapon Type	Target is... Surface	Target is... Deep
Energy weapon	Yes*	No
Laser	Yes	No
Meson gun	Yes	Yes#
Missiles	Yes	No
PA	Vac onlya	No

*Energy weapons must be in Close Orbit to fire at targets on the planetary surface.

#Deep hex weapons may only be attacked in the same turn that they are firing (without this weapons signature it is almost impossible to pin-point the location of the Deep weapon site).

aPA's may only attack the surface of vacuum worlds.

Vessels firing upon a Deep weapon site suffer a -1 on all rolls to hit and on the Secondary Weapon Damage table (due to the difficulties of targeting the site) unless the firing vessel is in Close Orbit.

Surface facilities gain significant protection from the energy-absorbent and obscuring properties of their planet's atmosphere. The effective range to the target for all beam weapons (and bomb-pumped laser missiles) is adjusted by a multiple of the world's surface gravity, as shown in Table 18. This is similar to the effect on ship-to-ship weapons fire passing through a world's gravity band.

TABLE 18: ATMOSPHERIC RANGE MODIFICATION

UWP Atmosphere Code	Range Modifier
0 - 1	Surface Gravity
2 - 5	2 x Surface Gravity
6 - 7	3 x Surface Gravity
8+	4 x Surface Gravity

Example: The Y'chek is 9 MU from the planet Emerald when it opens fire on a surface weapons installation. Emerald's atmosphere code is 6 and its surface gravity approximately 1G, so a range modifier of +3 MU is applied. The Y'chek's fire is resolved as if it were firing at 12 MU (long range for secondary weapons) rather than 9 MU (short range).

Planetary Surrender

A world will surrender only if all the following conditions are met:

- All Surface and Close Orbit facilities are destroyed.

- There are no allied ships within 20 MU of the planet (i.e. able to provide support).

- The attacker has ships within 5 MU of the world with sufficient missiles or meson weapons to bombard the world into submission.

Bombarding a world into submission requires the attacking force to have 15 BOMBARDMENT POINTS for each population level from the **Traveller** Universal World Profile (UWP). Each functional meson or missile battery provides one Bombardment Point. A factor *N* spinal meson weapon provides 5 x *N* Bombardment Points. (If the target is a vacuum world, PA weapons count as if they were meson weapons for calculating Bombardment Points.)

This level of force must be maintained within 20 MU of the planet if the occupying fleet wishes to gain full economic control of the planet in a Strategic Game.

Example: The world of Hyrina has a UWP population code of 6 (a few million inhabitants). Having destroyed the system's fleet, the enemy puts into orbit three ships, each with a factor-5 meson spinal mount (total 3 x 5 x 5 = 75 Bombardment Points). Each ship also has 10 missile batteries (total 3 x 10 = 30 Bombardment Points). The total of 105 Bombardment Points is more than enough to subdue this planet.

Library Data Search: UNIVERSAL WORLD PROFILE (UWP)

Traveller encapsulates the data for each world in the following format

Terra $A^1 8^2 6^3 7^4 A^5 6^6 9^7$- F^9 S^9 Hi^{10} $6^{11} 1^{12} 4^{13}$ $G2^{14}$ V

where each value (numbered with a superscript) is interpreted as below. Note that these values are in hexadecimal, i.e. 0-9, A=10, B=11, etc.

1. Starport - from A (excellent, full shipyard) to X (no port); spaceports (which service only in-system traffic) are rated F to G.

2. Size - multiply by 1,000 for the world diameter in miles.

3. Atmosphere - 0 = vacuum, 1 = trace , 2-3 = very thin, 4-5 = thin, 6-7 = (Earth) standard, 8-9 = dense, A+ = exotic, corrosive, etc.

4. Hydrographics - multiply by 10 for % of surface covered by water.

5. Population - exponent of 10 of the number of inhabitants, e.g. 0 = none, 1 = tens, 2 = hundreds, ... , 6 = millions, 7 = tens of millions.

6. Government - 0 = none, 1 = company-run, 2,4 = democracies, 3 = oligarchy, 5 = feudal technocracy, 6 = run by another world, 7 = balkanised, 8-9 = bureaucracies, A+ = various types of dictatorship.

7. Law Level - from no law (0) to '1984'-like intrusiveness (A+).

8. Tech Level - from negligible (0), through current Earth (7-8) to interstellar (A-D) and highest interstellar (E-F).

9. Bases - e.g. S = Scout, N = Navy.

10. Trade Classifications - ignored in *Power Projection*.

11. Population Multiplier - first digit of total population value.

12. Number of planetoid belts - in this system.

13. Number of gas giants - in this system.

14. Main star's spectral type and size.

But what use is this information in *Power Projection*? The starport type, tech level and presence of bases are key factors in building, maintaining and repairing a navy. The size determines a world's surface gravity and the atmospheric density determines whether a ship must be streamlined to enter it. The hydrographic % indicates if there is water (or ice) on the surface for refuelling. The population and population multiplier affect a world's economic value in the Strategic Game and how easily it will surrender. The government affects the world's naval budget (dictators spend more on armaments!). The presence of gas giants in a system means fuel can be scooped from a gas giant (e.g. if no starport is present or is in enemy control). The star type determines its gravity well and safe Jump limit (see Appendix A). The law level, trade classifications and presence of planetoid belts can be ignored.

Scenario Engine

This section allows the generation of a large number of **Power Projection** scenarios. It also includes a 'fog of war' aspect, meaning that you won't know for certain if you fulfilled your objectives, or the enemy fulfilled theirs until the very end of the battle. It is possible that in some situations, as in real life, both players will 'win'.

The Scenario Engine assumes there are two players: Intruder and Native. No assumptions are made about the origin of these forces, so you can use them for any form of internal conflict or inter-species battle.

Game Set Up

Toss a coin or roll a die to decide which player gets to choose whether to be the Intruder or Native force. Each player then determines their mission and records this, keeping it secret from the other player until the end of the game (this provides a 'fog-of-war' effect, by concealing each side's victory conditions).

Each mission details the points available to spend on ships, crews and commanders and their victory objective. The points are a 'recommended' spend; each player may spend up to 20% more or 20% less points if they wish, for example trading off buying more ships against the more difficult victory conditions this imposes - as described in each mission scenario.

Purchasing ships

The 'cost' of purchasing a ship is its points value (PV on its SSD, modified by the Crew Quality. By default all crews are Regulars, but players may opt to select the Crew Quality or determine them randomly.

TABLE 19: CREW QUALITY MODIFIER

Crew Quality	Ship Points Multiplier
Green	0.75
Regular	1.0
Veteran	1.5
Elite	2.0

Example: A 100 PV ship with a Green crew would cost only 100 x 0.75 = 75 points, whereas the same ship with an Elite crew costs 100 x 2.0 = 200 points.

Purchasing Fleet Commanders

Each player starts the game with a Fleet Commander with a Fleet Tactics level of 0. Raising this skill level to 1, costs 5% of the scenario's starting points. Each further skill point costs 10% of the starting points, to a maximum of Fleet Tactics 4, costing 35% of the starting points. If desired, these Tactics points may be divided between two Commanders (for redundancy, or to contrl two separate Task Forces).

ℹ️ *Note that this rule differs from the system given in the Strategic Game rules.*

Example: Dominic has a mission spend of 200 points but has already spent 210 points on ships. He wishes to have a Fleet Commander with Tactics 2, which costs 15% of 200 points, i.e. 30 points. He can just afford this within his 240 point absolute limit (20% above the base mission spend). If he wished to have Tactics 4, he would have to spend 70 points (35% of 200) which he could only afford if he purchased ships with lower PVs.

Table Set Up

The gaming table is assumed to be rectangular, such that the Intruders and Natives set up at opposite narrow ends as shown in Figure 24. For those scenarios where a planet or gas giant is present, it should be placed on the centreline, one third of the table length from the Native end. If a gas giant is present, roll D6 for its size: 1-4 small, 5-6 large. This affects the range at which ships can Jump out safely. In some missions the Intruder also has a Rendezvous point one third of the way along the centreline from his end.

Gaming Table
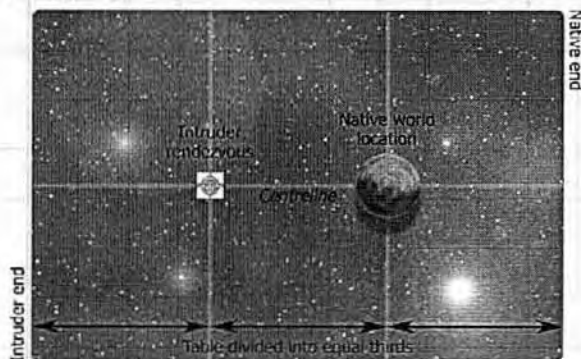
FIGURE 24: GAMING TABLE SET UP

- The **Native** must deploy all ships on the table at the start of the game, unless their mission details state otherwise. The ships must be within 15 MU of the planet (if present) or no more than one-third of the way up the table from the Native player's end.

- The **Intruder** must have at least one Task Force enter the table on the first turn (unless otherwise indicated); others may enter on later turns. Entry is possible by Jump, but the 100 diameter limit must be obeyed.

Escaping a Battle

A ship may disengage by Jumping out or by reaching its own table edge. Exiting any other table edge it is assumed that the ship is destroyed by the enemy so they automatically gain the points for that ship (unless otherwise indicated in the mission description).

Intruder Missions

Roll two D6 and cross-reference them on Table 20.

TABLE 20: INTRUDER MISSIONS

D6	Mission Type	Mission Specifier (D6)					
		1	2	3	4	5	6
1, 2	Battle	R1	R1	R2	R2	R3	R3
3, 4	Strike	R4	R4	R5	R5	R6	R7
5	Patrol	R8	R8	R8	R9	R9	R9
6	Special	R10	R10	R10	R11	R11	R11

Note: In the mission descriptions below, a capital ship is one that has a spinal mount.

Mission R1 - Power Projection - PV 600

Your mission is to destroy any enemy fleet elements in this star system to secure the flanks of your empire's forces prior to a major offensive.

If a planet is present, it may be ignored but all Native ships must be destroyed. If any escape, you loose.

Mission R2 - Invade and Conquer - PV 500

Your mission is to bombard the enemy planet in preparation for an invasion. The bombardment must comprise 10 missile battery strikes or one meson spinal attack per turn, for at least two consecutive turns.

Each ship within 10 MU of the planet may offload strike troops after the first turn of bombardment is complete, provided they have an operational bridge and are not carrying out bombardment themselves.

Each warship of at least 10,000 dT (or ships of at least 1,000 dT with at least 7 cargo boxes dedicated to carrying troops) may land one strike force per turn. Warships of 100,000 dT or more may land 3 strike forces per turn. Each turn the Native player rolls D6 - a result of 4-6 destroys one of your strike forces if the planet was bombarded this turn. If the planet escaped bombardment this turn, one additional strike force is destroyed (whatever the D6 result). When you have accumulated 12 surviving strike forces on the planet's surface, your mission is a success.

Mission R3 - Probe in Force - PV 400

Your mission is to test the enemy defences in this star system. If they are vulnerable (you have more points than the enemy), you must destroy or drive off the enemy forces. If you have more than twice the points of the Natives, you must destroy all their ships to prevent any of them escaping with intelligence regarding your fleet (causing you to loose). If you

have less points than the enemy you win by destroying or "mission killing" more ships than they do.

Mission R4 - Strike and Fade - PV 300

A diversionary operation is required to force the enemy to divert forces into this area, far away from a planned future offensive. If you have more points than the enemy, you must destroy more points of enemy shipping than you lose, and disengage successfully. You may disengage on the Native table edge if you wish.

If you have less points you must destroy at least one capital ship and escape. If no capital ships are present you must destroy at least two escorts. If you lose more than half your points (in ships), you fail the mission.

