

Full Thrust: Remixed

Ground Zero Games
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Revision 1

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1 Introduction

FULL THRUST designer's notes

Way back in the early seventies, Skytrex Ltd. released their first resin-cast spaceship models suitable for gaming, which led to the first one-page GZG rules system. Since then that original system has evolved (mutated?) through many versions and guises, culminating in the publication, in 1991, of the First Edition of FULL THRUST. The reaction to the First Edition was so overwhelming that it seemed an obvious step to re-issue the game in a much improved format, the Second Edition, making it accessible to many more gamers through full trade distribution.

The premise of the game has always been that this is not a 'super-realistic' simulation that takes hours to make a single move. It is a system for fast, fun games with fairly large numbers of ships (a dozen or more per side is no problem), which can be played in a reasonable length of time. No longer will you have to end a game after three turns because it is closing time – with FULL THRUST you can hammer the enemy (maybe even twice!) and still get that pint in before last orders!

The game seems to have really struck a chord with many gamers tired of ultra-complicated systems that take a week of evenings to play, and above all it has achieved at least one of its major goals: it has given gamers a simple basis to tinker with, without spoon-feeding them with huge volumes of 'official' rules that leave little room for the individual imagination. If we have managed to do just a little to help restore gamer's creativity and imagination to its rightful place in the hobby, then that is reward enough (mind you, the money helps as well).

The actual rules are divided into the *Core* rules – the basic mechanisms of play – and the *Optional* rules which add much more detail to the game. The Core rules on their own will give a very simple, fast game with absolutely no complications, even when using big fleets. Once you are familiar with the basics, the various parts of the optional rules may be added, either all at once or piecemeal as desired. Pick and choose which you wish to use, but just remember to agree with your opponent which ones are in play and which are not!

Above all, FULL THRUST is intended to be an enjoyable game – if you are not happy with a rule or system, throw it out and use your own – that is what SF gaming is (or should be) all about!

This edition

The Second Edition of FULL THRUST was followed by MORE THRUST, a supplement of new ideas that did not change the original core rules. A few years later came FLEET BOOK VOLUME 1 which introduced new and much more flexible ship design rules and many small changes to other aspects of the game. It also contained the ship designs for the four major powers of the GZG universe

setting. Although never officially named as a new version, many players refer to this as FT 2.5. Finally FLEET BOOK VOLUME 2 introduced the alien fleets of the first Xenon War, complete with their own ships and new technologies.

Despite all these books, FULL THRUST has remained a fast, simple, and fun system with most players being able to play games from memory without consulting the books at all. But if you are new to FULL THRUST, or do need to look something up, having four books can get a bit complicated! FULL THRUST: REMIXED brings together the core and advanced rules from the original four books into a single volume. It replaces the Second Edition, More Thrust, and the new rules introduced by Fleet Book 1. (But not the rules for alien fleets in Fleet Book 2.)

Credits and Thanks

Original FULL THRUST designed and written by: Jon Tuffley

REMIXED edited and updated by: Hugh Fisher

Thanks to all the members, active and lurking, of the GZG email list, especially to those who have contributed ideas via the list which we have adapted for use in this volume. All the input has been invaluable in shaping not only this book but other stuff yet to come.

Of course, this book wouldn't exist if it wasn't for all the keen FULL THRUST players out there who keep buying the stuff we make, so thanks also to everyone who is reading this for your support past, present, and (hopefully) future.

Special thanks to: Paul Allcock, Oerjan Ariander, Jim Bell, Paul Birkett, Karen Blease, Chris Bowen, Zoe Brain, Chris Brann, Simon Burroughs, Liz Christensen, James Clay, Dave Crowhurst, Kevin Dallimore, Chris 'Laserlight' DeBoe, Jed Docherty, Mike Elliott, Simon Evans, Andrew Finch, David Garnham, Roger Gerrish, Allan Goodal, Phillip Gray, Marshall Grover, Dean Gundberg, Gary Guy, Jerry Han, Joachim Heck, Donald Hosford, Martin Kay, Mark 'Indy' Kochte, Jim Langer, Paul Lewis, Paul Lewis, Brian Lojeck, Greg Mann, Alan Marques, Tom McCarthy, Mike McKown, Bruce Miller, Mike Miserendino, Stuart Murray, Simon Parnell, Tim Parnell, Rob Paul, Nigel Phillips, Phil Pournelle, Brendan Robertson, Ben Rogers, Mark Seifert, Alex Stewart, Alex Stewart, Graham Tasker, Steve Tee, Aaron Teske, John Treadaway, Kevin Walker, Tim Walker, Ashley Watkins, Jim Webster, Chris Weuve, Jon White .

2 Rules Overview

2.1 Ship models

As this is primarily a miniatures game, we obviously recommend that it is played with actual starship models. Although the game will work perfectly well using counters or other markers to represent the starships, the visual aspect is greatly enhanced by using miniature ship models, either commercially produced or scratchbuilt.

If you do not wish to use model ships, the game will also run perfectly well using card or plastic counters to represent ships; all you need is some identification mark or code on each counter, a mark to indicate the centre of the counter (for measurement) and something to show the facing (ie present direction) of the ship.

We have actually supplied enough copy-and-cut-out counters in the back of the book to enable you to play out the introductory scenario; we hope this will get you sufficiently interested in the game to start collecting your own fleets of models!

If you decide to use miniatures, they may be simply place flat on the table or mounted on some kind of base or stand. Ships on stands certainly look better and the centre of the stand's base gives a useful reference point for measuring distances in play. Some manufacturers supply a plastic or wire stand with their ship models; for those that do not, you can either buy separate packs of plastic stands (available from most games shops or direct from GZG) or else produce your own stands from a square of perspex, wood, or plastic and a short length of rigid wire.

If you are using fighter groups in the game, there are a number of ways these can be represented. To give maximum visual appeal you can mount the correct number of individual fighter models on a single base so that they are removable in some way to indicate losses, either stuck to the base with very small blobs of Blu-Tack, or on short individual wire stands that are then plugged into holes drilled in the base.

A much simpler way of denoting fighter groups is to permanently mount a few fighter models (or even a single one) on a base, then use either a numbered counter of a small D6 placed by the base to indicate the actual number of fighters it represents.

In addition to the actual ships, there are a number of other items that can be represented either by counters or models (depending on your time, resources, and the overall visual impression you are aiming for). These include asteroids and 'bogeys' (unidentified sensor contacts) – suggestions on how to model these are included in the appropriate sections.

Dice

To play FULL THRUST you need a number of 'normal' (6-sided) dice, referred to in the rules as *D6*. Just a couple of

dice will do, but a half-dozen or more will be useful when firing lots of weaponry at once.

Occasionally the rules require a *DI2* roll. If you don't have a twelve sided die, just roll 2D6: if the first is 1-3, use the second as rolled; if the first is 4-6, add 6 to the second.

Other equipment for play

You will need a tape measure or long ruler, graduated in whatever units you are using for play (inches or centimetres); a ruler or straight edge can also be useful for checking lines of fire. A number of coloured counters are useful for marking points on the table; simple card counters may be used, or packs of 'tiddlywinks' type plastic counters may be purchased very cheaply from toy or game shops.

The Course and Arc-of-Fire Gauge printed at the back of this book may be photocopied, cut out and stuck to a piece of thick card, or a more elaborate version may be constructed as players desire. (Eg from clear plastic sheet or similar.) While this template is not essential to play, it does make moving ships much easier and more accurate, and should also reduce any arguments about fire arcs!

Photocopy the ship SSD diagrams and fill in the details of your ships; if you wish you can then put the SSDs in clear plastic document wallets and write orders and damage in Chinagraph pencil, so the sheets can be re-used.

Other than these few items, all you need is a good imagination and a couple of six-packs, and you're off into deepest space, To Boldly Go, etc.

Scanning and computer reproduction

These days, a great many of you will have access to scanners and computer equipment that will enable you to reproduce ship data panels for the purpose of making up your own system status displays for the game. This is perfectly acceptable provided it is for your own personal use, and not for any kind of commercial gain or payment. We also have a number of enquiries from time to time about the posting of SSDs, etc on web sites; our policy on this is that you may web-publish your *own* designs freely for non-profit purposes, including using the standard SSD format and icons, but we would ask you *not* to post any of the actual ship designs given in any GZG publications to any website; if people want to use them, they can buy a copy of the book!

We would also ask that, for both legal reasons and out of courtesy, any website devoted to or containing material connected to FULL THRUST or any of the supplements contains a clear statement of our copyrights plus details of how to contact us for further information. (These can be found at the back of this book.)

2.2 Playing area

One of the great advantages of starship combat games is that you do not need any 'terrain!' You can use any suitable flat area for the game, such as a tabletop or even the floor. (Pets, small siblings, and vacuum cleaners notwithstanding...)

If you want maximum visual appeal, obtain a large piece of black cloth, paper or card to cover the playing area and speckle it with varying-size dots of white and yellow paint. A 'starfield' can be produced in about half an hour on a piece of black mounting board and looks surprisingly effective.

2.3 Time and space

Reading through this book, you will notice that we have given all measurements, ranges, and distances in the rules in terms of *MU*. This stands for Measurement Unit, and replaces the old method of giving all distances in inches. For general play, we assume that most people will use 1 MU = 1 inch (or approx. 25mm in metric), which makes the playing area of a 6' by 4' table 72 MU by 48 MU.

It is just as valid to have a scale of 1 MU = 1 centimetre if you are playing on a small tabletop (or if you want a game with very high speeds and lots of manoeuvring room on your normal size of table). Basically, 1 MU can be any distance you want it to be according to the size of playing area you have, the size of models you are using, and simply personal preferences. If you have a whole sports hall to use, then why not try using giant ship models and 1 foot (or even 1 metre) units?

The ship models used in Full Thrust (and indeed any other tactical space game) are actually vastly over-size compared to the space combat distances represented in the game; in true scale, the actual ships would be so tiny you probably couldn't see them! All measurements and arcs of fire are therefore relative to a designated centre point on the model, not the edges or corners.

2.4 3D, or not 3D?

Some starship combat games have made attempts to simulate 3-dimensional movement and combat, with varying degrees of success. Indeed, a number of users of the first edition of Full Thrust have sent in interesting ideas and methods of applying 3D effects to the game. While many of these ideas do actually work, it is the author's personal view that the added complication of attempting 3D actions is not really worthwhile; the end result can too often be visually confusing, hard to follow and so slow as to remove one of the major elements of the game – having fun!

In an aerial combat game the third dimension (height) is vital, because atmospheric craft behave differently in the vertical plane than they do in the horizontal. Once

you move into space, however, all the dimensions are essentially the same – thus very little is lost by 'compressing' the game to only two dimensions, and a great deal is gained in the way of simplicity and playability. By all means continue to experiment with 3D play, and keep sending your ideas in, but we are not including any 3D rules in this edition.

2.5 Ship classes

Ships are referred to in the rules by common naval titles (frigates, cruisers, battleships etc) as this will be simple for most players to relate to, and is also the terminology used in much of the SF media. If you want to give the classes more exotic names, feel free to do so! Note that if you are using commercial model ships, just because a manufacturer happens to classify a particular model in the range as a 'Destroyer' in no way prevents you calling it a cruiser, or anything else that fits in with your fleet structure.

Combat starships are divided into three broad groups: escorts, cruisers, and capital ships.

Escorts are the smaller ship classes, ranging from the tiny couriers through corvettes and frigates, up to destroyer class ships. Although sometimes used on detached duty in low-threat areas, or patrol missions and courier duties, escorts are more normally used to support heavier ships of cruiser or capital ratings. Ships of the escort group are generally very manoeuvrable, but lightly armed and armoured; they are effective against their own kind, but of relatively little use against heavier ship units.

Cruisers are the medium sized warships, used to support the heavy line of battle ships but also capable of holding their own on independent operations. Cruisers are divided into light, escort and heavy cruiser classes. They are reasonably agile and well protected and mount heavier weaponry than the small escorts.

Capital ships are the heavy line-of-battle classes, from battlecruisers and battleships up to the vast superdreadnoughts and fleet carriers. These ships are ponderous leviathans, bristling with heavy weaponry and solidly armoured against attack. Capital units form the core of a battlefleet or task force and many carry their own on-board fighter groups as both an offensive and defensive weapon.

See section 9.2 for more detail.

2.6 Ship System Status Display

The ship designs given in this book all use a standard *system status display* (SSD) as illustrated in figure 1. The SSD shows the symbols for all the weapons and systems that the ship is fitted with.

The rows of small boxes above the drive symbols are the *hull or damage track* that shows the actual damage point total that the ship can take. When damage is inflicted, these points are marked off the target ship's hull boxes on

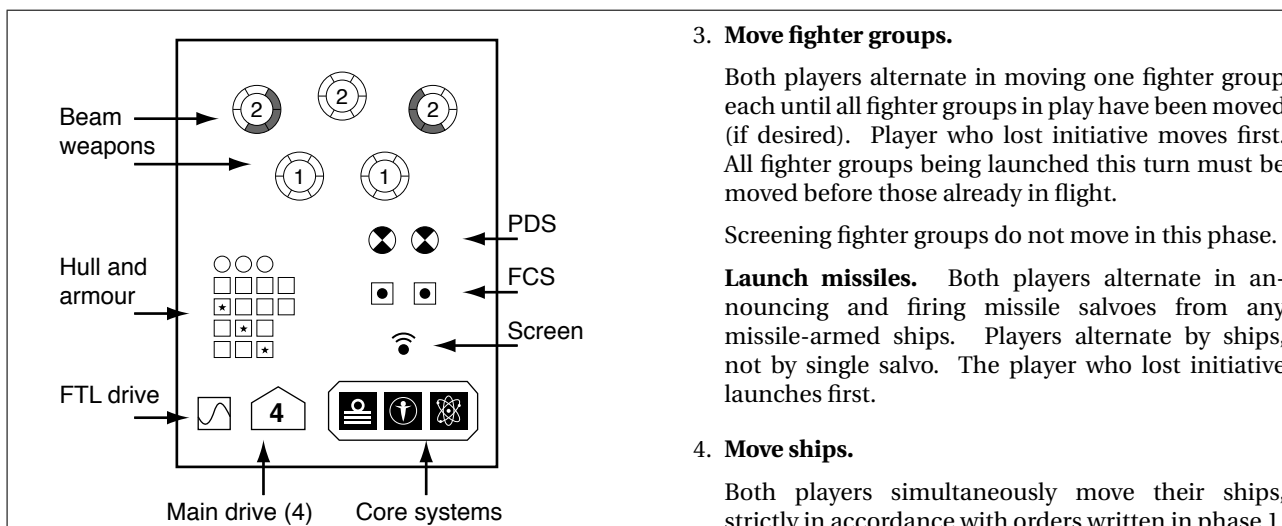


Figure 1: System Status Display

its SSD, starting at the top left and crossing out one box per damage point inflicted. When you reach the end of one line of boxes, refer to the rules on threshold points and system damage.

As each system is knocked out as a result of a threshold point check it is crossed off the diagram.

When a ship has had *all* of its hull boxes crossed out (ie it is reduced to 0 damage points or less) then it is considered destroyed and removed from play.

Open book games

An 'open book' game is one where players can ask their opponents for the last known speed of enemy ships before writing movement orders, or to look at the System Status Displays of enemy ships. This is because they are assumed to have intelligence briefings (military designs are never as secret as their owners think!) and various types of reconnaissance platforms, sensors, computer predictions, etc that give quite accurate knowledge about the current state of the enemy fleet. In space, there really isn't anywhere to hide, so this is quite reasonable.