Mission R5 - Quick Victory - PV 200

Your fleets have been defeated too often, recently, and the morale of the fleet and your people has been slipping. High Command have identified this system as a target to bolster the hearts and minds of your people - you have been ordered to engage any enemy capital ships found in the system at any cost.

If you have less points than the enemy, you succeed if you can score two Threshold Checks on an enemy capital ship. If you have at least as many points as the enemy, you win if you destroy an enemy capital ship or (if no capital ships are present) half their forces. You may disengage on the Native table edge if you wish.

Mission R6 - Surface Raid - PV 300

Covert assets indicate that the enemy has an important intelligence base on this planet. Your mission is to close to within 10 MU of the planet and hold position for a full turn while a marine assault unit deploys and attacks the enemy base, retrieving as much data as possible. You must choose and record which ship has the assault team onboard.

You must provide orbital fire support for the raid during the turn the unit deploys by bombarding the planet's surface with at least 5 missile strikes or a meson spinal strike. If you can't do this the mission fails.

Three turns after the team is deployed, you may extract them. This requires you to remain within 10 MU of the planet. To successfully extract the team, you must roll a D6 each turn and get 3 or more, rolling at +1 for each *additional* turn you bombarded the planet, -1 for each turn after the fifth game turn.

Example: You deploy the marine unit in turn 2 with orbital fire in turns 2, 3 and 4. You attempt extraction in turn 6, needing a roll of 3, +2 for 2 extra turns of bombardment, -1 for it being the sixth turn).

You may only try this extraction once - if you fail, the marines are killed, and the mission is a failure. If extraction is successful, the ship carrying the marines must disengage by Jump or by acceleration. If it is destroyed, the mission fails.

If the enemy has more points than you, you win by bombarding the planet, landing the marines, and maintaining a ship on the table for 5 turns after this.

Mission R7 - Orbital Bombardment - PV 300

Enemy fleet elements have been operating from this world as part of a commerce raiding campaign against your merchants. Your Task Force has been dispatched to destroy the maintenance and refuelling facilities that have been supporting these operations.

You need to enter Close Orbit, and perform two consecutive turns of bombardment, of at least 10 missile battery attacks, or a spinal meson strike, each turn.

If you have at least as many points as the enemy, you win if you complete the bombardment and suffer losses less than 1.5 times those of the enemy. If you have less points, you win by completing the bombardment.

Mission R8 - Patrol Sweep - PV 250

Your Task Force has been assigned a patrol route to sweep away enemy ships. If you have at least as many points as the enemy, you are required to destroy or drive off their ships from the patrol area (the table). If you have less points than the enemy, you must destroy more enemy points than you lose in combat before withdrawing from the table.

Mission R9 - Milch Cow - PV 200

This system is a refuelling stop en route to a rendezvous with other fleet elements, several Jumps away. Your ships have just exited Jumpspace and so start with all fuel boxes expended except one. In addition to your basic 200 PV of ships, you may select extra ships with enough tanker capacity to allow you to fully refuel your forces (if necessary, use vessel designs from other races with appropriate cargo space). The tankers are placed at rest, at the Intruder Rendezvous point (see Figure 24).

To successfully refuel, each of your ships must spend a full turn stationary, without firing anything except Point or Escort Defence, within 6 MU of a tanker. One fuel box is regained per turn (multiple ships may refuel at once, up to the RCP value of the tanker). Once refueling is completed, your ships may exit the table either by Jump or by acceleration.

If you have at least as many points as the enemy, you win if more than three quarters of your force (in points value) escapes. If you have less points than the enemy, only half your force need escape. If you have less than half the points of the enemy, you win if just a quarter of your ships escape!

Mission R10 - Intelligence Gathering - PV 150

Your Task Force has been assigned a high risk intelligence mission. It is suspected that enemy forces are gathering in this system, but the exact numbers and types are unknown. Your ships must spend at least two turns within 25 MU of at least 300 PV of enemy ships (or all enemy ships if they total less than 300 PV) and escape off the map (by Jump or by acceleration). You may disengage on the Native table edge if you wish.

Mission R11 - Covert Recovery - PV 150

You must recover a covert mission deployed on this system's main planet. To do so, one of your ships must move within 6 MU of the planet, and remain stationary there for a full turn. If

more than one ship does this, choose and record which one made the recovery.

At the end of the turn, the agents are assumed to be aboard that ship. Your forces may then disengage by acceleration or by Jump. If the ship that performed the pick-up is destroyed the turn after the mission is recovered, your mission has failed as there has been insufficient time to transmit the mission data to your other ships. On subsequent turns, the escape of any of your ships means that you have achieved victory by securing a major intelligence coup.

Native Missions

Roll two D6 and cross-reference on Table 21.

TABLE 21: NATIVE MISSIONS

	Mission	Mission Specifier (D6)					
D6	Type	1	2	3	4	5	6
1, 2	Battle	B1	B1	B2	B2	B3	B3
3, 4	Strike	B4	B4	B5	B5	B6	B7
5	Patrol	B8	B8	B9	B9	B10	B10
6	Special	B11	B11	B11	B11	B11	B11

Mission B1 - Power Projection - PV 600

Your mission is to destroy all Intruder fleet elements in this star system to secure the flanks of your empire's forces and so foil a major enemy offensive.

If a planet is present, it is of no strategic value to you. If any enemy ships escape, you loose.

Mission B2 - The Last Fleet - PV 400

Your Task Force is the only group of major combatants left in this region of space. As a result, it is vital to limit your losses and keep control of this area. If you have less than or equal points to the enemy, you win if your losses are less than 35% of the enemy's total PV. If you have more points than the enemy, you must achieve the same level of victory in points but also ensure that the enemy fails their victory conditions.

Mission B3 - A Bloody Nose - PV 200

Your planners did not anticipate this system would be a target, so you have insufficient forces to mount a serious defence. However, for morale purposes, you must give the enemy a bloody nose for taking this system.

If your point total is at least that of the enemy, you win by destroying an enemy vessel of at least 10,000 dT. If there are no such vessels, you must destroy at least 75% of the enemy force (in points value).

If your points are less than the enemy's, you win if you succeed in forcing a Threshold Check on an enemy ship of at least 10,000 dT (spinal-induced Threshold Checks which did not result from losing an entire row of structure boxes do not count).

If the enemy has no ships of 10,000 dT or bigger, you must cause 5 structure boxes of damage to their largest ship. If they haven't a ship with 5 structure boxes, you must destroy

their largest ship and damage other ships to total 5 structure boxes. These targets should be combatants, not tankers.

Mission B4 - The Best Defence - PV 300

Your mission is to maintain control of this star system. Fleet command has given you control of a major Task Force to achieve this mission. If you have at least as many points as the enemy, you must stop them achieving their victory conditions and have the only operational ships left on the table at the end of the battle. If you have fewer points than the enemy, you must destroy more points of enemy ships than you loose.

Mission B5 - Ambush - PV 500

You must set an ambush to cripple an enemy operation (the exact nature of which is unknown) that intelligence assets have indicated will occur in this system.

Your initial force must not exceed 200 PV and must be deployed by your planet. Do not declare the full 500 PV to your opponent at this point.

The remaining 300 PV of your forces are hidden in the sensor shadow of a minor planetoid nearby and may enter the battle at any point after the third turn, entering from your Native edge of the table.

To win, you must inflict a crushing defeat by destroying all enemy ships and thwarting their victory conditions. If any ships escape, you lose, as the enemy will realise that amalgamating your forces here will have left other systems vulnerable to attack.

Mission B6 - Gates of Fire - PV 300

Your forces are stretched to the limit in this area of the front so you must make every shot count and set an example for your side. To win, you must destroy more points worth of the enemy than they do of your forces. If you have more points than the enemy, you must also stop them achieving their victory conditions.

Mission B7 - Covering Withdrawal - PV 200

No enemy action was anticipated against this system so you have inadequate forces to defend against a major advance. You have been ordered to perform a delaying action while key civilians and other assets are evacuated from the system. If you have less points than the enemy, you win by delaying their victory conditions until at least the sixth turn, and having at least one ship escape the table thereafter. If you have at least as many points as the enemy, you win by thwarting their victory conditions.

Mission B8 - Patrol Sweep - PV 250

Your Task Force has been assigned a patrol route to sweep for enemy ships. If you have more points than the enemy, you are required to destroy or drive off their ships from the patrol area (the table). If you have the same or less points than the enemy, you must destroy more enemy points than you loose in combat before withdrawing from the table.

Mission B9 - Refueling Stop - PV 200

Your task force is en route to a rendezvous with other fleet elements several Jumps away. This system is a refuelling stop, with a refueling cache concealed on a tiny planet. Your ships must start with all fuel boxes crossed off except one (power plant fuel). To successfully refuel, each of your ships must spend a full turn stationary, within 6 MU of the planet, without firing any weapons except for Point or Escort Defence.

A number of ships equal to the fleet's RCP factor may refuel simultaneously. Refuelling takes only one turn; once this is completed, your ships may exit the table either by Jump or by acceleration.

If you have at least as many points as the enemy, you win if more than 75% of your force (in PV) escapes. If you have less points than the enemy, this reduces to 50%, and if you have less than half the points of the enemy, you win if just 25% of your ships escape.

Mission B10 - Convoy Screen - PV 300

Your Task Force must protect a vital convoy as it leaves the system. Your forces are split into a screening force (200 PV), and a merchant convoy (100 PV). The screening force starts on the table; convoy ships may enter from the Native end of the table at any point in the first five turns (all convoy ships must be on the table by the end of the fifth turn).

Merchants may be tenders, or based on warships. In the latter case, the ship's PV is halved, but it retains only laser laser batteries and sandcasters (neither of which may be used for Escort Defence). All armour, screens, nuclear dampers, etc. are removed. The ship is reduced to a single computer, with no Offensive Combat Capability, but it must retain a Jump drive.

If you have at least as many points as the enemy, you win if all merchants escape the table. If you have less points than the enemy, you succeed if 50% of your merchants escape. If the enemy has at least 150 PV more than you, you win if just one merchant escapes.

Ships escape by acceleration off the Intruder edge of the table. Ships cannot safely escape by Jumping out because this planet is well within the 100 diameter limit of its star's gravity well.

Mission B11 - Run for the Stars - PV 150

No one expected the enemy to reach this system. It is critical that at least one ship escape (by acceleration or jump) to carry the news of the attack. All ships start in Close Orbit around your planet. You may not declare Jump for any ship in the first turn.

You win if one ship escapes, unless you have at least as many points as the enemy, in which case you must also stop them achieving their victory conditions.

The rules given elsewhere in this book relate to the TACTICAL GAME, i.e. the issues and challenges associated directly with combat between starships. Using the tactical rules, you can play out a battle between any two forces but at the end of the game there are no consequences following from the conflict's outcome. You may have lost the Batron which is the pride of the Imperial Fleet, or successful captured the Jewell system for the Zhodani Consulate but it doesn't really matter because the game stops at the end of the battle.

The STRATEGIC GAME adds another layer of realism - your forces are now bought on a budget, and you must manage their logistics, remembering that you can win the war without winning all the battles. 'Classic' Traveller addressed this challenge through Adventure 5 - Trillion Credit Squadron (still available as part of FarFuture Enterprises' The Classic Adventures) which provided rules for managing campaign logistics. The strategic rules presented in Power Projection are heavily influenced by Trillion Credit Squadron and the boardgame Fifth Frontier War, but have been simplified for faster play.

The strategic game can be played at several levels of complexity, as agreed between the players.

- **Tournament:** This game is a one-off budget- and parameter-driven conflict which does not need Star Maps, maintenance rules or ship building.

- **Clash of Empires:** This game is either budget- or points-driven, but the budget is independent of the star systems owned by each side. Fleet maintenance, logistics and ship building are used. This is the recommended level of complexity for *Power Projection: Fleet* campaigns.