2.7 Sequence of play

A FULL THRUST game consists of *turns*. Each turn, all players move and fire their ships in the following sequence:

1. Write orders.

Each game turn starts with both players simultaneously (and secretly) writing the movement orders for all the ships they own.

2. Roll for initiative.

Both/all players roll a D6 each: highest roll has initiative for this turn.

3. Move fighter groups.

Both players alternate in moving one fighter group each until all fighter groups in play have been moved (if desired). Player who lost initiative moves first. All fighter groups being launched this turn must be moved before those already in flight.

Screening fighter groups do not move in this phase.

Launch missiles. Both players alternate in announcing and firing missile salvos from any missile-armed ships. Players alternate by ships, not by single salvo. The player who lost initiative launches first.

4. Move ships.

Both players simultaneously move their ships, strictly in accordance with orders written in phase 1. Fighter groups currently acting as fighter screens are moved at the same time as the ship they are screening, and must remain within the screening distance of the ship.

Ships laying mines are moved before all others.

Ships entering or exiting FTL are moved or placed last.

5. Allocate missile and fighter attacks.

Fighter groups may, if desired, make a secondary move in this phase.

All missile salvos and fighter groups that are within the specified attack ranges of suitable targets (and wish to attack, in the case of fighters) are placed in contact with the intended target.

6. Point defence fire.

Fighter vs. fighter actions (dogfights), attempted fighter interceptions, fighter groups defending against missile attacks, and screening actions by fighters are resolved before actual point defence fire is allocated to surviving ships.

Any ship under missile and/or fighter attack allocates its defences against attacking elements, then rolls for effects. Weapons in FULL THRUST can only be used once per turn, so a ship under attack from multiple fighter groups or missile salvos must divide weapons between them.

7. Missile and fighter attacks.

All missile salvos and/or fighter groups that penetrate defences in the previous phase now have their attacks resolved. Damage resulting from these attacks is applied immediately, including threshold point checks if applicable.

8. Ships fire.

Starting with the player who won initiative, each player alternates in firing any/all weapon systems on one ship at one or more targets subject to available fire control. Damage caused is applied immediately,

and threshold point checks are made where applicable as soon as all weapons fired by one ship at that one target have been resolved.

In FULL THRUST weapons can only be used once per turn, so any system used in the point defence phase cannot be used again to fire on other ships.

When a ship is selected to fire, announce the targets for all the fire the player intends to carry out with that ship, *before* any dice are rolled for fire effects; for example: “I am firing both 3 batteries at the heavy cruiser in my fore arc, and the 2 battery at the frigate to starboard”. This prevents the player from (in this example) rolling for the effects of the shots on the cruiser, then deciding to fire the 2 battery at the cruiser as well – instead of at the frigate – in the hope of maybe crippling the cruiser. That would not be permissible, as all the fire from any one ship is assumed to be more or less simultaneous.

After a ship has fired some or all of its weaponry and play has moved on to another ship, that ship may not fire any other weapons or make any further actions in that game turn. A single *target* ship may, of course, be fired on more than once in the turn, by different attackers.

9. Damage control.

Damage control repair rolls can be made. Finally, if the optional Core System rules are being used, count down 1 completed game turn from bridge or life support systems and roll to see if reactor systems explode.

Variations

Many players combine the point defence and missile/fighter attack phases. Once all the defensive fire has been allocated, it is easier carry out the defensive fire and missile or fighter attack phases one ship at a time.

In a single ship per side battle, the initiative roll becomes too important. It is **optional** but recommended in such battles for players to record the amount of damage suffered from ships fire but not actually apply damage and threshold checks until after both ships have fired.

3 Cinematic Movement

3.1 Ship movement

FULL THRUST has two rule systems for movement. The original *Cinematic* system described in this section allows ships to move as they are most often depicted in the SF media, with much less regard for the laws of physics. The optional *Vector* movement system gives a more accurate portrayal of how objects really manoeuvre in space; they are also a little more complicated than Cinematic, though far less so than certain other rules attempts at the same thing!

Course determination

A ship may only move on one of twelve *courses*, which are defined by using a 'clock face' method. At the start of the game, each player should decide which direction represents course 12 – usually away from the base edge of the play area is convenient – and then work out each course from this reference point. This is also called the ship's *facing*.

Example: In figure 2, ship A is travelling on course 12 and ship B is on course 5.

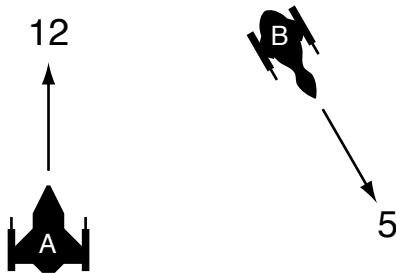


Figure 2: Ship Course Example

Velocity

The current *velocity* of a ship is defined as the number of Movement Units (ie inches or centimetres) that the ship will move in that current game turn. A ship travelling at velocity 8 will move 8 MU in that game turn, provided it does not apply any thrust to alter that velocity.

Ships must always move the full distance specified by their current velocity, unless the velocity is altered by applying thrust.

Thrust ratings

Each ship has a *Thrust Rating*, which is a measure of the output of its drive systems relative to the *Mass* of the ship. This available *Thrust* is used to alter the ship's course

and/or velocity as desired, in accordance with the movement orders plotted for the ship at the start of the Game Turn.

The thrust rating of a given ship is the total maximum amount of thrust that may be applied in any one game turn. In one turn, any or all of the available thrust may be used to change the ship's velocity (up or down, to accelerate or decelerate the ship), but only up to half the thrust rating may be applied to course changing. In other words, a ship with a thrust rating of 4 could accelerate or decelerate by up to 4 MU per game turn, or could apply up to 2 points of thrust to course changes and still be able to make a 2 MU change to velocity in the same turn. The ship cannot however, apply more than 2 of its available thrust points to changing course.

If the ship has an odd number of thrust points available, the portion that may be expended on course changing is rounded *up*: a ship with Thrust rating of 5 could alter course up to 3 points per game turn.

Each point of thrust applied to course changes will alter the ship's course by one course number during the game turn.

Example: A ship with thrust rating of 6 decides to apply 3 points (its available maximum) to altering course. The ship is currently travelling on course 10; if it is to turn to port it will turn anticlockwise, ending up on course 7. Should the turn be made to starboard (clockwise), the final course will be 1.

Movement

The movement of a ship in any given game turn is defined by two factors: the ship's course and velocity. The current course indicates the direction in which the ship will move, and the velocity shows how far it will move along that course.

Ships obey one of the basic Laws of Motion, in that once they are moving in a particular direction they will continue to move in the same direction and at the same speed until they apply thrust to alter course and/or velocity.

This means there is effectively no maximum speed for any ship – theoretically it can continue to accelerate each game turn if the player so wishes, and will maintain whatever velocity it reaches until it applies more (reverse) thrust to decelerate again. At higher velocities, however, a ship may not be able to manoeuvre quickly enough to remain on the playing area, so think carefully before going too fast!

3.2 Making course changes

A ship making a course change is assumed to be applying a sideways thrust vector throughout the movement in that game turn, and would therefore move in a curved path ending the turn pointing towards its new course.

To simulate this when moving the ship model, half of the course change is made at the start of the ship's movement, and the remaining half at the mid-point of the move. If the total course change is an odd number, then round *down* the initial part of the change and round *up* the mid-move part.

Example: The ship in figure 3 is currently moving on course 3 at a velocity of 10. The player decides to alter the ship's course to 12, by turning 3 points to port. At the start of its movement, the ship is turned one point to port (half the total course change, rounded down) bringing it to course 2. It is then moved half its velocity – 5 MU – along course 2, then turned again through two course points, bringing it round to course 12 as intended. Finally, the ship completes its movement by travelling its remaining 5 MU along course 12. All measurements are made from a point on the model.

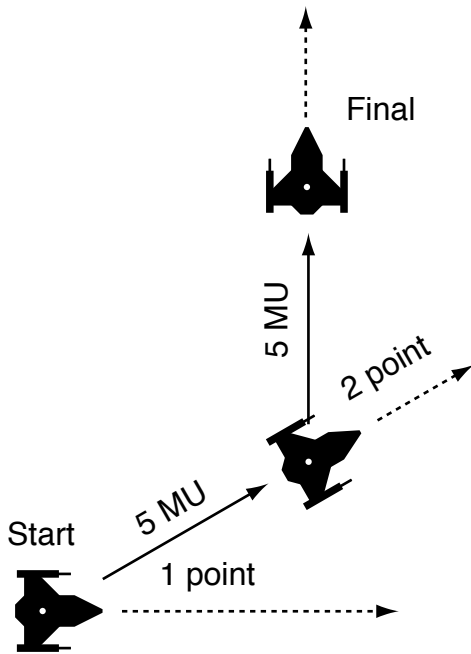


Figure 3: Course change by 3 points

If the ship's velocity is an odd number, also round down the first half of the distance and round up the second half.

Example: The ship in figure 4 is moving on course 7 at a velocity of 6, and is to accelerate by 5 to velocity 11 and make a one-point turn to starboard to bring it on to course 8. At the start of its movement the ship does not alter course (half of one being rounded down to zero), so moves half its distance (5 MU after rounding down) along course 7. Now the ship makes its one point of turn to course 8, and then moves the remaining 6 MU.

Special notes on movement

Ships may not have negative velocities, ie they may not move backwards. To retrace its course, a ship must be

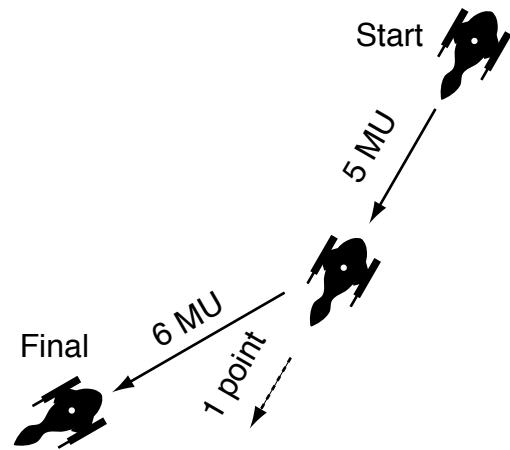


Figure 4: Course change by 1 point

turned around.

A ship with a velocity of zero (ie stationary) may be given orders to rotate on the spot to any desired course, irrespective of available thrust or normal limitations on course changes, provided it does not also change velocity or apply any other thrust in that turn.

3.3 Movement orders

At the start of the turn, each player must write orders for each ship. If you wish a ship simply to move ahead at its current speed, no orders are necessary; but we recommend that you at least write down the (same) final velocity. Any ship with no orders will move straight ahead at unchanged speed, as will any that are given impossible orders, such as one that would exceed the ship's thrust rating.

The actual orders are written in brief notation, giving course change (if any) and direction (port or starboard), plus any acceleration (as a +) or deceleration (as a -). The new final velocity is then written after the order, as reference for the next turn. Most players use the naval convention of Port and Starboard to indicate course changes, but air force enthusiasts may prefer Left and Right.

For example, an order of $P2+4: 12$ would indicate a ship with an initial velocity of 8 making a two point turn to port (P), plus acceleration of 4 MU, with a new final velocity of 12 (8 + 4).

Rolling ships

Although FULL THRUST makes no attempt to simulate 3-dimensional movement or combat there is one simple rule addition that we are including here: the ability to roll a ship 180° on its central axis, thus effectively swapping the port and starboard sides (ie the ship is 'upside down' relative to the other ships on the table). This manoeuvre can be very useful when ships start to lose systems due to damage, as it can allow undamaged weaponry to bear on

targets that would otherwise be on the wrong side of the ship.

To perform a roll, the player simply writes *Roll* in the movement orders for that turn; the roll expends 1 thrust factor which comes off the turning allowance. For example, a thrust-4 ship, normally capable of 2 points of turn, could only turn 1 point if it also rolled that move; but would still be able to use its other two thrust factors to accelerate or decelerate as normal. The roll then occurs at the start of the ship's movement, and a marker is placed by the model to indicate its inverted condition. Rolling has no effect on combat (except that the port batteries now bear to starboard, and vice versa). An inverted ship may roll back 'upright' in any subsequent turn, or may remain inverted as long as the player wishes.

For simplicity of play, we strongly suggest that rolled ships should still have their movement orders written in relation to the actual miniature rather than their theoretical inverted condition – thus an order written for a port turn will still turn the model to the left, even though to the inverted ship this would actually be a starboard turn. Keeping to this convention should avoid a lot of confusion and arguments.

3.4 Special orders

Although not strictly movement orders, certain other actions must be written down as well.

Fighter launch

A ship that is launching fighters cannot use the main drive to perform any manoeuvre; so need only write *Launch*.

All fighter-carrying ships, whether specialised carriers or not, are allowed to launch as many groups per turn as they have operational fighter bays. Fighter recovery (landing) is of necessity a slower process than launching, so any fighter carrying ship may only recover fighter groups equal to half its number of operational bays in any one turn. Launching and recovery operations may both be performed by one ship in the same turn if desired.

When reference is made to 'carriers' in the rules, treat it as meaning any ship that is equipped to carry one or more fighter groups, whether or not that is its primary mission function.

FTL

A ship intending to enter or leave the playing area by FTL drive must write *FTL* as its only order for that turn. As with launching fighters, it may not change course or velocity.

3.5 Ships leaving the table

As there is no maximum speed for any ship (they can theoretically keep accelerating each turn without limit), sometimes a ship may find it impossible to turn enough to avoid flying off the playing area. This is usually considered a retreat from the battle, but as an **optional** rule roll 1 die: on a roll of 1, 2, or 3; the ship may not return to play during the game. A roll of 4, 5, or 6 indicates the ship may re-enter the table after the equivalent number of turns have elapsed (eg 5 turns if a 5 is rolled). Ships will always re-enter play from the same side of the playing area as they left, though the actual point of entry is up to the player.

3.6 Collisions and ramming

The distances represented by the movements and ranges in the game are so vast that the risk of an accidental collision between two ships is incalculably small, and is therefore ignored for all game purposes. (Collisions with asteroids and other large bodies are possible, see the *Terrain* section.) Ships can freely move 'through' both friendly and enemy ships or fighter groups. If two ship models would actually be touching at the end of all movement, they should simply be arranged as closely as possible, to the agreement of both players.

Deliberate attempts to ram another ship are possible in some circumstances, but such suicide attacks should be rarely attempted – crews would not be very keen on officers who ordered such tactics as a matter of routine! Ramming is therefore an **optional rule**.

A player who wishes to attempt a ramming attack writes as part of movement orders that the ship is going to attempt to ram, *and* then rolls a D6 at the end of the movement phase. Only on a roll of 6 may the ramming attempt proceed. (Players may agree that certain scenarios and/or certain races may make ramming attacks more likely, and hence reduce this required die roll for them.)

In order to attempt the ram, the ship must end the movement within 2 MU of the intended target ship (or models touching in the case of large ship models). Only if you succeed in anticipating the enemy move, and then succeed in rolling a 6 as explained above, may the actual ram be attempted.

Both players (attacker and target) roll a D6 each, and add the score to their respective ships thrust ratings. If the attacker ends up with the highest total, the ram is successful. If the targets total is equal or higher, it has evaded the ramming attempt.

When a ram succeeds in making contact, each player rolls another D6 and multiplies the result by the current (remaining) damage points that the ship has. The final result of this is the number of damage points inflicted on the other ship as a result of ramming.

Example: A corvette with 2 of its original 3 damage points left actually succeeds in ramming an undamaged heavy

cruiser with all 16 of its damage points. The corvette player rolls a 4, which inflicts 8 points of damage on the cruiser. The cruiser owner rolls a 3, thus doing 48 points to the corvette. The result is one vaporised corvette, and a badly damaged cruiser.

It will be clear from this example that ramming can be very deadly when it succeeds, small ships are almost certain to be destroyed, and even the largest can be crippled. Players who insist on using this tactic in unrealistic circumstances should be penalised in the most effective way possible: don't let them play again.

3.7 Squadron operations

If you are playing an especially large game, involving several dozen ships per side, perhaps as a multi-player game, there is one simple shortcut you can take to make the game flow more quickly: that is dividing the fleets into squadrons of several ships each, which then move and fight as cohesive units.

Squadron operations are especially suited to groups of smaller escort ships, though there is no reason why major craft should not also operate in this way.

Basically, a squadron of ships all move together, using just one movement order: they all change velocity and course together, remaining in some sort of formation throughout the manoeuvre. The player has only to write the one set of orders for the squadron each turn, rather than ones for each individual ship.

The player plots out the move for one ship in the squadron (which may be the leading ship, or one in the middle of a formation, as desired); all the rest of the squadron are then placed in suitable relative positions to the moved ship, to retain their formation.

Note that this does require a fair degree of tolerance between the players due to the somewhat vague nature of the positioning of ships. If a particular placement is critical to range or arc of fire etc, then we suggest that the affected ship's movement should be carefully plotted as normal. For this reason, squadron movement is not recommended for competitive or tournament play.

As a typical example, if a fleet consisted of four capital ships, six cruisers, and a huge swarm of twenty assorted escorts, it would make the game much quicker if the cruisers operated in perhaps two squadrons of three ships each, while the escorts were divided into maybe three or four squadrons. The capital ships could still operate individually, or if preferred could be grouped into one major "battle squadron" (or even split between the other squadrons to form mixed 'task groups', though in this case each group could obviously only manoeuvre at the rate of its least agile ship).

It is quite possible to device rules to allow firing to be carried out by groups or squadrons in the same way as movement - one possibility is to allow all ships of a squadron to make their attacks at one time, rather than alternating ship by ship as in the normal rules. Just how

far you go with this depends entirely on personal preference and how many ships you are wanting to use.

3.8 Moving table

Earlier we mentioned ships leaving the edge of the table or playing area, and thus leaving the battle. However, as space does not actually have edges, it really should be possible for the entire battle to 'move' off the edge of the playing area and still continue - this may happen if both sides are moving in the same general direction, eg in a pursuit scenario. If you find that all ships in the action are starting to get very close to one end or side of the table, it is a simple matter to move every ship and object in play a certain agreed distance back towards the opposite table edge; effectively you can think of it as extending the playing area under the ships. (All things are relative, as someone once said.) The result is the same as the old boardgame trick of picking up a vacated section of a multi-part map and transferring it over to the other side of the map.

3.9 Disengaging from battle

If you use the moving table in a game, it will become possible to continue pursuit of a fleeing enemy. Under the normal rules a retreating force simply has to leave the table in order to break off combat, but with the moving table the pursuit may go on until one side either catches or outruns the other.

Particularly when playing campaign games, which for obvious reasons are very seldom fought 'to the death', it is advantageous to be able to disengage from battle if things are going badly for you - saving your remaining ships for the next engagement can be much more important than going out in a heroic blaze of glory.

If one player decides to disengage, it is possible to actually play out the full pursuit stage as described above. If, however, this is felt to be too time consuming, there is an alternative abstract method that may be used.

The disengaging player's ships must all move off the table via the same table edge; until the last ship has left the table, the battle will continue as normal. When all the ships are off the table edge, each player rolls a D6. If one player has any ship that has a higher thrust than all opposing ships, then add 2 to the die roll. Eg, if the disengaging player has some thrust-8 escorts while the opposing fleet has nothing with a thrust above 6, the former adds 2 to the roll.

If the final total of the player who is trying to disengage is equal to or higher than their opponent's roll, they have successfully disengaged and are safe from pursuit. If, on the other hand, the opponent's roll is higher, then the pursuing player may elect to continue pursuit; in which case the game continues with a new set-up as a stern chase. The fleeing player may then attempt the disengagement again by leaving the opposite edge of the new playing area.

4 Ship Combat

4.1 Fire Arcs

The 360 degree space around each ship is divided into six arcs, each of 60 degrees. The arcs are indicated in figure 5, and are designated *FORE (F)*, *Fore Starboard (FS)*, *Aft Starboard (AS)*, *Aft (A)*, *Aft Port (AP)*, and *Fore Port (FP)*. The centres and edges of the fire arcs correspond to the course facings used in movement, and can be judged by eye from the hexagonal or clock-face style bases that most players mount their ships on.

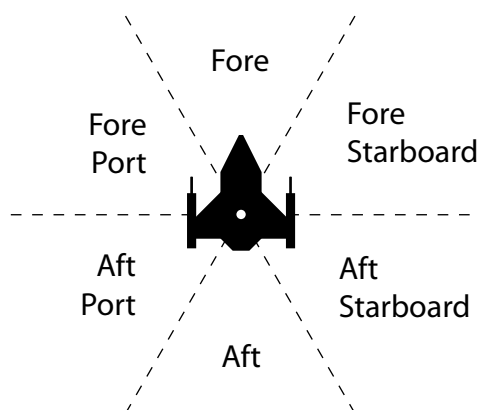


Figure 5: Firing Arcs

These fire arcs determine which of a ship's weapons may be brought to bear on a particular target, as some will be unable to fire through certain arcs. A given target ship may only be in one fire arc of the firing ship. (If the line dividing the arcs passes so nearly through the centre of the target that it is impossible to determine which arc it is in, then decide by a random D6 roll, odds = one arc, evens = the other.)

Note that it is the centre of the model, or the centre of the stand if it is mounted on one, that is used to determine the exact location of the ship itself; all distances and ranges are similarly measured to and from this centre point. Other ships do not block lines of fire – no ship can hide behind another.

All weapons that are capable of bearing through more than one arc have this indicated by putting a ring of six segments around the system icon and blacking-in the segments through which fire is not permitted. (Even though a single weapon is able to bear through eg 3 arcs, it can still only fire once per turn, at a target in any one of those three arcs.)

Weapons or systems that can only bear through one arc have this indicated by the orientation of the system icon on the ship diagram – ensure that it is pointing clearly towards the relevant arc. Systems that have no 'directionality' to their icon, eg PDS, have all-round (6-arc) fire capabilities.

Rear arc

No ship may fire offensive weaponry through its aft arc, this is due to the spatial distortions of the ship's drive fields, which make it impossible to accurately track a distant target through the rear 60° of the ship's arcs. This rule enhances positional play and the use of tactics considerably, making players think much harder about the relative positions of their ships.

Close range defensive systems such as PDS are permitted to fire through the aft arc to engage hostile fighter groups or salvo missiles.

Optional rule: Players may decide to permit aft-arc fire by weapons that are mounted to bear accordingly on any game turn in which the firing ship did not use any thrust from its main drive engines to accelerate or decelerate. Course changes are permitted without affecting fire through any arc.

4.2 Fire control systems

The fire control systems (*FireCons*) of a ship are some of its most important fittings. Each FireCon represents a suite of sensor systems and computer facilities to direct the fire of the ship's offensive weaponry. Without these, ships are unable to locate and track the enemy with the precision required to fire at it.

Each FireCon system permits the ship to engage one target during the firing portion of a turn. Thus if a ship has two FireCon systems operational it can split its fire between two separate targets in one turn if desired; these targets may be in the same or different fire arcs, and fire from the ship's various weapons may be divided in any way between the targets (depending on the arcs through which each weapon may bear, of course). Note that no single weapon may split its dice roll between targets in any circumstances, eg a beam-3 at close range must roll all three dice against the same target ship. Two separate beam-3 weapons may each engage a separate target, provided that two FireCon systems are available.

In general, escort classes each carry a single FireCon as standard, cruisers have two systems, and capital ships have three or more. Merchant ships may have a single system.

Individual FireCon systems are not specifically linked to individual weapon systems. If a ship loses one of its FireCons, the remaining ones may still be used to fire any or all of the ship's weaponry.

Purely defensive weapons, PDS and beams used against fighters or missiles, are assumed to have their own dedicated FireCon equipment built in. They do not require the use of the ship's main FireCon systems in order to engage fighter groups or salvo missiles.

4.3 Beam weapons

The main weapon system used by most ships in the game is an energy weapon, referred to simply as a *beam*. In the background provided for the game in this rulebook, these beam weapons are assumed to be a development of a particle accelerator. If you are using your own background material then the weapon can represent a laser, phaser, blaster, or whatever. Beam weapons can be individual mounts or *batteries* consisting of a number of projectors slaved together under a single control system.

Beams are divided into numerical classes. The class number indicates the number of D6 rolled per shot, minus one die for every full 12 MU in distance to the target.

Example: A class 3 beam rolls 3 D6 at less than 12 MU, 2 at 12-24 MU, and 1 only at 24-36 MU. At ranges greater than 36 MU the weapon is out of range. A class 1 beam rolls 1 D6 at ranges 0-12 MU, and is out of range beyond 12 MU.

For every die rolled, damage is inflicted on an unshielded target ship as follows:

- Every 1, 2, or 3 rolled = no effect. (Either a miss or insignificant surface damage.)
- Every 4 or 5 rolled = 1 damage point to the target.
- Every 6 rolled = 2 damage points inflicted.

These damage levels can be reduced by the use of *screens* on the target ship, as fully explained in section 4.4.

Example: A ship fires at an enemy vessel at a range of 18 MU. The firing ship can bring two beams to bear through the arc containing the target, one beam-3 and one beam-2. (Whether the ship also carries any beam-1 weapons is not relevant to this example, since they would be out of range.) The beam-3 has a firepower of 2 dice at a range of 12-24 and the beam-2 has 1 die at the same range; thus the firepower total against the target is 3 dice. Rolling the 3D6, the firing player scores 1, 5, and 6. This inflicts a total of three points of damage on the target – the 1 is a miss, the 5 does 1 point of damage, and the 6 does 2 points and a re-roll. Note that this example assumes that the target ship does not have any screens to protect it. If, for instance, it had level-2 screens in operation then the damage total for the same dice rolls would be only two, not three – the 6 rolled would do only one point of damage instead of two.

The most common weapon batteries are class 1 (used as secondary defensive armament in most cases, or as a limited offensive system on very small ships), class 2 (primary systems for small/medium ships, and secondary weapons on large classes), and class 3 (the most common primary weapon system for capital ships). Class 4 batteries are occasionally found on very large vessels, and a few forces have experimented with class 5 and above (especially for fixed installation stations) – however the huge size and power requirements for these large systems preclude their general use.

The standard icon for a beam battery is a circle with the battery class inside it. Arcs through which the battery can bear are indicated by a six-segmented circle around the icon.

Each beam on a ship can potentially fire independently of the others, but the total number of different targets that can be engaged during one turn of firing depends on the number of FireCon systems the ship is equipped with.

Re-rolls

Beam weapons are capable of *penetrating damage*. Any roll of six inflicts the usual damage *and* allows a re-roll: roll an extra D6, and apply any further damage that is indicated by the result. The re-rolls ignore any defensive screens or armour and damage is applied directly to the hull. If a re-roll is also a six, then apply the damage and roll again. There is no limit to the number of re-rolls you can make if you keep throwing sixes. (But if you get more than three in a row maybe you should go out and buy a lottery ticket this week!)

If the target ship has screens active, then the effects of the screen are deducted from the initial attack dice as usual (if applicable) but not from the result of any re-roll dice – the re-roll is assumed to have already penetrated the screen, and any further damage is applied directly to the ship itself.

Re-roll damage is applied to armoured ships in a similar manner: any damage from the basic die rolls of an attack is applied to armour boxes on the ship, but if a 6 is rolled then any damage caused by the re-roll die(s) is applied directly to the ship's ordinary hull damage track irrespective of whether it still has armour boxes remaining.

4.4 Defensive screens

These are energy screens which protect against beam weapons fire and some other kinds of damage. The actual degree of protection given depends on the level of screens that the target ship is carrying. Each level is represented on the SSD by a single screen generator icon, so a ship with level-1 screens would have a single screen generator.

If a ship that is protected by screens is fired on by beam weapons (of any class) the damage inflicted by each die is varied as follows:

- For level-1 screens, rolls of 5 inflict one point of damage and rolls of 6 do two points. In other words, ignore any rolls of 4 that would have damaged an unshielded ship.
- With level-2 screens, rolls of 5 and 6 each inflict only one point of damage.

Screens only protect against fire from beams and fighters. Other weapons such as pulse torpedoes and the highly focused energy of needle beams are able to penetrate

screens with no degradation of their damage effects. See the description of each individual weapon system type for whether they are affected by screens.

4.5 Hull armour

Armour may be added to the ship in the form of additional damage boxes that absorb hits before the hull structure begins to take damage. Armour boxes are indicated on the ship diagram as a row of circles to differentiate them from the square boxes of the main damage track, and are placed above the top row of hull boxes. Once the armour is all gone, the ship takes damage to the hull in the normal way.

There is no threshold roll made at the end of the row of armour boxes, but any further damage is applied to the first row of hull boxes.

Some or all of the damage from certain weapons is classed as *armour-piercing*. Half the damage scored by weapons of this type (rounded up) is taken on the armour, and the remainder applied directly to the hull boxes.

Example: A ship with 8 armour boxes is struck by three salvo missiles that roll 1,4, and 4 for a total of 9 points of damage. Half rounded up (5) is taken on the armour; the remaining 4 points applied to the hull. Another ship then hits with beams for 7 more damage points: before the missiles all would have been absorbed by the armour, but there are only 3 boxes left so the other 4 are applied to the hull.

Penetrating damage from re-rolls bypasses armour boxes and is applied to hull boxes directly, even if there are intact armour boxes left.

4.6 Threshold points

As a ship takes damage from incoming fire, there is a chance that some of the ship's specific systems (drives, weapons, etc) will be damaged or destroyed.

To avoid having to roll for possible 'critical hits' every time damage is inflicted we instead use the idea of *threshold points* at which the players will check to see if each system on the ship is still functioning. A threshold point occurs each time the accumulated damage points reach (or pass) the end of one row of hull boxes on the ship's damage track. At this point, the player must roll one D6 for each system on the ship (except for any already destroyed).

At the *first* threshold point (the end of the first row of hull boxes), any system for which a 1 is rolled is knocked out. At the second threshold point (end of the second row) a system is lost on a roll of 1 or 2; at the third on a roll of 1, 2, or 3. (No threshold checks need to be made at the end of the last hull row, since the ship is considered to be destroyed!)

If a ship suffers enough damage in a single attack to push it over more than one threshold check, make only one

check (for the last row destroyed) but subtract 1 from each die roll for each extra threshold point passed in that attack.

As each system is knocked out as a result of a threshold point check it is crossed off the diagram, with the exception of the ship's main drive system. When the drive first suffers a 'destroyed' roll on a threshold check it is reduced to half the original thrust rating. If is then hit a second time on a subsequent threshold check, it is disabled completely.

4.7 Pulse torpedoes

A pulse torpedo launcher fires a bolt of plasma contained within a gravitic field, which is able to punch through screens and cause significant damage to any target.