- **Pocket Empires:** This game is budget driven, based upon the star systems owned by each empire. Fleet maintenance, logistics and ship building play a key part in this strategic war.

What Do You Need To Play?

In addition to the items needed to play the Tactical Game, the Strategic Game needs the following:

- a calculator (or computer spreadsheet),

- paper (for keeping track of the campaign progress),

- subsector or sector STAR MAPS from **Traveller**, and the corresponding world data in **Traveller's** UNIVERSAL WORLD PROFILE (UWP) format (see p.39).

- **Traveller** Book 5 - High Guard (2nd edition, 1980) or the equivalent MegaTraveller or d20 Traveller rules are required if you wish to design new starships beyond those already detailed in this book. The conversion rules given in this book can only be used to convert existing **Traveller** ship designs, not to create totally new designs.

Library Data Search: WHAT ARE WE FIGHTING FOR?

When running a strategic game, it's important to consider *why* you are fighting your opponent, as this often determines the scope of the battles. You should agree the objectives with your opponent, and then monitor them to establish who achieves strategic victory!

The following are some ideas you may use or adapt:

Total War - your aim is to capture all the enemy worlds and destroy their fleets completely. (Example: the Imperial/Solomani conflicts.)

Limited War - your aim is to capture a proportion of the enemy star systems or destroy a set proportion of their fleet. (Example: the various Zhodani/Imperial Frontier Wars.)

Capturing the Flag - your aim is to capture and hold one or more specific enemy star systems, perhaps to gain a better strategic position or to acquire valuable resources on those worlds.

Breaking Through - your aim is to penetrate part of your fleet a given depth beyond the enemy's border. (Example: Traveller: The New Era's defence against the Virus.)

Annexation - your aim is to capture neutral worlds in this area, either for their resources, to stop them being used as by rebels or to use them as a buffer between you and a potential aggressor.

Capital Strike - one or more lightning-fast strikes to destroy the enemy's capital or major industrial or population centres, in the hopes of forcing them to capitulate quickly.

Holding the Line - your aim is to stop the enemy fleet from penetrating your territory too far before reserve elements can be brought in. (Example: many Frontier War actions required the Imperials to hold the Zhodani until the Corridor sector fleet could be brought into the fray.)

Delaying Action - having a weak fleet (perhaps due to combat losses), your aim is to delay the enemy advance while you evacuate key assets and your civilian population towards your inner systems.

Guerilla War - your forces fight from hidden bases, seeking to damage your enemy's ability to project power and hold his (or your) systems. (Example: The Vargr tend to use such hit-and-run tactics.)

Star Maps

Sector, subsector and planetary data can be found in all editions of **Traveller**. The subsector and sector STAR MAPS show the relative positions of the star systems, while the associated UWPs provide details of the economic and military capability of the main world of each system (see p.39). Part of an example Star Map is shown in Figure 25, with a key to the icons used.
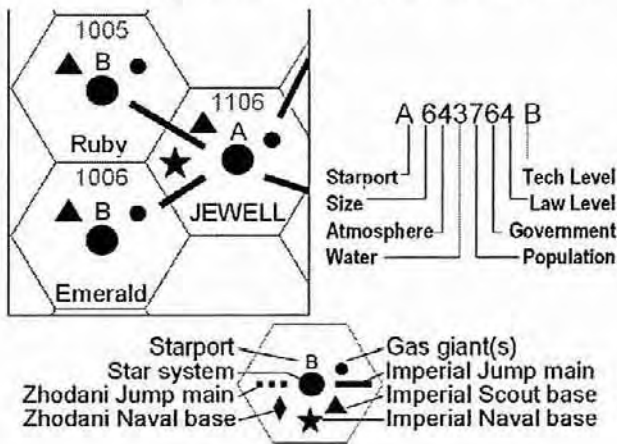

FIGURE 25: STAR MAPS AND WORLD UWPs

This figure also shows how the UWP is made up of hexadecimal digits (0..9, A = 10, B = 11, etc.). The starport, population, government and law level determine a world's ability to build and maintain battle fleets. The atmosphere code determines how aerodynamic a ship must be to land on it safely. If a world has water, ships may refuel from the surface by 'cracking' hydrogen from its oceans.

System Maps

You can consider each star system as having only one significant planet, or you can create a SYSTEM MAP showing the worlds, gas giants and asteroid belts within each system. This creates more strategic opportunities, e.g. taking control of a gas giant in the outer system without having to fight for the inner worlds.

The System Map comprises a row of boxes, one for each ORBIT ZONE in the system (an example is given in Figure 26). If you have the appropriate system details from a **Traveller** source, simply copy these into the boxes, otherwise choose the number of planets, gas giants, etc. and place them in the boxes. Working outwards from the star, inner orbits generally contain uninhabitable worlds (overly hot), there may be a single habitable world, then more uninhabitable worlds (overly cold), planetoid belts, gas giants, rare frozen worlds and then the "outer system".

The main planet will usually be in the habitable world box. Gas giants are key for refuelling.

You should note the 100 diameter Jump limit of the star (given its spectral type, consult Appendix A1) on the System Map, as some of the inner worlds may be within this limit for large stars. In such cases, slower-than-light (STL) in-system travel is required to move between these inner Orbits and the safe Jump Orbit.

Task Forces must declare which system box they are jumping into when the Strategic Orders are written.

Ships in the outer system can avoid each other unless the players mutually agree to engage in combat. Ships in other boxes must engage unless one chooses to try to escape (either by Jump or by acceleration).

In-System Travel

The distances between Orbit Zones and the time taken to travel between them using slower-than-light manoeuvre drives is given in Table A2 on p.60.

If moving between Orbits takes 7 days or less, this can be achieved within a Strategic Game Turn, 8-14 days means two Strategic Turns. Typically the distances between most Orbit Zones on the System Map are so great that they can only be traversed efficiently using an in-system Jump (which is executed exactly as per an inter-system Jump).

Set Up: Tournament

Tournament fleets must conform to specific parameters, defined by the three tournament styles from *Trillion Credit Squadron*, i.e. "Billion Credit Squadron", "Trillion Credit Squadron" and "Tournament". Billion Credit Squadrons are not considered here as they are likely to have only a few small ships.

Fleet Budget

Trillion Credit fleets have a spending limit of... (surprise!) a trillion credits (MCr 1,000,000).

Fleet Parameters

The fleet allowed for each tournament is constrained by the following key parameters:

- **Tech Level:** Ships may only use components of this tech level or lower.

- **Pilots:** The number of ships is limited by the number of pilots available to this fleet. Each ship of 500 dT or less requires one pilot; up to 20,000 dT requires two; more than 20,000 dT requires three.

- **Jump Rating:** Every ship in the fleet, with the exception of small craft and riders <u>must</u> be capable of at least this Jump rating.

- **G rating:** Every ship in the fleet, except small craft, must be capable of at least this acceleration in G.

- **Fuelling:** All ships must be capable of refuelling from this source: Gas - gas giant (i.e. PSL or SL hull), Orbit - orbital refuelling (no restrictions), Ocean - ocean refuelling (i.e. SL hull required to allow atmospheric entry).
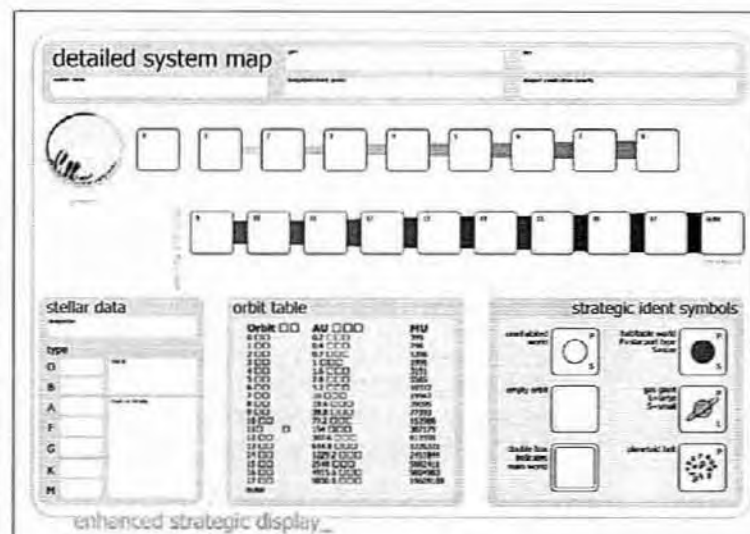

FIGURE 26: EXAMPLE SYSTEM MAP

Optionally, all players may agree only 50% of the fleet's fuel tankage needs to have this refuelling capability.

The tournament parameters for "Tournament" and "Trillion Credit Squadron" games are reproduced in Tables 22 and 23. Feel free to agree different constraints and/or budgets with the other players. If you both pick Jump-0 rated fleets, there is no need for a Star Map, since you will be tied to one system.

TABLE 22: STRATEGIC TOURNAMENT PARAMETERS*

Year	TL	Jump	G's	Pilots	Refuel	Other
1981	12	3	1	200	Gas	-
1982	13	4	2	250	Gas	-
1983	14	4	3	150	Gas	[1]
1984	15	2	4	-	Orbit	-
1985	11	2	5	200	Orbit	-
1986	12	3	6	250	Orbit	[2]
1987	13	4	1	150	Gas	-
1988	14	2	2	-	Gas	-
1989	15	3	3	200	Gas	[3]
1990	11	2	4	250	Orbit	-
1991	12	3	5	150	Orbit	-
1992	13	2	6	-	Orbit	[1]
1993	14	3	1	200	Gas	-
1994	15	4	2	250	Gas	-
1995	11	2	3	150	Gas	[2]
1996	12	2	4	-	Orbit	[4]
1997	13	3	5	200	Orbit	-
1998	14	4	6	250	Ocean	[3]
1999	15	4	1	150	Gas	-
2000	11	2	2	-	Gas	-
2001	12	3	3	200	Gas	[1]
2002	13	4	4	250	Orbit	-
2003	14	4	5	150	Ocean	-
2004	15	2	6	-	Orbit	[2]
2005	11	2	1	200	Gas	-
2006	12	3	2	250	Gas	[5]
2007	13	4	3	150	Ocean	[3]
2008	14	2	4	-	Orbit	-
2009	15	3	5	200	Orbit	-
2010	11	2	6	150	Orbit	[1]

[1] One Black Globe-4 generator is available.

[2] No starships larger than 10,000 dT.

[3] At least half the fleet's tonnage must be in no more than three ships. Riders are exempt from Jump requirements.

[4] No starships smaller than 10,000 dT.

[5] Up to 3 ships may be created at 1 TL higher than shown; these ships are exempt from refuelling requirements.

Note that the years in *italics* have had the Jump number corrected to comply with *High Guard* tech level-related limits.

*Table data extracted from *Trillion Credit Squadron*, p.30, and *Adventures 1-13, The Classic Adventures*.

Fleet Construction

To create your fleets, either pick valid ships from the designs given in this book (or *Power Projection: Escort*) or design your own using *High Guard* and the conversion system later in this book.

Fleet Commanders

Fleet Commanders can be purchased in the same manner as described in the Scenario Engine (p.40).

Crew Quality

The Crew Quality of each ship may be assigned randomly (detailed later) at no cost, or purchased as described in the Scenario Engine (p.40).

The Battle

Once your fleets are designed, you are ready to play the game. Set up the tournament as described in the Scenario Engine section (p.40).

Dice to determine who is the Intruder and who the Native; the latter gets to choose whether a planet or gas giant is present in their part of the table.