Pulse torpedoes have a maximum range of 30 MU. One D6 is rolled per torpedo fired, and hits are scored on the following rolls:

At range of	Score to hit
0-6 MU	2
6-12 MU	3
12-18 MU	4
18-24 MU	5
24-30 MU	6

Screens do not affect pulse torpedoes.

Damage per hit is 1D6, and no re-roll is applied to scores of 6. Pulse torpedoes are *armour-piercing*: if the target is armoured, then half the damage scored (rounded up) is taken on the armour, and the remainder applied directly to the hull boxes.

4.8 Needle beams

A needle beam is a short range energy beam projector with a tightly focused output and very accurate targeting systems. While it is not able to do the structural damage of a main-gun beam, it is used as a 'sniping' weapon to pick out individual systems on the target vessel – to knock out drives, weapon mounts, FireCon sensor arrays, and so on.

The maximum range of a needle beam is 12 MU. Within this range the firing player may nominate any one specific system on the target, and attempt to kill it with the needle shot. Once the target is nominated, roll 1D6. On a score of 6, the targeted system is knocked out and 1 damage point is applied to hull boxes. On a score of 5, the target system is unaffected but 1 damage point is still inflicted on the hull. Rolls of 1-4 have no effect. Needle beams are *penetrating* weapons: ignore both screens and armour.

A functioning FireCon system is necessary to fire a needle beam, and may only direct needle beams at *one* specific system on the target. If a ship was firing two needle beams at an enemy and both were targeted on the enemy drive, then only the one FireCon would be needed for the

two shots. If however one needle beam fires at the drive and the other at a weapon, the firing ship would need two FireCons to make this attack.

A FireCon that is being used to direct a needle beam attack may not be used to fire other weapons at the same time, even if they are firing at the same target ship.

Note that, as with threshold point damage rolls, a needle hit on a ship's drive does not automatically destroy the drive. The first such hit reduces the ship to half thrust capability, and a second hit knocks the drive out altogether.

4.9 Submunition packs

Submunitions are one-shot packs of short range unguided 'scatter' missiles, which are often used to give smaller ships a cost-effective punch against larger vessels. Each pack represents a single cluster of missiles that are fired as a single salvo, all aimed at the one target. When the pack has been fired it is crossed off the ship's SSD and it may not be used again.

The maximum range of a submunition pack is 18 MU. The number of dice rolled depends on the range:

- At a range of 0-6 MU, 3D6
- At 6-12 MU, 2D6
- At 12-18 MU, one D6.

Damage points are scored from these dice rolls just as for beam weapon fire: 1, 2, 3 = no damage; 4, 5 = 1 damage point; 6 = 2 damage points and a re-roll.

Screen systems do not protect against the effects of submunition attacks: the full damage is inflicted whether or not the ship is screened.

4.10 Introductory scenario

This is a very simple, quick scenario designed to allow players to familiarise themselves with the basic mechanics of movement and combat in the game. The two forces involved are evenly balanced and the situation is a simple 'meeting engagement' between two fleets. Victory goes to the player who survives longest or who persuades the enemy to flee the table.

This first scenario can be played using just the core rules covered so far, and on page 52 you will find a full set of counters you can copy and cut out to represent the ships used in the battle, so you can set up and play almost immediately without needing any ship models.

Each player has the following forces:

Two cruisers, each with a thrust rating of 4, armed with three class-2 beams, two class-1 beams, defended with level-1 screen and grade 3 armour. They also have two PDS, though these will play no part in this scenario as there are no fighters or missiles. Each cruiser has 14 damage points.

Three frigates, each with a thrust rating of 6, armed with two class-2 and two class-1 beams, and a PDS which again will not be used. Each frigate has 7 damage points.

SSDs for these ships are also on page 52.

(For the curious, you can find these ships in FLEET BOOK 1.)

All you need to do is photocopy that page twice (one copy for each player) and fill in names for your ships if you desire. (You may wish to glue the ship counters onto some heavier card to stop them moving too easily by accident.) The game is then ready for play.

The opposing fleets enter the table from opposite ends, with all ships moving at an initial velocity of 6. (ie moving 6 MU per turn.) The action from then on is up to you!

Once you have played through this small battle, read the rest of the rules and then try the same battle again with some different weapons – experiment with giving the cruisers a pulse torpedo or needle beam, or allow each side to use a fighter group or two. (Assume the fighters are based at an off-table orbital installation).

5 Fighters

Fighters are small combat craft that are not themselves FTL-capable; they are carried between stars by larger ships, either specialised fighter carriers or some of the larger ship classes.

Fighters operate in *groups* of 1 to 6 craft, with each group moving and firing as a single unit. As fighters are lost from the group, the player must record the losses by whatever method is most suitable to the way the fighter group is represented on the table. Either individual fighter models can be removed from the group stand, or a small D6 or counter can be used to indicate the current strength of the group.

Fighter groups may be *launched* from a carrier or mothership in any turn, but to do so the carrier must not make any changes to either course or velocity in that turn.

Recovery ('landing' of fighters back on their carrier) is similar to launching: the carrier must move at a constant course and velocity for that turn and the fighter group must be moved so that it meets the carrier at the end of the movement.

As fighters are very small craft, it is reasonable to assume that they will carry only a limited amount of fuel, ammunition and even life-support for their crew. They will not be capable of prolonged operation away from their carrier or base, but rather are launched for a specific mission or attack and will return quickly to the carrier following completion of the mission. The endurance limit is six *Combat Endurance Factors*, CEF, per standard fighter group.

5.1 Movement

All fighter groups should be moved after the players have written their movement orders for their ships, but before the ships are actually moved.

If a fighter group then ends up with an enemy ship within 6 MU and in the forward arc after ship movement, it may attack. This forces players to try and predict at least roughly where the enemy is going to be, in order to position their fighters effectively – thus simulating the fact that although fighters are very fast and highly manoeuvrable (hence the abstract nature of their movement, without orders or course/velocity recording) they have limited fuel reserves for extended travel and must therefore try to predict 'intercept' trajectories to get them close to their intended prey.

Standard fighter groups have a maximum move distance of 24 MU. Fighter group movement is performed after both players have written their ship movement orders, but before the ships are actually moved and before placing markers for salvo missile fire.

Players alternate in moving one fighter group each until all have been moved (if desired), with the player who lost initiative for this turn moving first.

If the optional pilot quality rules are being used, both players must move all their turkey groups before any normal ones, and all normal groups before any that include aces.

Once all ship movement has been made, players have the option of making a secondary move with any fighter groups they wish, of up to 12 MU. As with the basic move, this can be in any direction up to the maximum 12 MU, even if the group moved its full 24 MU in the primary move phase. Any fighter group that makes this secondary move loses 1 CEF. The secondary move may be used to bring a group into contact with a target that would otherwise have evaded it, or in some cases to get them out of trouble – but it may not be taken if the group has already been engaged in a dogfight by another group.

Whoever lost initiative and moved first in the main fighter move phase must also move first in the secondary move phase.

Example: In figure 6 one of player A's standard fighter groups is moved 20 MU in the main fighter movement phase, being placed in a position that A hopes will allow it to intercept one of B's ships. Following the fighter movement, player B fires a missile salvo and places its counter in a position that will threaten one of A's ships after it has moved. Both A and B now move their ships in accordance with their orders. Player A sees that the fighter group is now out of position to attack its intended target (B having anticipated well and changed course), but by taking a secondary move with the group then it could either follow its original target or it could move to intercept the salvo that is attacking A's ship. A has a free choice as to which option to take (if any), but if A chooses to move the fighter group then 1 turns worth of combat endurance for the group must be marked off to represent the additional fuel it has consumed to make the intercept.

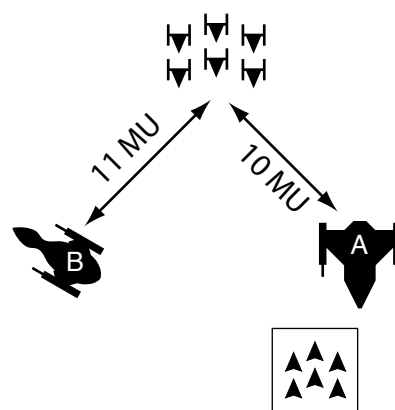


Figure 6: Fighter Secondary Move

5.2 Attacks

A fighter group may attack any ship within 6 MU and within the fore arc of the group at the end of the secondary movement phase, indicated by moving the fighter group into contact. All fighters in the group must engage the same target ship.

(After defensive fire the group may have to make a successful *morale* check to carry out the attack.)

Standard fighters are armed with a single weapon equivalent to a beam-1 in effect. Roll 1D6 per remaining fighter in the group. Hits and damage are scored per die, using the same results as beam weapon fire: a roll of 4 or 5 inflicts one damage point, a roll of 6 two damage points and a re-roll. Screens protect against fighter weapons fire.

5.3 Anti-fighter defences

Point defence systems

Each point defence system (PDS) on a ship may fire once per turn, either as an anti-fighter or anti-missile defence weapon. Roll 1D6 per PDS: scores of 1-3 have no effect, 4 and 5 each kill one fighter, while a 6 kills two and allows a re-roll (same results apply to re-rolled scores). All PDS batteries on a ship must have targets allocated to them before any of the effects are rolled for, and 'wasted' shots may not be reallocated to other targets.

Class-1 beams

Instead of firing in an offensive role, class-1 beam systems may act as secondary point defence systems against fighters or missiles. In this role they fire as for a PDS, but rolls of 1-4 are misses, while 5 or 6 each kill one fighter. A 6 allows a re-roll as usual. If used in the PD role, a class-1 battery may not fire offensively in the same turn. Only class-1 beams are usable in this way – larger beam batteries are not capable of the fast response times necessary for the role. Class-1 beam batteries may not be used in an area defence role, even if an ADFC is available.

Area-defence fire control

An ADFC is an enhanced anti-fighter/anti-missile fire control system that allows a ship to protect other nearby ships with fire from its own PDS. One ADFC allows the ship's PDS (any number of them) to fire at any combination of threats (fighters, salvo missiles, etc) that are directly attacking one other ship that is within 6 MU of the ADFC carrying ship. Ships with multiple ADFCs may divide their PDS fire to protect as many ships as the number of operational ADFCs, but each PDS may only be fired once per turn. PDS used in area defence mode roll dice and score kills exactly as normal PDS fire.

An ADFC functions only as an enhanced PDS fire-director link, and may not be used as a normal fire control.

Example: In figure 7, ship A is under attack by fighter group X which is 2 MU away. Fighter group Y could attack ship B but has chosen not to, and Z is too far away. Ship B is carrying PDS and an ADFC, while ship A has PDS only. Ship A can engage fighter group X with its own PDS. Ship B can also engage fighter group X, as although the fighters are more than 6 MU away, they are currently attacking a ship which is within ship B's protective ADFC range of 6 MU. Fighter groups Y and Z are safe from being fired on, as neither is presently attacking anything.

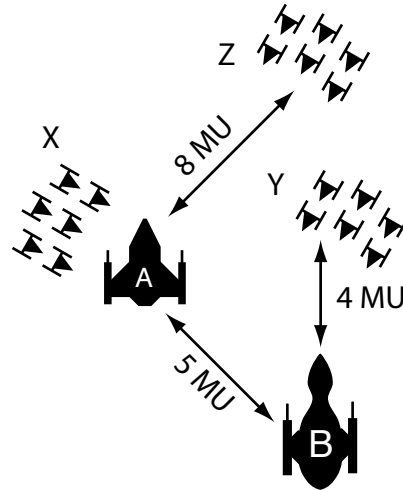


Figure 7: Fighter Defence

5.4 Fighter to fighter combat

If a fighter group is within range and arc of an enemy group then it may attack the enemy fighters exactly as it would an enemy warship, by moving into contact. No morale check is needed to attack other fighters.

The two groups then 'dogfight': both groups may fire, and all fire within the dogfight is considered simultaneous. Roll 1D6 per fighter and inflict casualties as for beam-1 fire against an unscreened target.

If one player moves a group into base contact with an enemy group, and the opponent does not wish to engage in the dogfight, the group may move away provided it has not already moved that turn; if it does this, however, the attacking group gets a free round of attack rolls before contact is broken.

When fighters are engaged in a dogfight, none of them may fire their weapons at any other targets outside the dogfight; similarly other ships or fighters may not fire into the dogfight, for fear of hitting their own side's fighters.

Example: Player A moves a group of 5 fighters into contact with an enemy group of 4 fighters which has already taken its movement for that turn. As player B's group cannot evade, it is forced to engage in a dogfight. Player A rolls

5 dice, scoring 2,2,6,4,1 and therefore getting three kills. (One with the 4, two with the 6.) In retaliation, player B rolls 4 dice – combat in dogfights is simultaneous, so all four fighters get to engage even though three have been hit – and scores 3,1,5,5 for two kills. (One with each 5.) Both players now remove the lost fighters, leaving A with three and B with only one. In the following turn, either player may elect to break off the dogfight, or both may decide to continue. If B's lone surviving fighter breaks and tries to run, the three of A's group may immediately take a parting shot at it, which the retreating fighter cannot retaliate to. Note that this shot counts as A's firing for that turn with that particular fighter group – they may then move, but may not fire at anything else that turn.

Multiple group dogfights

There will be cases, especially when fighters are screening larger ships, where multiple group dogfight situations (known to fighter pilots as 'furballs') may occur. In such combats, all groups engaged in the dogfight may fire only once per turn, but may choose to attack just one enemy group or to split their kills between two or more enemy groups. If the player chooses to split fire, the dice are rolled as normal and the casualties then divided as equally as possible between the relevant groups.

5.5 Fighter screens

Fighter groups may be assigned as close escorts for larger ships, specifically to ward off enemy fighter attacks on that ship. When used in this role, the fighter group is said to be acting as a 'fighter screen' for the ship it is escorting. When assigned as a fighter screen, the fighter group must remain within 3 MU of the ship it is escorting at all times – if it is moved further away then it has broken off from its escorting duties and no longer functions in a screening role. A fighter screen (which may be a single group or several) always moves at the same time as the ship it is screening, rather than being moved in the normal fighter movement phase. Screening fighters can exceed the normal fighter movement allowance if the ship they are screening is moving faster than the fighters could normally move.

Whenever a ship that is being escorted by a fighter screen comes under attack from enemy fighters, the attacking group(s) must engage the screening fighters using the dogfighting rules instead of attacking the ship in that turn. Each group of screening fighters must be engaged by at least one attacking fighter group, but once this condition has been satisfied any further uncommitted attacking groups may fire on the escorted ship.

Example: A NAC transport ship is being escorted by a screen of 3 groups of fighters. 4 groups of ESU fighters move to attack the transport – three of them must 'pair off' against the three groups of screening fighters and engage them in dogfights, while the fourth is thus free to attack the ship directly. The ESU player could prefer to instead allocate all four groups against the screening fighters (two onto one, and one each onto the other two) in an attempt

to destroy as many as possible, leaving the transport without fighter cover for the rest of the game.

Attacking fighter groups that are forced to engage screening fighters may not then attack the ship in the same turn, even if they defeat all the fighters in the screen. They will have to try to follow the ship and attack it in the following turn if they wish to. (Though if all the screening groups are engaged by other groups, then any excess attackers may of course attack the ship in that turn while the defenders are occupied.) While they survive, screening fighters are very useful for keeping attacks away from lightly protected shipping.

5.6 Interception of missiles

A fighter group may attempt to intercept and engage any missile salvo that is within 6 MU of it at the end of either the fighter's main or secondary movement. Simply move the group up to the missile counter, and roll one D6 for each fighter. One missile from the salvo is destroyed for each 5 or 6 scored by the fighters (scores of 6 allow re-rolls). The missiles cannot actually fight back or target the fighters, but for each missile that is hit roll 1 D6. On a roll of 6 (no re-roll) then a fighter is lost by being caught in the blast of the destroyed missile. (Trying to take out missiles is a tricky and dangerous job at high speeds and very close quarters.)

5.7 Endurance

A group will use up 1 CEF each turn it engages in combat, whether attacking a ship, another fighter group, or being attacked itself. A fighter group also uses 1 CEF every time it makes a secondary move. Normal movement during the main fighter movement phase does not consume combat endurance factors.

When all combat endurance is exhausted, the group may still move normally (though it may make no secondary moves) but may not make any attacks. There is no time limit on a group returning to its carrier after exhausting its CEF. A group that is engaged in a dogfight by an enemy group after exhausting its CEF may return fire, but only scores one kill on rolls of 6.

5.8 Morale

A fighter group is a collection of individual pilots and their craft, and as such is much less predictable in its actions than a single ship with a captain and crew. If there are only two fighters left out of a group of six, it is by no means certain that they will press home an attack on a battleship that is spitting flak at them – they may well decide that it is a lot safer somewhere else!

To simulate this dropping of morale when suffering losses, simply roll a single D6 before making an attack with any fighter group that has lost one or more members. If the roll is less than or equal to the number of fighters remaining in the group, they may carry through

the attack. If the roll is greater than the number of fighters left, they abort this attack and do not fire. If an attack is aborted the group remains in position and may freely move or attempt to attack again in the next turn.

Note that any group that fails an attack roll is not considered to have expended combat endurance for that turn, as they never went through with the attack.

Any fighter group that contains an ace pilot may subtract one from all morale rolls, giving it a greater chance of success. Any group classed as a turkey group always adds one to the die roll.

5.9 Specialised types

Fighters are assumed to be good average, basic types – moderately fast, with reasonable anti-ship and anti-fighter capabilities; an all-round ‘multi-mission’ type of craft. Standard multi-role fighters cost 18 points per group of 6, 3 points per fighter.

The rules that follow modify fighters into rather more specialised or improved types.

Fast fighters

While normal fighters have a movement allowance of 24 MU per turn, fast fighters have more powerful drives giving them a movement of 36 MU per turn; they still have a limit of 12 MU for secondary moves.

A group of 6 fast fighters costs a total of 24 points, 4 points each.

Heavy fighters

Heavy fighters have the same offensive and drive capabilities as normal fighters, but are better protected against attack by armoured hulls, heavier structural components, etc. When heavy fighters are attacked by PDS point defence fire or other fighters, rolls of 4 have no effect. Standard fighters and PDS will therefore inflict only 1 casualty on an original roll of 5, 2 casualties on a roll of 6 and a re-roll.

A group of 6 heavy fighters costs 30 points, 5 points each.

Interceptors

The interceptor is a specialised type of fighter with no effective anti-ship capability, but optimised for anti-fighter performance. Interceptors may only fire against other fighter groups or missiles, not ships or installations. When they make such an attack they may add 1 to all die roll results – thus they kill one normal fighter on a roll of 3 or 4, two on rolls of 5 or 6.

When themselves attacked, either by fighters or point defence, they take casualties normally.

An interceptor group costs the same as a standard multi-role group, 18 points or 3 points each, as they are trading

off their anti-ship capability for their enhanced dogfighting.

Attack fighters

Specialised attack fighters are really the opposite of interceptors – they have very little ability to engage other fighters, but carry increased weaponry loads for anti-ship missions. When in a dogfight with an enemy fighter group of any kind, attack fighters only hit and kill opposing fighters with rolls of 6, which destroy one fighter only. When engaging other ships, however, attack fighters add 1 to all their die rolls other than 6, ie if firing on an un-screened target ship they would inflict one damage point with rolls of 3 or 4, and two damage points with 5 or 6.

Because anti-ship capabilities are usually of more importance in the game than dogfighting, an attack fighter group costs 24 points, 4 per fighter.

Long range fighters

While normal fighters have six combat endurance factors, a long range group has nine CEFs due to additional fuel tanks, life support, ammunition, etc.

A long range fighter group costs 24 points, 4 per fighter.

Torpedo fighters

These are a further specialisation of the attack fighter, carrying a heavy single shot anti-ship weapon on each fighter. When the group attacks an enemy ship, roll once per fighter to see how many hits are scored. Each fighter needs a roll of 4 or more to score a hit, and those hits that hit inflict damage equal to the die roll. A roll of 1-3 is a miss, but 4 = 4 DP, 5 = 5 DP, and 6 = 6 DP. No re-rolls are made on 6. Damage is applied half (rounded up) to armour if any, half to hull.

The group may only attack once in this manner, and for simplicity assume that all the fighters in the group will attack the same target at the same time – it is not permitted to fire just some of the group and save the others for a later attack. (Unless of course you wish to agree this between yourselves, and work out the necessary record keeping.) Once the group has expended its ‘torpedoes’ it may then only fight in the same limited anti-fighter mode as for attack fighters (needing rolls of 6 for one kill) and may not make any further attacks against enemy ships. The torpedo fighter group is thus very much a one-shot weapon, but a potentially extremely powerful one.

A torpedo fighter group costs 36 points, 6 per fighter.

When using specialised fighter groups, use the normal hangar icon for the ship SSD, but add the appropriate letter for the fighter type: an H for heavy fighters, T for torpedo, etc.

Note that all fighter groups, regardless of type, have the same mass and hangar space requirements in the carrier or mothership, and operate under all the normal rules for launching, recovery, and turn sequence.

5.10 Pilot quality

The pilot quality rules are **optional**.

While most fighter groups are classed as average in pilot performance, you do get the occasional outstanding pilot – the *Ace*. At the other end of the scale you have the really raw, inexperienced, or just plain bad pilots – the *turkeys*.

An Ace is an individual, the crack pilot attached to an otherwise average group. Turkeys, on the other hand, tend to come in flocks: the whole group may be classed as a turkey group due to low experience, poor training or a multitude of other factors.

If you wish to allow aces to be bought with points, then by all means do so. We would recommend, however, that a random roll is made for each fighter group in a fleet at the start of the game or campaign. If a 6 is rolled, the group contains an ace. A roll of 1 indicates that the group is a turkey group. Rolls of 2-5 give normal, average groups.

Using aces

Fighter groups with an ace pilot make their initial launch move after all turkey or normal groups launching in that game turn; and from then on the fighter group moves after all turkey or normal groups have been moved.

If an ace pilot is present in a fighter group, the group gets one extra die during all normal attacks, so a full strength group of six fighters including an ace would roll seven dice instead of the usual six. The presence of the ace also affects group morale, subtracting one from all morale rolls.

The ace pilot also has the ability to make one specific system attack per turn if wished: when the group attacks a ship, while the other members of the group attack as normal for fighters with one die each, the ace may choose to attack as a needle beam instead. In this case the ace may choose to target one specific system on the ship being attacked, rolling just one D6 and treating the attack just as for a needle beam shot.

Note that in this case the rest of the group does not get the extra die that the ace would normally contribute towards the attack. A group with five remaining fighters including an ace could choose to either attack normally with six dice, or to have the four average pilots attack normally with 4 dice while the ace attacks a specific system with just one die roll.

This option also extends to dogfighting between fighter groups. An ace may either add an extra die to the group's overall attack, or may choose to specifically target an opposing ace if there is one present in the other group, in which case roll just one die as normal.

For simplicity, we assume that in normal combat the ace in a group will always be the last fighter left surviving, after all he/she is supposed to be the best, and getting the hero killed in the first dogfight is not good space opera! The only case in which an ace may be killed before other

members of the group is if specifically targeted by an opposing ace in an enemy group, in the best movie traditions. (Lukewarm Jaywalker ignores the rest of the Imperial fighters, and goes straight for the ship of his arch enemy Duck Wader...)

The trouble with turkeys

Any group unlucky enough to be classed as a turkey group must always add 1 to its morale rolls as mentioned above.

Turkey groups attack ships as normal (such attacks are largely computerised anyway), but when they are engaged in a dogfight with other fighters they modify their attack rolls by subtracting 1 from every die roll they make.

Turkey groups must launch and move before all non-turkey groups in the same game turn.

5.11 Re-arming

This rule is **optional**, and may be used or amended to choice according to the background you wish to use and the timescale that you prefer a game turn to reflect.

When a fighter group is recovered by its carrier, roll 1 D6. On a score of 1, the group may not be re-launched in this game (severe damage to returning fighters, crew fatigue, etc). On 2-5 the group will be patched up, refuelled, and rearmed after 1 full turn, so it may re-launch in the second turn after recovery. On a 6, the group makes a crash turnaround and may re-launch on the turn immediately following that of recovery.

If depleted groups are combined to make full strength ones, roll for each partial group and the worst case result applies to the entire new group.

6 Salvo Missiles

The *salvo missile* (SM) system is either a set of launch tubes or external racks that fire groups of six relatively small anti-ship missiles, each group being termed a *salvo*. The missiles are only one turn duration. Each SM system may fire one missile salvo each turn.

There are two types of missile salvo available: standard SMs and enhanced range (ER) SMs. Both types work in the same way, but the ER missiles have (as their name implies) a greater range than the standard types, and cost proportionally more.

6.1 Firing

Missile fire occurs in the same phase as fighter group movement, that is after orders are written but before ships are moved. The firing player announces the launch of a missile salvo, and places a salvo counter at the intended point of aim. This may be anywhere up to a maximum range of 24 MU from the firing ship, or 36 MU for an enhanced range missile salvo, but must be within the boundaries of the fire arcs through which the SM system may bear. The marker is left in place while all ships are moved.

If at the end of the movement there is an enemy ship within 6 MU of the marker (in any direction) then the missiles will attack it. If there is more than one potential enemy target within 6 MU then the salvo will go for the closest of them. Move the missile salvo marker next to the target ship and apply countermeasures/defences before resolving missile hits. Note that if there is no valid target within 6 MU at the end of movement, the salvo is wasted and the counter removed from play.

Optional If you choose to use the vector movement system instead of the standard cinematic movement rules, then we strongly suggest reducing the attack radius of salvo missiles from 6 MU to 3 MU – this will prevent the missiles becoming too accurate against the more predictable manoeuvre envelope of a vector movement ship. If a particular scenario calls for the mixing of vector and cinematic movement ships, then allows missiles to attack if within 6 MU of a cinematic drive ship but only within 3 MU of a vector drive ship. If you want some PSB to justify this, then assume that the gravitic drive cinematic movement ships have a higher drive signature for the missiles to home on than the reaction drives of the vector movement ships.

6.2 Defence

When resolving SM system fire, the target player must first decide what defences to allocate against each missile salvo. After this is announced the attacking player rolls a D6 for each salvo marker: the result is the number of missiles in the salvo that are actually on target. The target player then resolves defensive fire as follows:

For each point defence system (PDS) that is allocated to anti-missile defence roll a D6. Rolls of 4 and 5 each ‘kill’ one missile; rolls of 6 kill two and a re-roll.

For each beam-1 or screening fighter that is allocated to anti-missile defence roll a D6. Rolls of 5 kill one missile; rolls of 6 kill one missile and a re-roll.

Note that this is the roll per fighter in screening groups, so a full strength group will roll 6 dice, killing a missile on each 5 or 6 scored. For each missile killing by a fighter roll an additional D6: on a roll of 6 the fighter is destroyed as well.

After subtracting any missiles that are intercepted from the score that the attacker rolled, any positive number is the number of missiles that actually get through the defences and hit the target. If defensive fire killed more missiles than were in the salvo then the extras are ‘overkill’, they cannot be allocated to other salvos. If there are no defences at all then at least one missile will always get through.

6.3 Damage

For each missile in the salvo that reaches the target ship, roll 1 D6, the number rolled is the number of damage points inflicted. Rolls of 6 score 6 damage points but do not get a re-roll. Screen systems do not reduce missile damage. If the target is protected by armour, then half of the total damage (rounded up) done by the salvo is taken on the armour, and the remainder on the hull. Missiles that get through the defences are deadly, so try and stop them if you can!

Example: Two missile salvos are fired at a single target ship. The ship has the following systems that can defend it against missile fire: one point defence battery (PDS) and two beam-1 batteries that can function in a defensive role. Before the defender knows exactly how many missiles will actually strike home, the ship's captain has to decide how to allocate defences.

The defender chooses to use the PDS alone against one incoming salvo, and the 2 beam-1 batteries to combine fire against the second salvo. The attacking player now rolls for each missile salvo. For the first the roll is 2, but the second is luckier and rolls 5.

The first salvo has only two missiles on target, and the defending player rolls the PDS die and gets a 6, thus shooting them both down. (There would be a re-roll for the six, but there is no point as both target missiles are already stopped.) For the second salvo with five missiles incoming, the defender gets to roll 2 dice for the 2 beam-1 batteries, and rolls a 4 and a 6. The 6 allows a re-roll, but this only gets a 2. So the defender has killed only one incoming missile from this salvo of five.

The end result is that four missiles of the second salvo get past all the defences, and deliver their warheads in a blaze of energy. A D6 is rolled for each of them, scoring 3, 1, 3, and 6; missile hits don't re-roll so this gives a grand total of 13 damage points to the target ship. Enough to cripple

a smaller warship and cause serious harm to even a large one. If the ship has seven boxes or more of armour, half of the total missile damage (rounded up) will be taken on the armour and the remaining 6 on the hull boxes.

6.4 Mountings and magazines

Salvo missile systems come in two types: reloadable launching tubes, denoted *salvo missile launchers* or *SML*, which are fed from an internal missile magazine; and externally carried single missile launchers, *salvo missile racks* or *SMR*.

One SML may fire one salvo per turn provided ammunition is left in the magazine. One SMR may fire its salvo load at any time, but is then empty until replenished after the battle from a base or fleet auxiliary. SMRs provide the cheapest 'maximum throw weight' since every missile on the ship may be fired at the same time if desired. For extended operations, however, one or two conventional launchers backed up by a good magazine capacity is the most flexible and cost-effective solution.

In general, SMRs tend to be fitted to smaller craft where the saving in mass is critical (and the ship may well not survive long enough to fire more than one or two salvos anyway!), while SMLs and magazines are used more on larger classes which need sustained fire capacity.

Example: Fitting one SMR (assuming standard missiles) takes 4 mass, as opposed to the 5 mass needed for an SML with the same one missile magazine, however one SML with a 2 salvo magazine takes only 7 mass against the 8 needed for a pair of SMRs. The ship with the single SML and magazine can only fire one salvo per turn, while the twin SMR ship can fire both at once.

As the weapon load increases, the difference becomes more significant still – if you had 40 mass available on a very large warship, you could if desired fit 10 SMRs and be able to deliver all ten salvos simultaneously, but the same 40 mass would allow you to fit four SML tubes and a 14 salvo magazine to feed them.

6.5 Magazine capacity

The mass allocated to magazine space during a ship's design stage may be broken down into separate magazines at the designer's discretion, but with the following important limitation: any one launcher system may only be fed from one magazine, though a single magazine may feed more than one launcher. Thus if a ship has 2 SMLs and 8 mass of magazine space, the designer may decide to fit just a single 8 space magazine feeding both launchers, or could give each launcher its own 4 space magazine instead; as shown in figure 8.