TABLE 23: TRILLION CREDIT SQUADRON PARAMETERS*

Ref	TL	Jump	G's	Pilots	Refuel	Other
1	7	0	1	400	Orbit	-
2	8	0	1	100	Gas	-
3	9	1	1	200	Ocean	[1]
4	10	1	2	300	Gas	-
5	11	0	6	600	Ocean	[1]
6	11	2	1	300	Gas	[2]
7	12	0	1	200	Orbit	-
8	12	3	1	100	Gas	[2]
9	13	0	6	300	Ocean	-
10	13	1	1	100	Gas	[2]
11	13	4	4	200	Gas	-
12	14	3	3	300	Gas	[1]
13	14	0	1	400	Ocean	-
14	15	1	1	200	Orbit	-
15	15	4	4	300	Gas	-
16	15	2	6	100	Orbit	[3]
17	15	4	1	400	Ocean	[4]
18	15	4	6	200	Ocean	[1, 5]
19	15	6	6	200	Gas	[2]
20	15	6	1	100	Ocean	[1]

[1] The fleet must contain at least two ships of 30,000 dT or more.

[2] Only Jump-capable ships must fulfil the refuelling requirements.

[3] All Jump-capable ships must be buffered planetoids.

[4] Only one ship may have Jump drive; all other ships must be carried in it.

[5] Every ship >500dT must be capable of Jump.

*Table data extracted from *Trillion Credit Squadron*, p.29.

Set Up: Clash of Empires

This provides a halfway house between a Tournament and the full economic complexity of Pocket Empires.

Fleet Budget

All players should agree their budget levels (these need not be the same for every side), either in credits or points value. This value may exceed the ship-building budgets of the local star systems if desired (representing an influx of forces from surrounding areas).

If you purchase your ships using points, you will still need to calculate the equivalent budget by adding up the MCr values of all the ships, fighters, ammunition and planetary defences that you have bought.

Fleet Parameters

If the campaign is set in a specific **Traveller** era, the fleet parameters should reflect this, e.g. defining the style of ship used by a particular race or group, and limiting the maximum tech level available at that time (players may opt to build ships at a lower tech level).

Fleet Construction

Given the budget and fleet parameters you can now purchase your fleet and planetary defences.

At least 20% of the total budget must be spent on vessels one tech level lower than the Empire's current maximum. However, this 20% may include the cost of refitting them to upgrade them to the current tech level (see refitting rules later). If you don't have *High Guard*-compatible design rules available, ignore this rule.

You may buy missiles and sandcaster ammunition, which can be deployed at designated systems ready as reloads for fleet elements. You can also purchase orbital and planetary defences.

Fleet Commanders

Each player is assumed to have at least one Fleet Commander, with a Fleet Tactics level of 0. Each point of Fleet Tactics costs 5% of the total naval budget, up to a maximum of 35% for Fleet Tactics 7. This skill may be divided between multiple Commanders if desired.

Each Commander's skill must then be divided between Tactics skill and Strategy skill - the former affects rolls in battle (e.g. initiative) while the latter reduces a fleet's Command & Control Lag (see p.49). (You can opt to give a Commander a zero level of either Tactics or Strategy skill if you wish.)

? It is recommended that for every trillion credits (or part thereof) of budget, every 5% spent on commanders buys an extra skill point, e.g. spending 35% of a 2 trillion credit budget gets 14 Fleet Tactics points.

Example: Given 2 trillion credits, a player spends 20% of budget to get 8 Fleet Tactics points, dividing this between two Commanders, giving one Tactics 3, Strategy 1, and the other Tactics 2, Strategy 2.

Crew Quality

The Crew Quality of each ship may be assigned randomly (detailed later) at no cost, or purchased as described in the Scenario Engine section (p.40).

Annual Naval Budget

You will need to maintain, repair and provide logistical support for your fleets as well as building new ships. The annual peacetime naval budget is 11% of the initial budget (multiply the initial budget by 0.11).

You start the game at peace. Once fighting breaks out, you may move your economy to a war footing, increasing your annual budget by half again (i.e. multiply the peacetime naval budget by 1.5).

The annual budget comes from the taxes levied on your worlds. The relative contribution of each star system needs to be calculated so that the impact of losing, or gaining, a system can be quantified. Each system is assigned ECONOMY POINTS according to its key features, as listed in Table 24.

Example: Rhylanor is TL15 (+3), Starport Class A (+3), Naval base (+3), Scout base (+1), high population (+1), one adjacent system (+0) and is on an X-Boat route (+1), giving it 12 Economy Points.

TABLE 24: PLANETARY ECONOMY POINT FACTORS

Feature	Points	Feature	Points
Starport Class A	+4	Tech Level 0 - 6	0
Starport Class B	+3	Tech Level 7 - 10	+1
Starport Class C	+2	Tech Level 11 - 13	+2
Starport Class D	+1	Tech Level 14 - 16	+3
Starport Class E/X	0	Population 7+	+1
Naval Base	+3	Scout Base	+1
System is on X-Boat / Communications Route		+1
For each adjacent star system after the first		+1

Divide the annual budget by the sum of the Economy Points for all your worlds. Multiply the result by the Economy Points for each system to give that system's contribution to the annual budget.

Example: An Empire based around Rhylanor totals 50 Economy Points and a budget of MCr 1,000,000 was chosen by the players. The annual budget is MCr 110,000 (11% of the initial budget). Rhylanor's contribution is 13 / 50 of this, i.e. MCr 28,600.

When allocating ships to systems, consider the maintenance budget available from each system. If a system is captured by an enemy power, you lose its budget while the enemy gains the same amount.

Set Up: Pocket Empires

This game uses the detailed economics system outlined in *Trillion Credit Squadron*. It is similar to the Clash of Empires game, but requires far more maths (ideally a computer spreadsheet should be used to support the calculations) as the naval budgets depend totally on the star systems that each side controls.

❓ Marc Miller has confirmed that the rules in *Trillion Credit Squadron* were not intended to model the budget of the Imperium as a whole. If you feel this system produces too huge a budget (and hence huge fleets) feel free to divide the overall budget by 10.

Fleet Budget

Having decided the worlds controlled by each player, the fleet budget can be calculated. The budget allocated to naval forces (which is only a small proportion of the total taxation imposed upon the populace) is made available in Week 1 of a Game Year (which consists of 52 weeks). These funds are dependent upon the government type, population level and whether a world is on a war footing. The budget for each world is:

$$\text{Budget} = \text{Cr } 500 \times G \times P$$

where G is the Government modifier from Table 25 and P is the Population of the world (the <u>actual</u> population, not the UWP population code).

Typically, all governments start the game at peace. If the players agree, you can interpolate levels between the war and peace extremes, depending upon perceived threat, paranoia or aggression by a given world.

TABLE 25: GOVERNMENT BUDGET MODIFIERS

Status	UWP Government Code*					
	0	1	2	3	4	5
Peace	0.50	0.80	1.00	0.90	0.85	0.95
War	1.50	1.40	1.50	1.20	1.45	1.40

Status	8	9	A	B	C	D
Peace	1.10	1.15	1.20	1.10	1.20	0.75
War	1.20	1.20	1.50	1.20	1.50	1.50

*Captive Governments (type 6) are assumed to have the same code as the world that owns them; Balkanised Worlds (type 7) treat each government separately.

Example: Hecate is a world with a type 3 government, a population code of 7 (tens of millions) and a population multiplier of 5, giving it approximately 50,000,000 inhabitants. Its peacetime naval budget is Cr 500 x 0.90 x 50,000,000 = MCr 22,500. If Hecate moves to a war footing, the budget grows to MCr 30,000 (Cr 500 x 1.20 x 50,000,000).

All taxes are received in 'local' credits. However, the actual buying power of a local credit in the interstellar marketplace depends on the world's tech level - lower

TABLE 26: CREDIT EXCHANGE RATES

Tech Level	Starport Type					
	A	B	C	D	E	X
F	1.00	0.95	0.90	-	-	-
E	0.95	0.90	0.85	0.80	0.75	-
D	0.90	0.85	0.80	0.75	0.70	-
C	0.85	0.80	0.75	0.70	0.65	-
B	0.80	0.75	0.70	0.65	0.60	-
A	0.75	0.70	0.65	0.60	0.55	0.45
9	0.70	0.65	0.60	0.55	0.50	0.40
8	0.65	0.60	0.55	0.50	0.45	0.35
7	0.60	0.55	0.50	0.45	0.40	0.30
6	-	0.50	0.45	0.40	0.35	0.20
5	-	0.45	0.40	0.35	0.30	0.10
4	-	-	0.30	0.25	0.20	*
3	-	-	0.20	0.10	0.05	*
2	-	-	-	0.05	*	*
1	-	-	-	0.01	*	*
0	-	-	-	-	-	*

*These worlds have too little trade for their local credit to have any significant value for interstellar exchange. The players must agree how (and whether) they can purchase goods from other systems (perhaps by barter or selling rights to their natural resources).

- Entries marked with a dash are not valid using the standard **Traveller** world generation system.

tech worlds produce lower spec, lower value goods. All costs in these rules are based on the value of the credit at a Class A, TL15 starport.

Exchange rates are ignored if ships are constructed on the world of origin but any exchange of credits with another world (e.g. to buy a ship) must be adjusted for the relative value of the local credits, using Table 26. Multiply the sum transferred by the exchange rate of the world giving the money, and divide it by the exchange rate for the world receiving it.

Example: A tech level C (12) world, starport class A, pays MCr 20 to a TL 8, starport B world. The world actually receives MCr 20 x (0.85 / 0.60) = MCr 28.3 in local credits. If the exchange was reversed, the TL C world would receive MCr 20 x (0.60 / 0.85) = MCr 14.1 equivalent in local currency.

Fleet Parameters

You can only build ships on worlds that you control and the tech level of any ship is limited to that of the world on which it was constructed. However, in the initial fleet creation phase you can can use the highest available tech level in your empire.

Jump-capable starships may only be built at class A starports, non-starships at class A or B starports, and planetoid ships only in systems with planetoid belts.

Ships may be bought from other worlds if this is agreed by all players, but the cost and maintenance must be modified appropriately by the credit exchange rates for both worlds.

Fleet Construction

Players may initially build a fleet costing up to ten times their annual naval budget. At least 20% of the total budget must be spent on vessels one tech level lower than the Empire's current maximum. However, this 20% may include the cost of refitting them to upgrade them to the current tech level (see refitting rules later). If you don't have *High Guard*-compatible design rules available, ignore this rule.

Before a fleet is built, consult the Routine Maintenance rules towards the end of this section, to ensure that you do not construct a fleet that is too big to be maintained in peace time! However, any left-over budget from initial construction may be held over for spending in subsequent game turns.

Fleet Commanders

As per the Clash of Empires game.

Crew Quality

As per the Clash of Empires game.

Command & Control Lag

To simulate the COMMAND & CONTROL LAG resulting from the time it takes for information to be carried between systems by starships, each Task Force must have orders plotted a number of weeks in advance.

The C&C Lag (Table 27) depends on a force's Jump drive capability, and thus is a factor of the tech level of the fleets. (TL also defines the fleet's RCP.)

TABLE 27: COMMAND AND CONTROL DELAY

Fleet Tech Level	C&C Lag	RCP
Early Stellar (TL 10 or less)	6 weeks	1
Average Stellar (TL 11-13)	5 weeks	2
High Stellar (TL 14-16)	4 weeks	3

In the Imperial 1100's, High Stellar forces include the Third Imperium, Zhodani Consulate, Solomani Confederation, Darrians, Hiver Federation and K'Kree. Average Stellar forces include the Sword Worlds, Vargr and Aslan (though these races have a few worlds at TL14, their common TL is 13). Early Stellar groups include the Droyne and many minor races.

Example: At the start of a campaign, an Imperial (TL 14) player must provide orders for his Task Forces for at least 4 weeks in advance. A Vargr player must provide orders for 5 weeks in advance.

Strategic Game Turn Sequence

Each strategic GAME TURN represents 1 week; each game year has 52 turns (i.e. 52 weeks).

1. **Strategic Orders** are written (p.50)

2. **Jump Phase** (p.50)

   a) All Task Forces with fresh orders to Jump are removed from the Star Map (they are in Jumpspace) and all Task Forces which Jumped last turn arrive in their destination systems (or destination Orbit Zone, if performing an in-system Jump).