The disadvantage of the single magazine is that all the SM capability could be lost with one bad threshold roll (as one magazine is rolled for as a single system, regardless of its capacity or the number of salvo loads in it); on the other hand, with two smaller magazines the player does not have the option to feed missiles to either launcher –

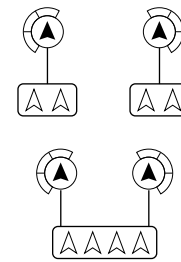


Figure 8: SMLs and magazines

if one launcher is lost while it still has missiles in its dedicated magazine, those missiles are useless, they cannot be fired by another undamaged launcher that was not originally fed from that magazine.

The intended type of loadout is another factor to consider when installing missile magazines. In the example above, the ship with a single mass 8 magazine could choose its loadout as 4 standard salvos, or 1 standard and 2 ER salvos. (A 2 standard and 1 ER loadout is also allowed, but wastes 1 space in the magazine.) If the same ship had 2 mass 4 magazines, however, carrying any ER salvos would be much less efficient as the spare space in each magazine would be wasted.

The SM magazine icon is a box linked by lines to the SM launcher(s) it feeds. The number of salvos carried in the magazine is indicated by small arrowhead icons within the box which are crossed off as they are fired. For a standard SM salvo leave the arrowhead white, and for an ER salvo shade it in black. SM racks, on the other hand, have either a white or black icon according to the load carried.

The ship designs in the fleet books assume standard salvo loads in the magazines. If you wish to load a ship with ER salvos then shade in the required number of salvo icons and delete any excess – if a ship design shows 3 standard salvo icons in a mass 6 magazine and you wish to use 2 ER salvos instead, shade two icons black and cross off the third one.

7 Threshold Points

7.1 Damage to systems

Each screen generator on a ship is considered a separate system when checking for system damage at threshold points, and may be knocked out individually either by threshold damage or needle beam weapons. If a ship with screen level-2 has to make a threshold damage check and loses one of its screen systems, it drops to level-1 screen.

Ships carrying fighter groups have their hangar bays rolled for just as for any other system. When a fighter bay is knocked out any fighters still aboard that bay are lost, and the fighter bay can no longer recover fighters that are in flight. For example, if a fleet carrier has launched its full fighter complement and then loses two of its six fighter bays in a threshold point check, then if all six groups make it back two of the groups will not be able to land! (Though the individual fighters may take spaces in other bays available due to losses in other groups – basically the loss of a bay simply reduces the carrier's capacity by six individual fighters.)

Salvo missile systems roll separately for each launcher and magazine. If a magazine is destroyed by a threshold check it cannot be repaired: all the missiles are considered lost.

7.2 Core systems

This is an **optional rule**.

While weapons, fire control sensors, and screen emitters are all surface features on most ships and thus are very vulnerable to incoming fire, there are certain vital systems that are usually buried deep within the ships hull. These are the *core* systems and consist of the *Command Bridge* (which also includes computer systems, electronics, etc), the *Power Core*, and the *Life Support System*.

These three systems are grouped together on the ship system status display, with a box drawn around them. Whenever the ship reaches a threshold point, the systems within the core box are each rolled for but at -1 to the current threshold number – thus at the first threshold point, where systems are lost on rolls of 1 only, the core systems do not need to be rolled for. At the second threshold point, where normal systems go down on rolls of 1 or 2, the core systems are only hit on rolls of 1, and so on for subsequent threshold points.

The core systems do not need to have mass allocated to them during the ship design phase: they are assumed to be part of the essential structure of all ships.

If using needle beams, the core systems may not be targeted by these weapons. Needle beams may only fire at surface features on the ship such as weapons, sensors, or drives.

The core system rules are entirely optional: if you do not wish to use them, simply ignore the systems within the core box on the ship SSDs.

Command bridge

If the command bridge takes a hit, then a further D6 roll is made immediately. If the roll is 1 to 5, then the ship is 'out of control' for that number of turns, until command can be restored through backup links and secondary command systems. If the roll is a 6, then the ship is permanently out of control for the duration of the game.

While a ship is out of control it will continue on its present course and velocity, and may not fire weapons, launch fighters, or take any other offensive action. Passive defences (screens, armour) are still operational, though active defences (PDS) are not. Once control is regained after the number of turns indicated by the die roll or a successful repair roll, all undamaged systems come back on line.

Damage control parties may be used on any turn to try and restore control earlier, using the normal damage control rules for the bridge 'system'.

Power core hit

If the power core takes a hit, it is damaged and may 'go critical' and explode. It continues to supply power for the ship, but the safety systems that control it are damaged or destroyed.

At the end of each turn the player must roll a D6: on a 5 or 6, the core explodes and destroys the ship. Damage control parties may be used as normal to try and stabilise the power core – such attempts are made before the roll for explosion for that turn, and success will bring the core back under control and negate any further effects. Each turn, before rolling the die, the player may make a choice: 'dump the core' or abandon ship.

Dumping the core avoids the risk of explosion, but leaves the ship without power for anything but emergency life support – the ship is intact, but unable to do anything further in this battle except continue to drift on its present vector.

If the player chooses to abandon ship, the ship continues to drift while still rolling each turn to see if the core explodes – in this case, however, the needed number for an explosion drops by 1 each turn as the core is running out of control with no-one to damp it down, thus it will explode eventually and the ship will be lost. A ship that dumps core will be no further use for that battle, but may be salvaged afterwards and its power restored.

Life support hit

If the life support systems take a hit, then a further D6 roll is made immediately. The number rolled indicates that the life support will fail after that number of complete turns. Damage control parties may be allocated to

try and repair the life support system as for any other system. If life support fails before being repaired, then the crew must immediately abandon ship or be lost. A ship without life support becomes a drifting hulk, though it may of course be recovered and repaired after the battle if it survives.

7.3 Damage control parties

The number of damage control parties (DCP) a ship has is proportional to its crew size, which is in turn a function of ship mass. This assumes that a certain percentage of the crew is allocated to form damage control teams during combat situations. Military ships have one crew factor (CF) for every 20 mass or part thereof, and one DCP per crew factor. Thus a mass 1-20 ship has one CF and hence 1 DCP, a mass 21-40 ship 2 CFs and 2 DCPs, a mass 81-100 ship 5 CFs and 5 DCPs, and so on.

For merchant and civilian vessels, which usually have much smaller crews than warships, there will be one CF per 50 mass (or part thereof) of ship size. How many crewmen a single CF represents is entirely up to the kind of background you are using, but in the GZG one we assume that one CF represents about 20 personnel.

A single DCP might therefore be four or five crewmen, and usually includes medical personnel to assist crew casualties as well as engineers to patch up equipment.

For ships with multiple DCPs, more than one may be allocated to a single repair job at one time. One DCP on its own will manage to bring a system back online on a roll of 1, and each additional DCP on the same job increases this needed number by 1. The maximum number of DCPs on a single job is three, so that the highest chance of repairing a system is 50% (1-3 on a D6) if three teams are allocated to it. Note that all teams put on one system in a single turn make just the one roll.

Example: A mass 90 ship, with 5 CF and thus 5 DCPs available, is trying to repair systems lost at a threshold point. The player decides to combine 3 DCPs (the maximum allowed on one job) to try and get a FireCon back online, and use the other two to attempt to fix a damaged weapon system. The firecon will be fixed if the player can roll 1, 2, or 3; and the weapon on 1 or 2.

7.4 Crew casualties

For simplicity, assume that crew casualties run proportional to the amount of hull damage suffered by the ship. As damage is taken and crew casualties are suffered, CFs are lost, and the available DCPs are reduced accordingly. To record this on the ship SSD, dots are placed in certain boxes on the damage track to denote the points at which crew factors are lost; a ship's current CF (and thus its current number of DCPs) is the number of dots still remaining in non-destroyed boxes on the damage track.

All the designs given in the Fleet Books already have the CF dots marked in their damage tracks, but if you are designing a new ship type from scratch then you will need

to distribute the CFs correctly through the damage track. To do this, divide the number of hull boxes the ship has by the number of crew factors. Round the result up if it is not a whole number, then count along the damage track until you reach the number and place the first dot there. Count the same number again and place the second dot, and so on. When you reach the end of the damage track, put the last dot in the last box – assume that the last of the crew will be killed when the ship is finally destroyed, if they haven't abandoned ship by then.

Example: the mass 90 ship above, with 5 CFs, has an average hull integrity and thus has 27 hull boxes (30% of 90), arranged as 7/7/7/6. Dividing 27 by 5 gives us 5.4, which is rounded up to 6. The first CF dot will be placed in the sixth box of the damage track, the second in the twelfth (ie the fifth box of the second row), the third dot in the 18th box and the fourth in the 24th box, the fifth and final dot is placed in the last box on the damage track (the 27th). Each time the ship takes six points of cumulative damage, it will lose another CF and thus another DCP.

7.5 Cargo and passengers

The holds and passenger space are arranged on the ship diagram as a row of boxes, containing an H or P identifier as appropriate and a number that represents the actual capacity of the space. The larger spaces are placed first (to the left), and are the first to be crossed off as damage is taken.

One of the holds or passenger areas is automatically lost each time the ship's cumulative damage reaches a threshold point. When a hold or passenger space box is crossed off, any cargo stored in it is assumed lost and any non-evacuated passengers in that area are killed.

Note that specialist areas on other ships may be represented in the same way as cargo and passenger space using exactly the same rules – for survey ships devoted to science, staff and lab facilities can be represented by boxes marked S, and naval troop carriers will have T boxes to represent their troop accommodation.

8 FTL

Faster than light drives

The forces generated by FTL drive units are very powerful, and result in spatial distortions that can be highly dangerous in close proximity to any other mass, including other ships. Most transitions to and from FTL are therefore made well out in open space, far from other shipping or planetary bodies. A fleet entering a system in FTL will generally perform normal space re-entry on the fringes of the system, with the ships of the fleet widely dispersed for safety, and then assemble into formation before entering the inner system on normal drive.

Occasionally, however, it may be either necessary or tactically expedient to run the risk of an FTL transition while actually engaged with the enemy. Such a dangerous manoeuvre might be a frantic attempt by a threatened ship to escape from the action, or a surprise attack by dropping out of FTL directly into combat. (A particularly desperate tactic considering the danger involved.)

The following rules cover such attempts to enter or exit FTL on the playing area, and the consequences of failure.

8.1 FTL exit

If a ship attempts to engage its FTL drive while on the table, the owning player must note this in movement orders for that turn. The ship may not apply any thrust in that move, nor may it use any offensive weaponry. (Though defensive systems and screens may continue to be used.) When the ship is actually moved, the player must announce that the FTL drive is being 'warmed up' – the energy emissions from the ship will be immediately obvious to enemy sensors.

On the following turn, the ship moves half its current velocity on its present course, then disappears from the playing area, having gone into FTL space. Note that any ships performing this manoeuvre should actually be moved after all other ships on the table have been moved for that turn.

If any other ship, asteroid, fighter group, etc is within 6 MU of the actual point of FTL entry (the point that the ship disappears from the table) then problems occur.

The ship attempting to enter FTL drive rolls a D6:

- On a roll of 1, the FTL drive fails to engage. The ship remains in normal space at its present course and velocity (and completes the current movement).
- On a roll of 2 to 4, the ship completes its FTL transition safely, but all ships and/or objects in the 6 MU radius immediately suffer 1D6 of damage, unmodified by screens or armour.
- On a roll of 5 or 6, the ship attempting the FTL jump is completely destroyed, and all other ships within

6 MU immediately suffer damage equal to the total original damage points of the exploding ship.

Example: If a 10 DP ship failed its FTL entry and exploded, the energy release would cause 10 points of damage to every ship within 6 MU of the explosion point.

Once a ship has left the table under FTL drive, it may not return to play at any time during that battle.

8.2 FTL entry

Any ships that are to enter the game by dropping out of FTL actually on the playing area must be noted as such at the start of the game, giving the number of the game turn in which they will enter, plus a specified point of entry on the table; the latter is usually most easily defined as a simple pair of coordinates measured from one corner of the table.

When the specified game turn arrives, the player must announce at the start of the turn (after writing of movement orders) that the ship is making an FTL dropout, and place a counter or other marker at the intended entry point. Roll a D12 to give a direction on the course gauge, and a D6 for distance. The marker is then moved in the direction rolled to a distance in MU equal to the D6 roll. The resulting final location of the marker is the point at which the actual ship is placed on the table.

Example: The two ships in figure 9 attempt FTL dropout side by side. Each rolls for direction and distance of error in their entry points. Ship A rolls 6 for direction and 4 for distance, and ship B rolls 10 for direction and 5 for distance.

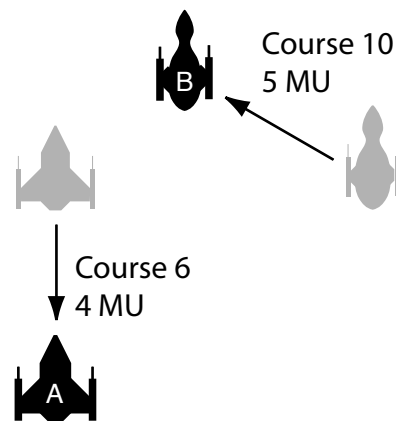


Figure 9: FTL Entry

Optional rule: To add extra confusion and danger, if the distance D6 roll gives a 6, then roll a second D6 and multiply the result by the original roll of 6. This gives a potentially massive error (up to 36 MU) and represents the dangerous inaccuracy of FTL exit – if this means a ship

appears off table then that ship is deemed unable to enter the table during the battle.

As with ships leaving the table via FTL, those entering battle also risk damage if they appear too close to another object. Again, the danger radius is 6 MU around the actual point of appearance; if any ship or other body is within this distance when the ship enters normal space, roll a D6 for each ship or object including the entering ship itself:

- On a roll of 1 to 5, the ship/object being rolled for takes damage equal to the dice score.
- On a roll of 6, roll a second D6 and multiply the result by the original 6, giving from 6 to 36 points of damage.

8.3 FTL tugs and tenders

There are times when ships are unable to travel in FTL drive under their own power, but still must be moved between star systems. Obvious examples are system defence ships being transferred between duty stations, and starships that have suffered drive damage and loss of FTL capability, which can only be repaired at a major naval facility.

For jobs such as these, most forces use FTL *tugs* or *tenders*, which are ships with massively over-powered FTL drives capable of extending their drive field around another ship and carrying it through FTL space. A tug is normally a ship designed to recover other large vessels, while a tender is more commonly a transport for several smaller ships such as light system defence boats.

The main use for tugs and tenders will be in campaign games, for moving system defence ships around the map and for recovering crippled starships for repair. It is unlikely that a tug or tender would ever be risked in combat, but of course there is always the possibility of a scenario concerning the attempted recovery of a damaged ship in a hostile star system, or a surprise attack on a recovery mission.

Any ship can be made a tender by having internal bay space allocated to carry other ships (whether the carried craft are FTL-capable or not), at the same rate as for carrying fighters and other small craft – every 1.5 mass used for hangar bay space provides capacity for 1 mass of carried ship(s). Note that this allows for support and launching facilities, and is thus different from plain cargo space. A ship with 30 mass devoted to bay space could carry a mass 20 ship, or two mass 10 ships, etc. The points cost of such space is the same as for other hangar facilities, 3 × the total mass used.