3. **Communications and Intelligence Phase**

   a) The latest information about each system is provided to Task Forces already in, or entering, each system, including enemy forces present (excluding orbital and ground-based planetary defences). Task Forces in the same system may communicate.

   b) A Task Force with sufficient fuel may Jump out to avoid combat. If this was unplanned, all its Strategic Orders are converted to "Hold" until the force is next eligible to plot new orders, given its C&C Lag.

4. **Battle Phase**

   a) All battles are fought to their conclusion.

   b) Refuelling from gas giants may take place during a battle (p.55).

   c) Ships may disengage by Jumping out of system or by fleeing to an empty Orbit in the system (exiting the table and outrunning the enemy forces).

5. **Control Phase**

   a) Task Forces which have driven off the enemy (or had no opposition) may take control of worlds which have surrendered (see p.39). *The budget of a captured world only becomes available at the start of the next game year. A Task Force may only capture one world per turn. A gas giant is considered captured by whoever controls its Orbit Zone.*

6. **Refuelling Phase**

   a) Logistical resupply takes place (missiles and sandcaster ammunition - see p.53).

   b) Task Forces may refuel from any source within the Orbit Zones they control, provided this was written in their Strategic Orders (p.54).

7. **Final Operations Phase**

   a) Task forces undertaking operations (e.g. refuelling or repairs) which lasted a week or more are ready for other operations. Ships which were in the process of being constructed, refitted or repaired, become available if complete (p.52). Any costs associated with this are accounted for below.

8. **End of Turn**

   a) All weekly budgetary operations are carried out.

Individual Commander Initiative

Whether it be due to supreme tactical skills, predicting enemy movements, intuition or simply good luck, some commanders can react faster to an evolving conflict than their peers. To reflect this, the C&C Lag is reduced by the commander's Fleet Strategy skill.

Example: An Imperial commander with Fleet Strategy 1 reduces their effective C&C Lag from 4 weeks to 3 weeks.

Strategic Orders

A Task Force's orders are kept secret until they are executed. Orders are performed in the sequence given in the Strategic Orders. There are three primary orders - JUMP, HOLD, REASSIGNMENT - and the special ABORT order, but Miscellaneous orders may also be added for other operations or where more detail is required.

a) Jump

The orders for a Task Force to Jump to a designated system should be recorded as follows:

WEEK 7 - TASK FORCE 1 - J(2011 KRYON / 4 KLAX)

This indicates that Task Force 1 enters Jump in week 7, heading for Orbit Zone 4 of the system in hex 2011. Note that the system name (Kryon) and Orbit 4 world name (Klax) have been given for clarity (this assumes full System Maps are being used). If a ship is Jumping between Orbit Zones, this would be written as follows:

WEEK 7 - TASK FORCE 1 - J(4 KLAX)

i.e. Jump from its current Orbit Zone to Zone 4.

Orders for Jump may only be given for ships that can reach the target system, i.e. their Jump drive rating is at least equal to the number of hexes / parsecs to be travelled. The ships must also have sufficient fuel, i.e. a number of undamaged fuel boxes equal to the number of parsecs travelled, plus at least one additional box to power manoeuvre drives, life support, etc.

If a Task Force does not have sufficient fuel to Jump, but the ships can refuel in a negligible time (see Refuelling on p.54) then it is assumed that they will perform refuelling before entering Jump.

Since a Jump takes exactly one week, a Task Force undertaking a Jump may not combine this with any other orders except Reassignment.

b) Hold

A Task Force may be ordered to hold position in a star system (or particular Orbit Zone), whether awaiting other fleet elements, defending the system, or undertaking refuelling. This order is expressed as:

WEEK 7 - TASK FORCE CHARLIE - H (EMERALD / 3)

i.e. task force Charlie will hold position in Orbit Zone 3 of the Emerald star system in week 7.

Permanent repairs (noted as a Miscellaneous order) may be carried out while holding in a system, or ships may be reassigned to a base or starport to perform such activities. The Hold order can be combined with one or more Reassignment orders in a game week.

c) Reassignment

Elements of a Task Force may be ordered to detach from it and either join another Task Force or form a new Task Force. This would be recorded as follows:

WEEK 8 - EUREKA - R(EMERALD SYSTEM DEFENCES)

WEEK 9 - EUREKA, GIOVANNI - R(TASK FORCE DELTA)

i.e. in week 8 the ship *Eureka* is reassigned to the system defences of the planet Emerald and in week 9 *Eureka* and *Giovanni* are assigned to Task Force Delta (which could be either a new or existing Task Force).

Ships reassigned to an existing Task Force take on the Strategic Orders of that force. Ships which are forming a new Task Force must immediately have their Strategic Orders written for the appropriate number of weeks according to the C&C Lag for their unit.

Reassignment of ships between Task Forces may sometimes be forced by combat casualties.

d) Abort

At any point that a player's Task Force suffers an unforeseen disaster, he may substitute all its current Strategic Orders with Hold orders. The Task Force cannot then change these Hold orders and may only write new orders beyond the end of the series of Holds.

Example: Task Force Charlie in hex 2011 with a C&C Lag of 4 weeks, has the following orders:

WEEK 7 - TASK FORCE CHARLIE - J(2013)

WEEK 8-9 - TASK FORCE CHARLIE - H(2013)

WEEK 10 - TASK FORCE CHARLIE - J(2024)

However, the player suddenly determines that a major enemy incursion may pass through the 2011 system in the next few weeks so he opts to abort Task Force Charlie's orders, such that they become:

WEEK 7-10 - TASK FORCE CHARLIE - H(2011)

The earliest that Task Force Charlie can now leave the 2011 system is in Week 11, so if the player has misjudged the enemy's intentions, he may have pinned down this Task Force in the wrong place!

Failure to Refuel

Jump orders are aborted if a fleet has insufficient fuel to Jump but cannot refuel immediately, e.g. if a fleet fails to secure a gas giant source for fuel, or a base

has an inadequate capability to refuel all ships in a week. When this occurs, a player may either Abort as described above, or (if the refuelling can be performed given one or more extra weeks) defer their subsequent orders and insert one or more Hold orders. (The deferred orders may not be altered.)

Changing C&C Lag

If a Task Force is joined by a Commander with a higher level of Fleet Strategy skill than their existing leader, that unit immediately assumes the lower C&C Lag of the new Commander.

Example: Task Force Charlie (from the previous example) gains a new Commander (with Fleet Strategy 2) in week 7, reducing the unit's C&C Delay from 4 to 2 weeks. The abortive Hold imposed on the unit for the following 4 weeks can now be broken after just 2 weeks, with whatever orders their new Commander wishes to give them.

Conversely, if a Commander is lost or departs from a Task Force, the C&C Lag must be adjusted immediately and any additional turns of orders now required by the different C&C Lag must be written immediately.

Ship Construction

Shipyard Capacity

An empire's ability to build new ships is limited by the starports they control, their tech level and the naval budget. Planetary shipyards have a limited build and repair capacity, expressed in displacement tons (dT):

Shipyard Capacity (dT) = Annual Budget / 500,000

Example: Hecate has a peacetime naval budget of MCr 22,500, giving a (naval) Shipyard Capacity of 45,000 dT. During a war, as the budget increases to MCr 30,000, so the Shipyard Capacity goes up to 60,000 dT (as production increases and civilian yards are comandeered for military use).

Building New Ships

Any new ship class requires a preparation period of 4 weeks between finalising the plans and the start of construction. The base construction time depends on the ship tonnage, as shown in Table 28.

For ship sizes not shown in the table, interpolate the result or round to the next highest time. A ship may not leave dock until it is fully completed.

For each week of construction, Shipyard Capacity equal to the ship's final tonnage must be allocated at the yard where it is built. Construction costs are paid weekly - the base weekly cost is the base ship cost divided by the base construction time. This cost is adjusted on a weekly basis as follows:

- If the ship is not the first in its class to be built at that shipyard, the base construction time is reduced by 40% and its base cost by 20%.

- For each week where twice the normal Shipyard Capacity is dedicated to construction, the work rate increases by 40%, but the weekly cost is doubled.

- Each week, the work rate can be increased by 10% for each additional 10% of the base weekly cost spent on construction, up to a maximum of +30%.

Example: Hecate shipyard begins work on the third in a series of 10,000 dT warships, at a base cost of MCr 9,000. The yard is already familiar with building this ship, so the base construction time of 160 weeks is reduced by 40% to 96 weeks. The base cost is also reduced from MCr 9,000 to MCr 7,200, giving a base weekly cost of MCr 75.

After 46 weeks, the ship is almost half built and has cost MCr 3,450, but rising military tension in the area causes the government to speed up construction. The ship is given an additional 10,000 dT of Shipyard Capacity (+40%) and maximum additional resources (+30%), increasing the work rate to 170% so that the remaining build time is reduced from 50 to 30 weeks (50 / 1.7 = 29.4, rounded up). However, the cost goes up to MCr 172.5 per week (doubled for extra yard capacity, +30% for extra resources). As a result, the Horus is completed after 76 weeks (20 weeks early) but at a cost of MCr 8,625.

TABLE 28: SHIP CONSTRUCTION TIME

Size (dTons)	Weeks to build*	Size (dTons)	Weeks to build*
< 50	24 / 15	5,000	144 / 86
80	32 / 19	10,000	160 / 96
100	40 / 24	20,000	174 / 104
200	48 / 29	50,000	192 / 115
400	64 / 38	100,000	208 / 125
600	96 / 58	200,000	224 / 134
800	112 / 67	500,000	232 / 139
1,000	120 / 72	1,000,000	240 / 144

*Build times are given as first ship in class / subsequent ships in same class (time reduced by 40%).

ⓘ *The costs for **Power Projection** ship designs given in this book already include the 20% discounts for mass-manufacture.*

Refitting Older Ships

ⓘ *This option requires you to have access to **Traveller** ship design rules (e.g. High Guard) and the original design statistics for the ship. A **Power Projection** SSD is not sufficient to use this rule.*

Outmoded ships may be upgraded with higher tech equipment by refitting at a class A or B starport. Jump drives may only be refitted at class A starports.

Refitting requires complete removal of the old system and its replacement with a newer one.

Refits are limited in scope: new power plants, manoeuvre drives, Jump drives and spinal weapons may not exceed the tonnage of the original component; additional launch facilities may not be added; armour and configuration may not be changed; the number and size of weapon bays may not be changed, but the weapons mounted may be altered.

Refitting requires shipyard capacity equivalent to the ship's tonnage.

Major Changes include alteration of the power plant or any drive system and cost 1.5 times the normal cost of the new system. Construction time is 25% of the base construction time for the whole ship (this encompasses <u>all</u> major and minor changes performed during that refitment).

Minor Changes cover all other ship components. These cost 1.1 times the cost of the equivalent new system, and take 10% of the ship's base build time (however many minor changes are performed).

Refitting is subject to the same modifiers as new ship construction, i.e. it can be speeded up by dedicating more Shipyard Capacity and by spending more money. Also, if more than one ship is being modified in the same way, the others gain a 40% time and 20% cost reduction after the first refit is completed.

Ship Maintenance

At the start of each game year, a player must spend 10% of each ship's original build cost to keep it in service. (The build cost for refitted ships is calculated from the original cost, by deducting the systems removed and adding the cost of the replacement systems.)

Example: A Horus class ship costs MCr 7,200 to construct, so its maintenance cost is MCr 720.

ℹ️ *In reality, maintenance costs would be spread across the year, including not only major and minor service work but all other costs, from crew pay to berthing fees, maintenance of the naval shipyards, etc. However, for simplicity, the maintenance payment is made once per year.*

Ships which are being built do <u>not</u> incur maintenance costs, but ships being refitted or repaired <u>do</u>.

If a fleet cannot afford to pay to maintain all its ships, some ships must be "paid off" or "placed in ordinary".