Tugs, which are designed to ‘tow’ other ships through jump by extending their jumpfield around them, require much larger than normal FTL drives. They need a drive equal to 10% of their mass just to provide their own jump capability, plus for every 1 additional FTL drive mass they can tow an additional 5 mass of other ships. Thus to tow

a ship of mass 108, the tug would need spare jump drive capacity of mass 22. If the tug itself was a mass 60 ship, it would need its own mass 6 FTL drive plus the additional 22 – so it would have to devote a total of 28 mass to its jump drive package.

8.4 Non-FTL ships

Although most ships in the game are considered capable of FTL travel between star systems, there are many possible classes of non-FTL capable vessels which operate entirely within a single star system. Typical examples are in-system freighters, system defence ships, and monitors (large, low thrust weapon platforms designed for close orbital defence).

Non-FTL craft are designed in exactly the same way as FTL starships, except that (obviously) they do not have to pay points cost for the FTL drive.

The use of non-FTL ships must be carefully controlled in one-off games, otherwise everyone will use them. They should be restricted to the planetary defence forces of relatively large or important colonies or core worlds, where they can be supported and maintained by local facilities. Small settlements and outposts will have to rely on starships that can return to naval bases in other systems when they require maintenance.

9 Ship Design

9.1 Overview

Most players will probably run their first few games using just the basic ship types. Sooner or later, however, many of you will want to start modifying the designs provided, or else designing your own ships from scratch – experimenting with different weapons fits, hull sizes, and so on.

Ship design is all about a balance between the three essential factors: mobility, firepower, and protection. Mobility is represented by the thrust rating available to the ship, firepower by the amount and types of weapons carried, and protection by the screens and armour used (if any) and the overall damage points.

The ship design rules detailed in this section are constructed so that every ship has to be a compromise between the three basic factors. Although a near-perfect superfast, ultra heavily armed, and heavily protected ship is theoretically possible, it will turn out to be so incredibly expensive in points cost that just one will take most of your fleet budget! Remember that, especially in a campaign, a ship can only be in one place at one time – for most purposes a balanced fleet of lighter craft will be more cost effective than just a few superships.

Constructing a ship involves two main considerations: the ship's mass, which is a measure of its overall size, and its point cost.

The *mass* of the ship determines its class and how much in the way of systems (weapons, screens, fighter bays, etc) can be fitted into the hull.

The *cost* of the ship is the total of the mass cost, the hull cost, the drives cost, and the individual costs of all the systems that you decide to install.

9.2 Mass rating

The total mass of a given hull is a representation of the capacity of that hull for outfitting it with drives, weapons, defensive systems, etc. This total mass figure is used to refer to the size of the ship: a size 25 ship could be fitted with a maximum of 25 mass of systems. Note that the mass ratings of systems are abstract figures used to indicate the required volume, power requirements, etc rather than being an exact measure of the bulk or weight of a given system. If you assume that (in a given background) one mass is equivalent to around 100 tonnes, then a mass 1 system (such as a point defence installation) will not necessarily weigh in at 100 tonnes; it will, however, require 100 tonnes (1 mass) of hull capacity to mount the system and its infrastructure, control and power requirements, sensors, crew, etc.

The table below shows the standard basic ship classifications used by most space navies, along with the accepted designations and a rough guide to the typical mass ratings of the classifications. These figures are very loose, as

most navies tend to classify ships by function rather than by tonnage: one fleet's destroyer may, in reality, be a bigger and more powerful ship than another's light cruiser.

Ship class	Abbreviation	Range
Scout or Courier	SC	4 - 10
Corvette	CT	8 - 16
Frigate	FF	14 - 26
Destroyer	DD	24 - 36
Heavy Destroyer	DH	30 - 44
Light Cruiser	CL	40 - 60
Patrol or Escort Cruiser	CE	50 - 70
Heavy Cruiser	CA	60 - 90
Battlecruiser	BC	80 - 110
Battleship	BB	100 - 140
Heavy Battleship	BDN	120 - 160
Dreadnought	DN	140 - 180
Superdreadnought	SDN	160 +
Escort Carrier	CVE	80 - 140
Light Carrier	CVL	120 - 180
Heavy Carrier	CVH	160 +
Attack Carrier	CVA	150 +

(To avoid any possible confusion over ship classifications, please note that an 'escort cruiser' is a cruiser, not an escort – its designation simply indicates that its primary function is that of supporting (escorting) capital units rather than independent action. Similarly, a 'battlecruiser' is not a cruiser but is classed as a capital ship – it is, in effect, a slightly cheaper and lighter armed version of a battleship.)

The total mass includes the *Core Systems* and no extra points are paid for these.

Some systems, eg weaponry, are a fixed mass per system, regardless of the size of the ship on which they are mounted. Other systems including drives and screens are a percentage of the total mass, and thus become more expensive as the mass of the ship goes up. (As, of course, does the cost of the hull itself.)

Because they are calculated as percentages of the overall ship mass, choosing a hull size that is not an exact multiple of 10 will mean that some system masses may not be whole numbers. Some of these will be rounded up and some down: in general terms, decimals of .49 and less should be rounded down, while those of .5 or higher should round up. The only specific exception to this rule is in the case of thrust factors, as explained below.

For example, if you are building a mass 64 ship then the 10% required for the FTL drive will be 6.4, which will round down to 6. If the same ship's main drive is thrust-4, however, this will take 20% = 12.8 which will round up to 13 mass. In general, most designs will come out about even in the rounding; occasionally a ship may end up fractionally better or worse off than another of broadly similar design, but that shouldn't be a serious problem. Besides, if we don't give the maximisers and number crunchers something to work at they'll all get bored!

Important: no single system can ever be rounded down to mass 0. A very tiny ship of (say) mass 4 will still have

to pay 1 mass for an FTL drive, even though 10% for it is only 0.4. Thus the smallest possible FTL-drive ship is actually a mass 3 scout or courier boat, that will use 1 mass for hull integrity, 1 mass for FTL drive (the smallest unit available) and 1 mass for main drive (for which it could get thrust-6). The boat would be unarmed, and have just 1 damage box.

The smallest usable combat ship will be around 5 or 6 mass, which will get you a tiny armed scout or light corvette with only a single fire control and probably only a single small weapon system, crewed by a handful of very brave spacers.

9.3 Hull strengths

FULL THRUST uses a sliding scale of different hull strength factors. The chosen hull strength uses mass from the ship's total and is directly related to the number of damage boxes the ship has.

The *hull integrity* represents the amount of the ship's structure that is devoted to reinforcing the basic hull envelope, including bulkheads, compartmentalisation, internal strengthening, etc. It is entirely separate from the armour used (if any), which is external protection. It is perfectly possible to have a ship with a fragile hull structure but lots of armour around it: such a ship will be fine until some damage manages to get through the armour, in which case the hull integrity will fail very quickly!

There are no fixed percentage limits on hull integrity. Ship designs may have as many or as few hull boxes as the designer wishes, subject only to a lower limit of a minimum of 10% of the total ship mass. The actual number of hull boxes chosen does not have to exactly equal any given percentage of the ship's total mass, but the following terms may be used to describe the kind of structure a ship has:

Fragile hull	10% of total mass
Weak hull	20% of total mass
Average hull	30% of total mass
Strong hull	40% of total mass
Super hull	50% of total mass

The mass used for hull integrity is the number of hull boxes that the ship has to absorb damage points. The hull boxes are arranged in four rows to form the damage track for the ship.

Example: For a mass 60 ship with hull strengths chosen to be exact multiples of 10%, a weak hull would be 12 hull boxes arranged in rows 3/3/3/3; while a strong hull would be 24 hull boxes in rows 6/6/6/6.

Each row should be of equal length, but if the number of damage boxes does not exactly divide by the number of rows the extra boxes are placed in the upper rows. For a standard four row design, a ship with just 2 damage boxes has one box in each of the first two rows and nothing in the last two, and a ship with 15 boxes has three rows of 4 boxes and one of 3.

The points cost of the hull integrity is twice the mass used.

9.4 Cargo and passengers

Mass devoted to cargo or passenger space costs no additional points during the ship costing procedure, though of course the actual hull that encloses them is paid for in the normal way. Each mass factor used provides one factor of hold space (H) or passenger space (P).

The total amount of cargo or passenger space available on the ship is divided into separate groups, one for each row of hull damage boxes, in much the same way as the ship's hull damage boxes are divided into the four rows of the damage track. If the number does not divide evenly then the first holds or passenger areas are the larger ones.

Example: If a freighter has 50 mass of cargo hold space, this would be divided into two holds of mass 13 and two of mass 12.

9.5 Drives

The FTL drive for interstellar capability requires 10% of the total mass.

The ship's main drive requires 5% of total ship mass per thrust factor. Add the percentages together and then determine the mass required.

The points cost of the total drive package is twice the mass used.

9.6 Atmospheric streamlining

Streamlining allows ships to safely enter a planet's atmosphere as described in section 14.2. *Partial* streamlining requires 10% of the ship's total mass, while full streamlining requires 20% of the total mass. The points cost of streamlining is 2 points per mass used for the aerodynamics.

Example: To give a mass 50 ship partial streamlining will use 5 mass and cost an additional 10 points on top of the basic hull cost; to give the same ship full streamlining will use 10 mass and cost 20 points.

9.7 Hangar bays

Hangar bays for fighter groups and other small craft have a mass equal to $1.5 \times$ mass of capacity and a points cost three times the mass. The standard fighter hangar bay has a mass of 9 (6 fighters at 1 mass each \times 1.5) and a points cost of 27. Hangars for other types of craft use a different icon with the capacity in mass marked.

The points cost for a hangar bay does not include the fighters or craft carried inside.

9.8 Defensive Systems

Armour

Armour consumes 1 mass per box of protection. The total number of armour boxes is called the *grade*, so a ship with grade 10 armour will be able to absorb a total of 10 damage points with the armour before taking any damage to the actual ship structure.

The points cost of armour is twice the grade, 2 points per box.

Screens

Screens require 5% of the ship's mass for a level-1 screen system (one generator), and 10% for a level-2 screen (two generators), but with minimum requirement of 3 mass for level-1 and 6 mass for level-2 screens. Any ship up to mass 60 thus requires 3 mass to install a level-1 screen system, while larger ships require 5% of their total mass.

There are no level-3 screens. Additional screen generators above two may be purchased at a cost of 5% mass (minimum 3) each and installed if desired, but will not be of use except as backups to bring online if one of the main screens is lost through damage.

The points cost of a screen is three times the mass, minimum of 9 points for level-1 and 18 points for level-2.

9.9 Weapon systems

FireCons

A FireCon has a mass of 1 and cost 4 points each. Area-Defence Fire Controls (ADFC) have a mass of 2 and cost 8 points each.

Beams

Basic mass requirements of a given battery start at 1 for a class 1, and double for each class increase – so a class 2 takes 2 mass, a class 3 takes 4 mass, a class 4 takes 8 mass, and so on. At 16 mass for a class 5 and 32 for a class 6, these larger systems rapidly become non cost-effective for most purposes.

Class 1 batteries are automatically capable of all-round (6 arc) fire at their basic mass cost of 1.

Class 2 batteries at their base mass of 2 are capable of 180° traverse, firing through any 3 adjacent arcs, and may be given full traverse (6 arc) for an additional 50% mass cost (3 mass rather than 2).

Class 3 batteries and above have only 1 fire arc (60°) at their base mass cost. Adding additional arcs of fire requires 25% of the base mass per additional arc covered – so a class 3 covering 3 arcs would require $4 + 1 + 1 = 6$ mass, while a class 4 with the same traverse would require $8 + 2 + 2 = 12$ mass. Arcs must be adjacent.

Beams and all other weapons without 360° traverse must have their fire arcs chosen when the ship is designed.

Beam point cost is three times mass.

PDS

Point defence systems have a mass of 1 and cost 3 points each.

Pulse torpedoes

The basic mounting for a pulse torpedo has a mass of 4 and fires through only 1 arc. The torpedo may be mounted to traverse through up to two extra adjacent arcs for a maximum total of three, requiring one mass per extra arc.

Pulse torpedo points cost is three times mass.

Needle beams

The needle beam is a 1 arc weapon. The mass is 2 and the cost is 6 points.

Submunition pack

A submunition pack has a mass of 1 and fires through only 1 arc. The cost is 3 points.

Salvo missiles

If SMLs are fitted to a ship, the launcher itself takes 3 mass while each salvo load carried in an internal magazine takes up 2 mass for standard missiles or 3 mass for enhanced range types.

An external SMR takes 4 mass for the complete rack including a standard missile salvo, or 5 mass for a rack with an ER salvo.

Missile salvoes for SMLs take up magazine capacity at the rate of 2 mass per standard salvo, and 3 per enhanced range salvo.

The points cost of an SMR or SML system is three times the total mass of launcher and magazine. No extra points are paid for the actual missile salvoes.

9.10 Ship design procedure

Step 1

Decide on the overall size of your ship, the total mass rating.

Example: We are building a heavy cruiser sized vessel, and decide on a total mass of 86. The basic points cost will be the same as the mass, ie 86 points.

Step 2

Choose the hull integrity for the ship.

Example: We decide to give our heavy cruiser an average hull integrity. This will use up 30% of the total 86 mass, or 26 mass (actually 25.8, rounded up). The points cost of the hull integrity will be $26 \times 2 = 52$. The chosen hull integrity gives the ship 26 hull boxes that will be arranged in rows of 7/7/6/6.

Step 3

Choose and fit drives to the ship.

If selecting an FTL drive to give the ship an interstellar capability, this will require 10% of the total mass.

Decide on the required thrust factor for the ship's main drive, which uses up mass at the rate of 5% of total ship mass per thrust factor.

Example: Our heavy cruiser needs an FTL drive, which will require 10% of the total ship mass (8.6, rounded up to 9); we also decide on thrust-4 for the main drive, which takes $4 \times 5\% = 20\%$ of ship mass (17.2, rounded down to 17). Total mass of the drive package is thus 26, and points cost for the drives is $26 \times 2 = 52$.

We now have a hull with drive systems installed. The total mass used so far is $26 + 26 = 52$, leaving $86 - 52 = 34$ for fitting the ship out with other systems. The points cost so far is $86 + 52 + 52 = 190$.

Step 4

Select the desired mix of offensive and defensive systems to fit to the ship, according to its intended role. The mass and points values of the various systems are set out in the systems table.

Example: Our heavy cruiser is intended as a multi-role ship, for both extended patrols and as a combat ship to support the main battleline. Accordingly, we decide on a balanced mix of offensive and defensive systems to cope with a wide variety of possible threats.

We choose to fit two standard Fire Control systems, using 1 mass each and costing 4 points each. This leaves us 32 mass to play with.

The main offensive punch of the ship will be a mix of beam batteries and salvo missiles. We decide on two beam-3 batteries each bearing through 3 arcs (fore arc and two side arcs port and starboard respectively, to give an overlapping coverage), at 6 mass each; one beam-2 with all around fire (3 mass), plus a backup armament of 2 beam-1 at 1 mass each. A single salvo missile launcher is mounted forward, covering the front 3 arcs or 180° zone) at 3 mass, with a magazine holding 3 standard salvoes ($3 \times 2 = 6$ mass). Total offensive systems mass is $6 + 6 + 3 + 1 + 1 + 3 + 6 = 26$, with all offensive systems costing $mass \times 3 = 78$ points.

We have 6 mass left for defensive systems to protect the ship: we decide on an active defence capability of two point defence systems (PDS) at 1 mass each, leaving 4 mass to use up. We could spend this on 4 boxes of hull armour, or alternatively we could fit a level-1 screen generator for 4 mass. (5% of $86 = 4.3$, rounded down to 4). On balance, we decide the screen would be of most value. Total defensive systems mass is 6, costing $mass \times 3 = 18$ points.