Paying Off - The ship is disposed of, usually by destroying it, though it may be sold to another power. (Whatever its selling price, its maintenance cost is always based on its <u>original</u> cost.)

Ordinary - The ship is decommissioned and stored, to be returned to service at a later date. Ships in

Ordinary cost one-tenth of their usual maintenance. The recommissioning cost is 10% of the ship's base cost and requires its full tonnage in Shipyard Capacity for 10% of its original construction time (round up to the nearest week). All the usual ship building modifiers may be used to reduce this recommissioning time.

Example: After a short war, peace descends and the government is forced to reduce its naval budget to its pre-war level. It decides it must put five of its Horus ships into Ordinary. Their annual maintenance costs fall from MCr 720 each to just MCr 72 each - a total saving of MCr 3,240 per year. If the government recommissions them at a later date, it will take 10 weeks (96 weeks original build time / 10 = 9.6, rounded up to 10 weeks) and cost MCr 720 per ship.

Ship Repairs

Since warships tend to get damaged in *Power Projection*, repairing them is key to a Strategic Game. Field repairs (undertaken by Damage Control Parties) may still need need proper refit work.

Field Repairs

At the end of a battle, Damage Control Parties may make <u>one</u> attempt to fix each system which has failed a Threshold Check (i.e. excluding structure boxes). This check is at +1 if that ship remains in the same system for a week (using a "Hold" order). Any system which fails this check requires permanent repairs at a starport or base facility.

There is no cost or time requirement for field repairs - it is assumed that a ship carries some spares and has sufficient engineering facilities to undertake the work.

Permanent Repairs

Permanent repairs may only be carried out at a naval base, scout base or Class A, B or C starport and the tech level of the facility must be at least as high as that of the starship.

Ships which are under repair may not contribute to the defence of a system and are considered captured if their starport or base is captured. The occupying force may choose to complete the repairs to allow them to use the ship themselves.

Repair Cost = Structural Damage x Cost Modifier x Base ship cost

where **Structural Damage** = structure boxes damaged, divided by the total number of structure boxes; and the **Cost Modifier** is 1.1, plus:

+ 0.4 if repairs include computer, bridge, spinal mount or Jump drive.

+ 0.5 if repairing a Jump drive at Class B starport or Scout Base.

+ 1.6 if repairing a Jump drive at Class C starport.

Repair Time = Structural Damage x 8 weeks

Multiply this repair time as follows and round up to the nearest week:

x 2 if repairs include fire control, bridge, launch tubes, armour, Black Globe, spinal mount, manoeuvre drives or Jump drives.

x 2 if ship is 10,000 to 99,999 dT

x 4 if ship is 100,000 dT or larger.

After repairs are fully completed, all structure boxes are returned to their undamaged status and all damaged systems are restored to full operation.

Example: A Horus warship (10,000 dT, 20 structure boxes, original cost MCr 7,200) comes into a Class B starport to have 6 points of structure damage repaired. Its computers and manoeuvre drive are partially damaged and it has one laser battery knocked out.

The cost of the repairs is $^6/_{20}$ (structure damaged) x MCr 7,200 (original cost) x 1.5 (repairs include computer) = MCr 3,240.

The work will take $^6/_{20}$ (structure damaged) x 8 (weeks) x 2 (includes drive repairs) x 2 (ship 10,000 dT) = 9.6 weeks, which rounds up to 10 weeks.

Ship Crews

Computers play a key role in running **Traveller** starships, but the determining factor of a ship's performance in almost all situations is still its crew. A well prepared, experienced crew is better at anticipating issues, reacting to emergencies and keeping the ship operating efficiently even when battle-damaged.

Crew Quality

Crew Quality modifiers are used in the Tactical rules, but could be ignored without seriously impacting the game play. However, in a Strategic game, crews gain experience and improve from their initial quality levels. This provides an added incentive to minimise casualties (who must then be replaced with 'green' crews).

Initial Crew Quality Levels

Crew Quality may be determined randomly or statistically. It is recommended that the random method is only used for one-off scenarios.

Crew Quality can be determined randomly by rolling 2D6 (i.e. D6 + D6) and consulting the "2D6 Roll" column of Table 29.

Alternatively, you may choose to allocate Crew Quality in the proportions shown in the "Statistical" column of Table 29 (this approach assumes that elite crews can only be developed through battle experience).

TABLE 29: DETERMINING CREW QUALITY

Crew Quality	2D6 Roll	Statistical	Battles survived to reach next Level
Green	2 - 4	17%	2
Regular	5 - 8	56%	4
Veteran	9 - 11	27%	8
Elite	12	-	-

Crew Experience

Crew gain experience by surviving battles. After surviving the number of battles shown in Table 29, a crew immediately advances to the next higher quality level. Crews cannot progress beyond elite level.

Crew Transfers

After a battle, a ship may be significantly damaged, requiring repair time in a shipyard. It may be desirable to transfer an experienced crew to another ship while awaiting the repair of their own ship.

If this transfer is between two ships of exactly the same type, veteran and elite crews operate for the first battle at a Crew Quality one level below normal (even nominally identical ships vary in minor details and these crews rely upon knowing their ship intimately). After the first battle, assuming they survive, veteran and elite crews return to their normal quality level. Green and regular crews operate at their normal level immediately upon transferring between ships.

If the transfer is between ships of different types, the Crew Quality modifier is permanently reduced by one. If this would result in a regular crew being reduced to a green crew, the effect is only temporary, lasting to the end of the first battle fought in the new ship. A crew may be split between multiple ships provided the total tonnage of these ships is no greater than that of their original ship.

Replacing Casualties

Crew lost in battle (i.e. reduced Combat Capability or Damage Control Parties) may be replaced at either:

- a Class A, B or C starport on a world with a population code of 6 or greater, or

- a Naval base.

A ship must spend one week in the system using a Hold order to replenish its crew. It may also perform refuelling, repair, etc. during this time. If the ship is forced into battle during this week, its Crew Quality is degraded by one level for that week only.

Logistics: Ammunition

All starships require logistical support to operate effectively. High tech power plants, life support and food production facilities mean that most aspects of logistics can be ignored, provided ships pass through a largish inhabited system every few months. However, two key expendables are considered in *Power Projection* - fuel and ammunition (the latter being missiles and sandcaster canisters). Refuelling and reloading typically happens after a skirmish, but very occasionally may need to be undertaken in the heat of battle.

Ammunition Re-supply

Reloading ammunition can be carried out at a starport, or from fleet tenders, or even merchant vessels. Transfer of munitions outside combat (i.e. during a strategic turn) takes a negligible period of time.

The space required to store a reload for a single missile or sandcaster battery is given in Table 30 with the cost for one such reload (depending upon ammo type).

Example: The re-supply ship Hardcastle has 900 dT of cargo which could carry enough missiles to reload 100 high power missile batteries or 150 standard batteries, or a similar number of sandcaster reloads, or a mix of missiles and sand canisters. Since this space is not a dedicated magazine, the Hardcastle can also use it to carry other types of cargo.

TABLE 30: AMMUNITION RELOAD MAGAZINES

Battery Type	Space/Cost for one reload*	
	Space	Cost
Missile (HE)	6 dT	MCr 0.6
Missile (Nuclear)	6 dT	MCr 6.0
Missile (Bomb-pumped Laser)	6 dT	MCr 9.0
Sandcaster	6 dT	MCr 0.045

*The values above assume a standard missile battery or Level 1 sandcaster; for a high power '+' battery or Level 2 sandcaster, multiply both the space and cost by 1.5.

Missile Magazines

Missiles and sand canisters may be stored in normal cargo space but if a ship takes battle damage, it may cause the missiles to explode. As a result, missiles are usually carried in a dedicated magazine, designed to avoid or contain such explosions.

Magazines are allocated in a ship's normal design sequence, much like cargo space, but at a cost of MCr 0.01 per dT (whereas cargo space is free). Magazines may not be used to store normal cargo.

If a ship is carrying missiles in normal cargo space, any hit that causes a Threshold Damage Check also triggers a Catastrophic Damage Check. Additionally, if reloading is taking place during battle, both the re-supply ship and the reloading ship are subject to this special rule throughout the reloading period (reflecting the dangers of shuttling missiles between the two ships).

Example: The Hardcastle is carrying missile reloads when it is attacked. It takes sufficient damage to cross off its first row of structural boxes. As it is not using a dedicated magazine, this triggers a Catastrophic Threshold Check (5+ on D6). The Hardcastle's player rolls a 5 and is required to cross off the next row of structural boxes (the damage has caused some stored missiles to explode)! This triggers another Catastrophic Threshold Check at 4+. Thankfully he rolls a 2 this time...

Reloading in Battle

Sandcaster and missile batteries can only be reloaded during a battle if the ship performing the re-supply has a dedicated magazine. The re-supply operation must be declared in both ships' Movement Orders.

The re-supply ship must match vectors with the ship it is reloading as per the rules for a Boarding Action.

While performing the reloading, both ships' Agility modifiers are temporarily degraded to +2 and neither ship may conduct any offensive, Point or Area Defence fire (including the use of sandcasters and missiles).

The re-supply ship can offload one cargo box (5% of its hull volume) of missile or sandcaster reloads per Tactical game turn (the number of batteries this will reload is best calculated before the game is started). Re-supplied batteries may resume firing the turn after they are reloaded (unless re-supply is still in progress).

Rather than calculating the precise number of batteries reloaded each turn, you may find it easier to calculate the total time to reload a given ship. After one third of the reloading turns have passed, you may consider all batteries reloaded, but the reload check if they are fired at this point is 4+. After two-thirds of the turns have passed, the reload check becomes 5+. In either case, missile and sandcaster batteries that are partially reloaded cannot use the "high intensity fire" modifier.

Logistics: Refuelling

Strategic Refuelling Operations

Starships expend fuel when they Jump (one fuel box for each parsec travelled). They also expend fuel running the rest of the ship's systems (one fuel box every four weeks of normal operations). In addition, fuel may be lost due to damage in battle.

There are a number of options for refuelling within a star system - these range from diving through the atmosphere of a gas giant to scoop up raw hydrogen-carrying gases for refining, to collecting water from ice or oceans and cracking it for hydrogen. Of course,

there is always the mundane option of refuelling at a naval base or starport, or from a fuel tender.

In the Strategic Game, a Task Force refuels in either one week or in a negligible time period, depending upon the fuel source and the composition of the Fleet.

Task Force Fuel Requirements

The fuel tankage of a ship is best taken directly from the original *High Guard* statistics. However, a ship's fuel requirements can quickly be approximated:

Fuel (dT) = Ship Size (dT) x Fuel Boxes / 10

(This will usually slightly overestimate the tankage compared to the original *High Guard* value).

Example: The Yanz is a 1,000 dT ship with 4 fuel boxes, i.e. 40% of its volume is taken up by fuel. Its tankage is therefore 1,000 x 4 / 10 = 400 dT.

Task Force Streamlining

The aerodynamics of ships in a Task Force determines whether they can skim fuel from a gas giant or a world's oceans. Even if the capital ships are not streamlined, they will typically have shuttles which can perform the refuelling for them, albeit more slowly.

A Task Force is considered to be streamlined (SL) if at least half the total fuel tankage of the Task Force is in streamlined ships.

A Task Force is considered to be partially streamlined (PSL) if at least half the total fuel tankage of the Task Force is in partially streamlined ships.

If neither of the above conditions is met, a Task Force is considered unstreamlined (USL) for the purposes of Strategic refuelling operations.

Refuelling

The speed with which a Task Force can refuel depends on the fuel source and the *effective* Task Force streamlining as shown in Table 31.

TABLE 31: TASK FORCE REFUELLING TIMESCALES

Fuel Source	Task Force Streamlining		
	SL	**PSL**	**USL**
Gas Giant	0 weeks	0 weeks	1 week*
Ocean / Ice	0 weeks	1 week*	1 week*
Base / Starport	0 weeks	0 weeks	0 weeks

*10% of the fuel tankage of the Task Force must be streamlined (SL) or refuelling is not possible.

There are limits to the amount of refuelling capacity available at a starport, as shown in Table 32. If the total fuel required by the Task Force exceeds the starport capacity, the player must decide which ships are refuelled immediately. The remainder of the fleet must

wait for a week before the starport's fuel reserves are replenished and those ships can continue refuelling.

TABLE 32: FUEL AVAILABILITY AT STARPORTS

Starport Type	Fuel Tonnage Available
A	2,000,000 dT
B	1,500,000 dT
C	1,000,000 dT
D	500,000 dT
E or X	No fuel available

Fuel Tankers

A Task Force may have ships assigned as tankers. These ships use cargo boxes to carry fuel; two cargo boxes can carry fuel equivalent to one fuel box.

Tanker fuel tonnage may be transferred between ships in negligible time (0 weeks) outside combat operations during the Strategic Refuelling phase.

Tactical Refuelling Operations

If refuelling is required within the Tactical game, this can be accomplished using tankers or gas giant skimming; timescales for planet-bound refuelling should be determined by the referee.

Tanker refuelling - Use the same rules as for Tactical re-supply of missile and sandcaster batteries. One fuel box is transferred to the refuelling ship per turn. Tankers also use the special rule concerning Catastrophic Damage Checks if a normal Threshold Damage Check is triggered by damage taken whilst refuelling. (There is no equivalent of a missile 'magazine' to protect tankers from the hazards of combat refuelling!)

Gas giant refuelling - Individual ships which are partially or fully streamlined (PSL or SL) may refuel in a gas giant's atmosphere during combat. During refuelling the ship must remain within 1 MU of the gas giant's surface (i.e. within Close Orbit). Each turn spent scooping and purifying regains the ship one fuel box. If the ship conducts offensive fire at any point in a turn, no fuel is considered to be recovered that turn.

SHIP CONVERSION

All the starships in *Power Projection* were designed using the 'Classic' **Traveller** supplement *High Guard* (second edition), then converted to *Power Projection* using the system described in this section. The similarity between *High Guard*, *MegaTraveller* and *Traveller T20* statistics mean that ship designs from any of these rule sets may be converted in the same way. Ships from *Traveller: The New Era* and *GURPS Traveller* use slightly different design parameters but may still be converted with a little interpolation (or guesswork). These ship design systems may therefore be used to design new ships for *Power Projection*.

All references below relate to the *High Guard* version of the design sequence - differences in *Traveller T20* and *MegaTraveller* are noted in the relevant sections.

High Guard encodes a ship's capabilities into a set of values - the Universal Ship Profile (USP) - which is all that's needed for conversion to *Power Projection*.

Hull

A ship's hull defines its basic structure, armour, configuration and streamlining.

Structure Points

Converting **Traveller** displacement tonnage (dT) into *Power Projection* structure boxes is scaled to avoid disproportionate numbers of boxes for huge ships.

Ship Volume	1 Structure Box per...
up to 10,000 dT	500 dT (or part thereof)
10,001 - 100,000 dT	1,000 dT (or part thereof)
over 100,000 dT	2,000 dT (or part thereof)

Structure boxes are arranged as equally as possible into four rows with any excess boxes placed at the end of the top-most rows. The top row has a Threshold Damage Check of 6, the next row a check of 5, the third row a check of 4, and the last row shows the remaining damage the ship can take before it is destroyed. Ships with less than four structure boxes fill up the rows from the bottom, i.e. a ship with only two boxes will have one on the "kill" row and one on the "threshold check 4" row above.

Example: A 400 dT ship has 1 structure box (on the bottom "kill" row, as shown in Figure 27). A 4,500 dT ship has 9 structure boxes, which divide into two

400 dT ship	4,500 dT ship
6	6 ☐☐☐
5	5 ☐☐
4	4 ☐☐
KILL ☐	KILL ☐☐

FIGURE 27: STRUCTURE BOXES FOR 400 DT AND 4,500 DT SHIPS

boxes on each row, with the remaining box added to the top row (see Figure 27). If it were a 5,000 dT ship, the next box would be added to the second row. A 20,000 dT ship would have 30 structure boxes: 20 boxes for the first 10,000 dT and 10 boxes for the next 10,000 dT.

Armour

A ship's USP armour value converts to a *Power Projection* value as follows:

USP Armour Level	Armour Boxes
0	0
1 - 6	1
7 - 12	2
13 - 18	3
18 +	4

For *MegaTraveller* ships, the USP is calculated by subtracting 40 from the *MegaTraveller* armour value, then dividing the result by three and rounding down.

Example: A MegaTraveller ship with armour value 45 has a High Guard armour value of (45 - 40) / 3 = 1.67 which rounds down to 1. From the table above this gives one Power Projection armour box.

Configuration Modifier

The hull configuration determines the *Power Projection* Configuration Modifier.

USP	Configuration	Config Modifier
1 - 3	Needle, Wedge, Cone	Level 1
7	Dispersed structure	Level 2
9	Buffered planetoid	Level 2
	(All other USPs)	No modifier

MegaTraveller has slightly different USP codes: Code 0 (Open Frame) and Code 7 (Irregular) are the equivalent of *High Guard* Code 7 (Dispersed Structure).

Streamlining

Streamlining descriptions vary slightly with each **Traveller** rule set, so the following table shows how each classification is converted into a *Power Projection* streamlining code:

Streamlining Classification	Code
Unstreamlined (*HG, MT, T20*)	USL
Partially Streamlined (*HG, T20*)	PSL
Streamlined (*MT*)	PSL
Streamlined (*HG, T20*)	SL
Airframe (*MT*)	SL
HG=High Guard, MT=MegaTraveller, T20=Traveller T20.	

SHIP CONVERSION

Drives

Jump

The *Power Projection* Jump drive rating is directly equal to the standard **Traveller** Jump drive rating.

Thrust

The *Power Projection* manoeuvre drive rating (in G's) is equal to the **Traveller** manoeuvre drive rating.

Agility Modifier and Turn Capability

Power Projection's Turn Capability and Agility Modifier are related to the *High Guard* (or *T20*) agility rating. This rating is calculated slightly differently for *MegaTraveller*, but is converted using the same table:

High Guard Agility Rating	Turn Capability	Agility Modifier
0	0*	+2
1	1	+1
2 - 3	1	0
4	2	0
5	2	-1
6	3	-1

*May either thrust or turn, but not both in a single turn.

Fuel

A starship has one fuel box for each parsec Jump range in its fuel tanks, plus one box for every 10 points (or part thereof) of the *High Guard* power plant rating.

Traveller T20 does not have a power plant rating; the additional power plant fuel boxes are calculated as follows (round to the nearest whole number):

10 x Total Energy Points Output / Ship Volume (dT)

MegaTraveller does not have a power plant rating; the additional power plant fuel boxes are calculated as follows (round to the nearest whole number):

MW Power Output / (25 x Ship Volume (dT))

Control Systems

Computers

Power Projection ships have one computer icon for each main computer in the *High Guard* or *T20* design (two computer icons for each computer with fibre optic "fib" back-up).

MegaTraveller ships have multiple computers for redundancy. For *Power Projection*, treat the first three computer systems as a single computer, and the fourth and subsequent as further individual computers.

Library Data Search: DESIGNING PLANETARY DEFENCES

The Traveller ship design sequence doesn't describe the design of planetary defence emplacements; use the following guidelines:

a) **Orbital Defences** - Design as a standard spaceship (no Jump drive, manoeuvre drive of at least 1G to maintain orbital position). If unmanned, add a minimum of a Model 1 Computer to control the orbital unit. The effective Crew Quality for an unmanned unit equals the RCP value -2. Any hull configuration is possible.

b) **Surface Emplacements** - Design as an orbital defence but without a Manoeuvre drive. The *Power Projection* Agility Modifier is always +2. Particle accelerators will not work on worlds with an atmosphere. Energy weapons may only be used for Point Defence. All surface weapons are subject to range effects of passing through the planet's atmosphere. Black Globes are not allowed. Any hull configuration is possible.

c) **Deep Emplacements** - Design as a surface emplacement but using either a planetoid or buffered planetoid hull. A surface or orbital emplacement with a computer is required to target and engage ships, whether in Close Orbit or out in space. Weapon systems may only be meson guns or missiles, unless the planet is a vacuum world, in which case particle accelerators may be used. None of these weapons may be used for Point Defence. If the deep emplacement is equipped with missiles or particle accelerators it requires surface exits for these weapons and so may also be attacked with weapons other than meson guns.

Bridge

The *Power Projection* SSD has one bridge icon for each bridge in the original ship design.

Relative Computing Power (RCP)

The RCP depends on the ship computer model or (if not available) the ship tech level:

Computer Model	Technology Level	RCP
Model 1 - 2	TL10- (Early Stellar)	1
Model 3 - 7	TL11-13 (Average Stellar)	2
Model 8 - 9	TL14-16 (High Stellar)	3

Weapon Systems

Spinal Mounts

Spinal mounts are always forward facing (the Fire Arc only covers half the standard forward Fire Arc).

High Guard Rating	T20 Rating	Power Projection Rating
A - D	10 - 13	Spinal - 3
E - H	14 - 17	Spinal - 4
J - M	18 - 21	Spinal - 5
N - R	22 - 25	Spinal - 6
S - T	26 - 27	Spinal - 7

Secondary Weapons

To determine *Power Projection* secondary weapon ratings, calculate the total number of batteries of each

weapon type, e.g. "2 batteries of laser turrets, USP 6" or "1 battery of missile bays, USP 9".

a) Each battery has a separate icon on the SSD.

b) The battery rating depends on its USP rating: USP 1-6 is a standard power battery; USP 7+ is a high power battery (marked with a "+").

c) The weapon type and configuration (bay or turret) defines its maximum number of Fire Arcs:

Battery Type	Fire Arcs
Energy Weapon (bay)	2
Energy Weapon (turret)	3
Laser	3
Meson (non-spinal)	2
Missile	All
Particle Accelerator (non-spinal)	2
Nuclear Dampers	All
Meson Screens	All
Repulsors	All
Sandcasters	All

For each battery, select the direction of its Fire Arcs as desired (multiple arcs must be adjacent to each other), or based upon the ship's configuration. It is advisable to distribute a ship's Fire Arcs to ensure that weapons can be brought to bear in every direction. However, commonly more weaponry points forwards than back.

The total number of weapon batteries of any type bearing on a single Fire Arc is limited by the ship's size. In *High Guard* this is shown as a Batteries/Batteries Bearing rating, e.g. a rating of 10/8 means only 8 batteries out of 10 may bear on a single Fire Arc. The following table is reproduced from *High Guard* for *T20* players (round fractions upwards).

Ship Volume	Maximum batteries bearing on any one fire arc
Less than 20,000 dT	100%
20,000 - 29,999 dT	95%
30,000 - 39,999 dT	90%
40,000 - 49,999 dT	85%
50,000 - 74,999 dT	80%
75,000 - 99,999 dT	75%
100,000 - 199,999 dT	70%
200,000 - 299,999 dT	65%
300,000 - 399,999 dT	60%
400,000 - 499,999 dT	55%
500,000+ dT	50%

Example: A 45,000 dT ship has 20 batteries of USP 5 laser turrets and 5 batteries of USP 8 energy weapon bays. The designer wishes for as much forward-facing fire power as possible. Given its hull size, 85% of each weapon type can face forwards,

i.e. 17 laser batteries and 5 energy batteries (4.25 rounded up). Laser turrets cover three Fire Arcs, so 17 batteries will cover the ship's front three Fire Arcs. The Fire Arcs of the remaining batteries must not overlap the other 17 batteries (otherwise this will exceed the 85% batteries bearing limit), so these batteries cover the three rear arcs. The energy batteries may all face forwards. Since energy weapon bays only cover two Fire Arcs, for flexibility three are set to cover the forward and left forward arcs and two to cover the forward and right forward arcs, allowing all five to fire at a target directly ahead.

It has often been argued in forums such as the Traveller Mailing List (and the now-defunct GDW-beta and Traveller Technology lists) that starships would constantly be spinning to bring weapons to bear, so port and starboard Fire Arcs would be compressed together into a single arc. This spin would also have the benefit of reducing the effectiveness of enemy laser fire by spreading the impact area of the laser beam. If you wish to opt to use this capability in *Power Projection*, any weapon which bears to port will also be able to bear in the equivalent Fire Arc to starboard.

Defensive Systems

Calculate the total number of batteries of each defence type, e.g. "3 batteries of sandcasters, USP 7". Unless otherwise indicated, each battery has a separate icon on the SSD and can bear on all fire arcs.

Sandcasters

a) The battery rating depends on its USP rating: USP 1-6 is a Level 1 battery; USP 7+ is Level 2.

b) Three Level 1 batteries may be exchanged for one Level 2 battery during this conversion phase.

Repulsors

a) The battery rating depends on its USP rating: USP 1-6 is a Level 1 battery; USP 7+ is Level 2.

b) Three Level 1 batteries may be exchanged for one Level 2 battery during this conversion phase. (There is no real advantage to this, but it does reduce the number of icons on the SSD!)

Nuclear Dampers

a) The battery rating depends on its USP: USP 1-3 is Level 1; USP 4-6 is Level 2; USP 7+ is Level 3.

Meson Screens

a) The battery rating depends on its USP: USP 1-3 is Level 1; USP 4-6 is Level 2; USP 7+ is Level 3.

SHIP CONVERSION

Black Globes

The Energy Capacity of a Black Globe depends upon the capacitors installed for its Jump drive:

0.018 x ship's volume (dT) x Jump rating

Additional capacitors increase this by 3.6 points per additional dT of capacitors installed (round to the nearest whole number of points).

The globe's maximum Discharge Rate is:

0.001 x ship's volume (dT) x Power Plant rating

The maximum flicker rate is as specified in the ship's *High Guard* statistics.

ⓘ *For simplicity a 1:10 scaling factor has been applied to the Energy Points used for Black Globes in* **Power Projection**, *compared to High Guard.*

Other Components

Launch Tubes

Add one launch tube to the **Power Projection** ship for every launch tube in the *High Guard* starship design.

Fighter Squadrons

Each squadron of fighters in **Power Projection** has a single SSD and represents up to 10 fighters of up to 100 dT (larger ships should have individual SSD's). Divide a ship's fighters between squadrons to give as close to 10 fighters in each as is possible.

If the total displacement tonnage of the fighters in a squadron is more than 500 dT, the whole squadron is represented by two structure boxes; if 500 dT or less, the squadron has just one structure box.

The movement rate for a fighter squadron is the sum of their manoeuvre drive rating plus their *High Guard* agility rating, i.e. a fighter squadron with 6G drives and agility 4 would have a movement rating of 10 MU.

Sum the number of weapons of each type in the squadron and use the *High Guard* tables to find the equivalent USP rating, then convert as normal (p.58). Alternatively, for each weapon type carried by every fighter in a squadron, treat the squadron as having one standard battery of that weapon type. Note that fighters are so manoeuvrable that they ignore facing and Fire Arc limitations.

All other aspects of the fighters (armour, Agility, etc.) are converted in the same way as for larger starships.

Carried Vessels

Carried vessels are converted from their **Traveller** statistics in the same manner as other starships. The SSD for the ship which carries the vessels should be allocated the appropriate number of "carried vessel" icons.

If the ship's configuration or hangar design allows launching of all vessels in one turn (as defined in *High Guard*), indicate this on the SSD accordingly.

Damage Control Parties

The number of Damage Control Parties equals the *High Guard* crew USP rating. For *MegaTraveller* and *T20*, the crew USP is determined as follows:

Number of Crew	Crew USP Rating
0	0
1 - 9	1
10 - 99	2
100 - 999	3
1,000 - 9,999	4
10,000+	5

Combat Capability

A ship's Offensive Combat Capability is based upon the ship's crew numbers as follows:

+1 for every 5 marines (or part thereof),

+1 for every 10 (non-marine) ship's troops (or part thereof).

Sum these values to obtain the Offensive value.

A ship's Defensive Combat Capability is as follows:

+1 for every 50 ship's crew (or part thereof) excluding marines and other ship troops.

Example: A ship carrying 100 crew, 10 marines and 10 mercenaries has a Combat Capability of 3/10. Offensive Capability = 2 (10 marines / 5) + 1 (10 mercs / 10). Defensive = 2 (100 crew / 50).

Cargo

For every 5% (or part thereof) of a ship's hull volume dedicated to carrying cargo, allocate one cargo box to the ship's SSD.

Missile Magazines

Magazines may be installed on a ship to carry extra missiles more safely than in normal cargo storage. Each dT of cargo space dedicated to magazines adds MCr 0.1 to the original construction cost.

Points Value (PV)

The Points Value for a starship is calculated in the same way as the GDW game *Battle Rider*. Divide the ship's volume (dT) by 1000, square root the result, then multiply by its tech level.

Example: For a 4,000 dT ship constructed at TL14, the PV is calculated as follows: 4,000 (dT) / 1000 = 4. Square root of 4 is 2. PV = 2 x 14 (TL) = 28.

TABLE A1: EXAMPLE GRAVITY TEMPLATES

GG/Star Type	Jump Limit#	Surface Radius#	Surface Gravity	0.5G	1G	1.5G	2G	2.5G	3G	5G	8G	10G	15G	20G	25G	30G$
Small GG[1]	30	0.3	1.2	0.5	0.4	-	-	-	-	-	-	-	-	-	-	-
Large GG[2]	93	0.9	2.7	2.1	1.5	1.2	1.1	1	-	-	-	-	-	-	-	-
Sol[3]	922	9.2	30.9	73	51	42	36	32	30	23	18	16	13	11	10	9
O5	17234	172.3	3.2	434	307	250	217	194	177	-	-	-	-	-	-	-
B0	8479	84.8	6.7	309	219	179	155	138	126	98	-	-	-	-	-	-
B5	3410	34.1	13.1	175	123	101	87	78	71	55	44	39	-	-	-	-
A0	2488	24.9	12.7	126	89	73	63	56	51	40	31	28	-	-	-	-
A2	1935	19.4	18.2	117	83	68	58	52	48	37	29	26	21	-	-	-
A5	1788	17.9	17.8	107	75	62	53	48	44	34	27	24	19	-	-	-
A7	1751	17.5	17.2	103	73	59	51	46	42	33	26	23	19	-	-	-
F0	1677	16.8	16.3	96	68	55	48	43	39	30	24	21	18	-	-	-
F2	1521	15.2	17.8	91	64	52	45	41	37	29	23	20	17	-	-	-
F5	1382	13.8	19.7	87	61	50	43	39	35	27	22	19	16	-	-	-
F7	1207	12.1	22.9	82	58	47	41	37	33	26	20	18	15	13	-	-
G0	1014	10.1	27.9	76	54	44	38	34	31	24	19	17	14	12	11	-
G2	949	9.5	29.7	73	52	42	37	33	30	23	18	16	13	12	10	-
G5	876	8.8	32.6	71	50	41	35	32	29	22	18	16	13	11	10	9
G8	820	8.2	34.4	68	48	39	34	30	28	22	17	15	12	11	10	9
K0	719	7.2	40.2	64	46	37	32	29	26	20	16	14	12	10	9	8
K2	700	7.0	38.6	62	44	36	31	28	25	19	15	14	11	10	9	8
K5	682	6.8	36.1	58	41	34	29	26	24	18	15	13	11	9	8	8
K7	571	5.7	44.3	54	38	31	27	24	22	17	13	12	10	9	8	7
M0	498	5.0	50.9	50	36	29	25	23	21	16	13	11	9	8	7	7
M2	488	4.9	46.2	47	33	27	24	21	19	15	12	11	9	7	7	6
M4	470	4.7	45.2	45	32	26	22	20	18	14	11	10	8	7	6	6
M6	415	4.1	48.9	41	29	24	21	18	17	13	10	9	8	7	6	5
M8	194	1.9	126.2	31	22	18	15	14	13	10	8	7	6	5	4	4

GG=Gas Giant. Star types are listed by spectrum - this information is sometimes given in the **Traveller** system description; if not use "Sol".
[1] e.g. Jupiter.   [2] e.g. Neptune.   [3] Sol is Earth's sun.   # All distances in Movement Units (MU). $ Closer than this and you're toast...

TABLE A2: TYPICAL ORBIT DISTANCES

Orbit Number	Radius (AU*)	1G	2G	3G	4G	5G	6G	Example World
0	0.2	1	1	1	0.5	0.5	0.5	-
1	0.4	1.5	1	1	1	0.5	0.5	Mercury
2	0.7	1.5	1.5	1	1	1	1	Venus
3	1.0	2	1.5	1.5	1	1	1	Earth
4	1.6	3	2.5	2	1.5	1	1	Mars
5	2.8	4.5	3	2.5	2	1.5	1.5	Planetoids
6	5.2	6	4.5	3.5	3	3	2.5	Jupiter
7	10.0	9	6	5	4.5	4	3.5	Saturn
8	19.6	12	9	7	6	5.5	5	Uranus
9	38.8	18	13	10	9	8	7	Neptune
10	77.2	25	18	15	13	11	10	Pluto
11	154.0	35	24	20	17	15	14	-
12	307.6	49	35	28	25	22	20	-
13	614.8	70	50	40	35	30	28	-
14	1229.2	100	70	60	55	50	45	-
15	2548.0	-	-	-	-	-	-	-

*1 AU is approximately 150,000,000 km.

Times are approximated for ease of use. A ship with a 3G drive could move from Orbit 4 to Orbit 5 in 2 days, i.e. this can be completed within a Strategic Turn. To move more than one orbit, simply add together the times indicated, e.g. the same ship moving from Orbit 4 to Orbit 6 would take 2 + 2.5 = 4.5 days. Round down to the nearest week for the number of Strategic Turns.

TABLE A3: EXAMPLE SYSTEM (SOL G2 V)

Orbit/Sub	Name	UWP
1	Mercury	G30046A E
2	Venus	G8B0168 E
3	Terra	A867A69 F
60	Luna	F20076C F N
4	Mars	F43056A F
5	Planetoid Belt	F00066B E
6	Jupiter	Large GG
6	Io	Y210000 0
9	Europa	H200000 0
15	Ganymede	F300468 F
25	Callisto	Y30016A F
7	Saturn	Large GG
3	Janus, Mimas	YS00000 0
4	Enceladus	GS00268 F
5	Tethys	YS00000 0
6	Dione	YS00000 0
9	Rhea	H10046B E
20	Titan	Y3A0168 E
25	Hyperion	YS00000 0
60	Iapetus	Y100000 0
225	Phoebe	YS00000 0
8	Uranus	Small GG
5	Miranda	YS00000 0
7	Ariel	Y100000 0
10	Umbriel	HS00269 E
15	Titania	H100168 E
20	Oberon	Y100000 0
8.5	Neptune	Small GG
15	Triton	Y210169 E
20	Nereid	YS00000 0
9	Pluto	F10046C F N
20	Charon	YS00000 0

Sub orbit is multiples of the main world's radius

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Edited by	**Andy Lilly**		PO Box 4222
Front Cover by	**Jesse DeGraff**		Sawbridgeworth
Internal Art by	**Paul Lesack**		Hertfordshire
Counters by	**Rob Prior, Jesse deGraff**		CM21 0DP
Special thanks to	**Jon Tuffley**		England
	of *Ground Zero Games*		

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ISBN 1-901228-32-0