So, the total systems fit for the ship is:

Basic hull	86	86 pts
Hull integrity	26	52 pts
FTL drive	9	18 pts
Main drive thrust-4	17	34 pts
sub-totals	52	190 pts

2 x beam-3 (3 arc)	12	36 pts
beam-2 (6 arc)	3	9 pts
2 x beam-1	2	6 pts
2 x FireCon	2	8 pts
SML	3	9 pts
magazine (3 loads)	6	18 pts
level-1 screen	4	12 pts
2 x PDS	2	6 pts
sub-totals	34	104 pts

Totals	mass 86	294 pts
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The System Status Display for this ship is figure 10.

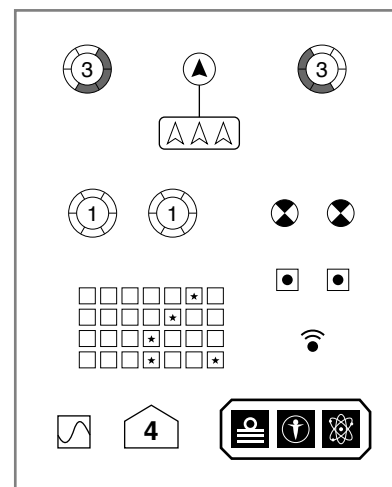


Figure 10: Heavy cruiser SSD

There are any number of different choices we could have made when designing the cruiser example above: some may have resulted in a better ship, some a worse one, though the true value of any design depends on the threat it is facing at any given time.

If we had wanted to give our cruiser a fighter complement, we could have made space for this by dropping the SML and magazine, giving us the 9 mass that one fighter group and its hangar requires. Alternatively, replacing the SML and its magazine with all beam weapons would have

given us a ship that could sustain its fire longer (as beams do not run out of ammo like the SML systems do) but would not have been able to deliver such a hard punch at the (preferably) vital moment in the battle!

We could have chosen to drop the hull integrity to weak rather than average, saving us 9 mass that could have been spent on armour or other systems; but then the ship would only have had 17 damage boxes (arranged 5/5/4/4). Fitting 9 boxes of armour would have boosted its survivability considerably, but only until it met a weapon that penetrated the armour and struck directly at its weaker hull. While it is of course possible to optimise a ship or fleet to take on a specific opposition, well balanced designs will more often be the best option – if your regular opponent always seems to use beam-heavy ships then you might feel like leaving off things like PDS and armour in favour of better screens, until next week when new designs appear sporting SMLs and fighter bays!

9.11 Mass and points cost

	Mass	Points
Basic construction		
basic hull	total mass of ship	× 1
hull integrity	10+% of total mass	× 2
hull armour, per box	1	2
Cargo/passenger	1 per space	None
Partial streamlining	10% of total mass	× 2
Full streamlining	20% of total mass	× 2
Drive systems		
main drive	5% total per factor (minimum mass 1)	× 2
FTL drive	10% total mass (minimum mass 1)	× 2
Weapon systems		
beam-4 (1 arc)	8, +2 per extra arc	× 3
beam-3 (1 arc)	4, +1 per extra arc	× 3
beam-2 (3 arc)	2	6
beam-2 (6 arc)	3	9
beam-1 (6 arc)	1	3
SML	3 (launcher only)	9
missile magazine	2 per salvo	× 3
	3 per ER salvo	× 3
SMR	4 standard, 5 ER	× 3
submunition pack	1	3
needle beam	2	6
pulse torpedo (1 arc)	4, +1 per extra arc maximum of 3	× 3
Point defence system	1	3
Fire Control	1	4
ADFC	2	8
hangar bay, standard	9 (space 6 fighters)	27
hangar bay	1.5 × mass carried	× 3
level-1 screen	5% total mass minimum 3	× 3
level-2 screen	10% total mass minimum 6	× 3

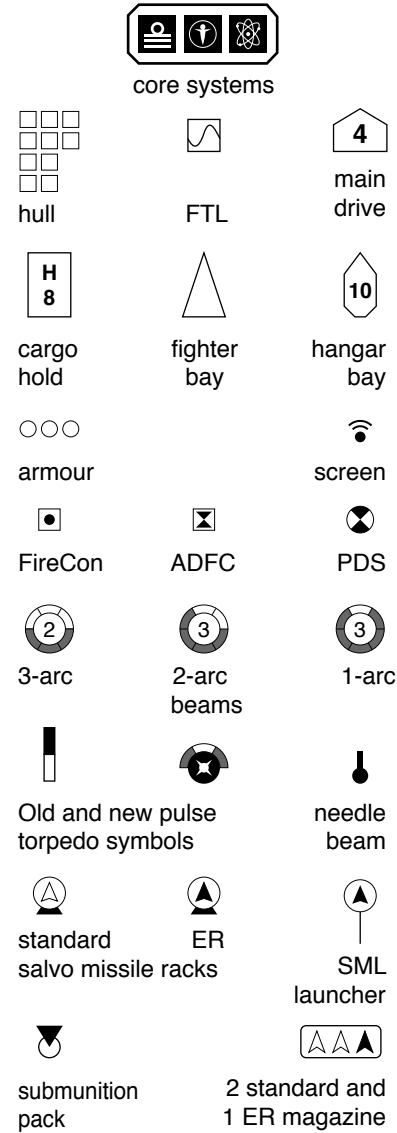


Figure 11: SSD symbols

Fighter types

All fighters require 1.5 mass of hangar bay space per fighter. Standard is 6 fighters for mass 9 hangar. Points cost per group of 6:

Standard	18
Heavy	30
Fast	24
Interceptor	18
Attack	24
Long range	24
Torpedo	36

10 Vector Movement

10.1 Vector movement system

This is a completely optional alternative movement system, which players may use instead of the standard FULL THRUST movement rules. To differentiate the two systems, the system presented here is referred to as *Vector* while the standard movement rules are termed *Cinematic*. While not being a strictly accurate mathematical model of how things really move in space, the system gives a reasonable 'feel' of how things should be done without the need for any complex calculations or excessive record-keeping.

Whether you choose to use vector movement or not will depend entirely on personal taste and whether it fits the particular background you are using – if you are recreating a film or TV series where the ships clearly do not move in a true vector fashion, then you will obviously not want to use these rules.

Using the vector movement rules will become very straightforward once you are used to it, but we suggest taking a short while to read through the rules and examples carefully, and to plot a few movement examples out with a ship model to get the feel of the system before starting your first game. Radical course changes become much more difficult to do under the vector rules, especially at high velocities – remember that the faster you are moving, the less manoeuvrable your ship will be under the vector system. It may also take you a while to get used to the fact that the ship is not always pointing in the direction it is moving!

If you are using the official GZG background, or one of your own devising, then you may feel free to use either system at the agreement of your players. It is perfectly possible to mix both vector and cinematic movement in the same game, to represent ships with different drive systems, older and newer ships in the timeline, or different levels of technology. Each ship simply follows the relevant rules according to its own drive system.

Because the thrust ratings of ships are used in similar ways in both systems, any given ship design may be used with either movement system without modification.

Thrust rating

In addition to the main drive, all ships have thrusters: small drives positioned in clusters around the ship, pointing forward, port, starboard, etc. The thrusters may be used to 'push' the ship to alter its course, or to rotate the ship onto a new facing. (In reality ships would also of course have up and down orientated thrusters, but as we are not concerned with 3D movement in FULL THRUST we can ignore these except for their use in rolling the ship. We have not depicted the thruster systems as separate icons on the ship diagrams, in order that any design may be used with either movement system without alteration.

All thrust, whether for main drive burns, ship rotations, or thruster pushes, comes out of the total thrust factor of the main drive. For the purposes of damage, assume that the thrusters are driven by the same power systems as the main drive – when the main drive takes damage, thruster power is halved or lost accordingly.

10.2 Course and facing

Under the standard cinematic movement, a ship will always be facing in the same direction that it is moving; under the vector system the ship may actually be moving one way and facing another. The direction in which the ship is actually moving is termed its *course*, while the direction in which the ship is actually pointing is called its *facing*. The current course is indicated by a small arrow marker placed next to the ship's stand, and this marker is also used as a reference point during the process of moving the model. It should be noted that the facing of a model should always be in one of the 12 clockface points, though the mechanics of vector movement mean that the course will usually not correspond exactly to a clockface direction.

Main drive thrust

Each point of thrust applied in a turn will accelerate the ship by 1 MU along the axis of the ship. If a ship facing in its direction of travel (ie its course and facing are the same) and currently moving 6 MU per turn applies 4 points of thrust from its main drive, it will end up moving at 10 MU per turn. If the ship's facing and course are not the same (ie the model is pointing one way and moving another) then the application of thrust from the main drive will alter the ship's course and velocity. To decelerate using the main drive (as opposed to using the forward 'retro' thrusters), the ship must be turned so that it is pointing 'backwards' relative to its current course. When writing orders for your ship, main drive thrust is written as MD followed by the number of thrust points being applied. *MD4* will move the ship 4 MU in the direction of its present facing.

Rotation

Rotation of a ship around its axis requires much less power than actually changing its vector. When the thrusters are used to rotate a ship onto a new heading, one manoeuvre point from the thrusters allows the ship to be rotated by any desired number of facing points. Thus, for the expenditure of one point of thruster power a ship can be rotated to face in any of the 12 possible facing directions, regardless of the thrust rating of its drive. (The only difference between rotating 30° and rotating 180° is simply that once the thrusters have started the ship spinning, the ship is allowed to rotate for longer before the thrusters burn again to cancel the spin.) Note that a rotation changes the ship's facing only, and never its course.

Note: when thrusters are used to rotate the ship onto a new facing, several of the ship's thrusters are fired in

unison to achieve the desired effect – for example, to rotate the ship to starboard it would fire the port forward thrusters and the starboard rear thrusters simultaneously to spin the ship around its centre of mass. It is assumed that, in the same turn, a compensating burst is applied as the desired new facing is reached in order to stop the ship's rotation: the combined effect of these operations constitutes one rotation action.

Multiple rotations in a single turn are permitted, but 1 thrust factor is used for each rotation, so a thrust-4 ship could, for example, rotate to a new facing, do a thrust-2 burn with its main drive, then rotate again to bring its weapons to bear at the end of the turn.

Rotation orders should be written down as TP (turn port) or TS (turn starboard) followed by the number of points of heading change. TP2 indicates a rotation to port of 2 clockface points, 60°.

Example: The ship in figure 12 is facing in the same direction it is moving (ie its course and facing are currently the same) and its velocity is 10 at the start position. The player writes movement orders of TP3, MD6. Firstly, the ship is moved along its present course by 10 MU. It is then rotated 3 points (90°) to port. Now it is moved along its new facing by the amount of its main drive burn, ie 6 MU, to its final position. Finally, the distance between start and final positions is measured – rounded to the nearest whole number it will be 12 MU – and this is recorded as the starting velocity for the next turn. The course marker is moved up to the model again, parallel to the line between the start and final.

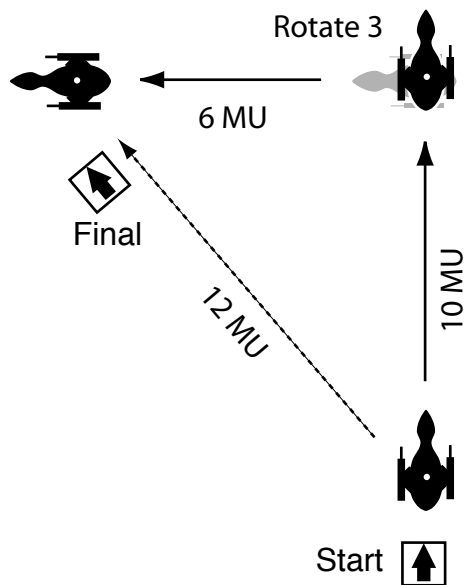


Figure 12: Move and rotate

Thruster pushes

A thruster push is firing a combination of manoeuvre thrusters to alter the course and/or velocity of the ship,

without affecting its actual facing. The ship ends the turn with its model pointing the same way as it started, although its course may have changed. Pushes may be made to port, starboard, or reverse (using the forward 'retro' thrusters to slow the ship down without having to spin it around and use the main drive). One manoeuvre point of thrust applied with the portside thrusters will shift the ship 1 MU to starboard, but for simplicity of play, this is referred to as a *starboard push*. To avoid confusing orders we always use the direction of the effect rather than the location of the thrusters being used. Note that a push changes the ship's course and/or velocity only, and never its facing.

Thruster pushes (side or retro) are limited to a maximum of 1 thrust point per turn from any one set of thrusters – ie a side push plus a retro push (1 thrust point each) is allowable, but two side pushes are not.

Push orders should be written as PP (push to port), PS (push to starboard), or PR (push in reverse). Pushes may only be applied directly to port, starboard, or rearward relative to the ship's facing at that moment.

A thrust-4 ship could do a 1 point push to starboard, a 1 point retro push, a rotate, and still manage a thrust-1 burn with the main drive, in any order desired.

Example: The ship in figure 13 is facing in the same direction as it is moving, and its currently velocity is 6 at the start. The player writes movement orders of PS. First the ship is moved along its present course by 6 MU. Now, the ship's side thrusters fire to push it 1 MU to starboard, to the final position, without changing the facing. The distance between starting and final positions is measured – rounded to the nearest whole number it will be 6 MU – and this is recorded as the starting velocity for the next turn. Lastly the course marker is moved up to the model again parallel to the line between the start and final positions.

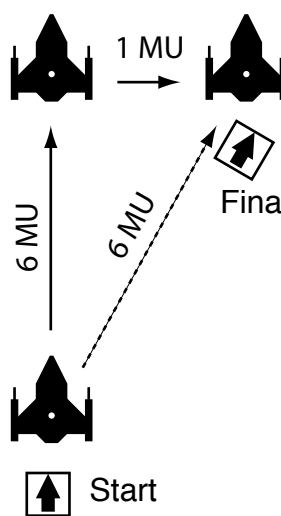


Figure 13: Thruster push

Combining manoeuvres

The actual sequence in which thruster and main drive burns are applied in a single turn will make a difference to the final course and velocity of the ship, so it is necessary to rule on what order things are done in. Each effect is applied to the ship strictly in the order they are written down by the player. If the player writes *TP2, MD6* then the ship will first be moved according to its starting vector, then turned 2 points to port, and then moved 6 MU along its new facing. If, on the other hand, the order was written *MD6, TP2*, thus applying the main drive burn before rotating the ship to its new facing, then the result will be very different in terms of the ship's final vector and position – plot each one out and you'll see what we mean!

The final position, course, and velocity would be measured after all manoeuvres are completed.

Moving ships under the vector system

Once the orders are written by all players, all ships are moved simultaneously in accordance with their starting vectors and any relevant manoeuvre orders. When moving a particular ship, always start by moving it according to its starting vector – ie move the model in the direction of its present course (as indicated by its course marker arrow) a distance equal to its current velocity, being very careful to keep the facing of the model exactly the same as at the start of the turn; at this stage, leave the course marker in its starting position. Now apply any thrust (main drive and/or thrusters) indicated in the ship's orders, making sure to apply each effect in the sequence it is written down. Where the model ends up after all thrust has been applied is its finishing position for that turn. Now place the tape measure or rule between the course marker and the ship's final position, and read off the distance – this (rounded to the nearest whole MU) is the ship's final velocity for the turn, and should be written on the order sheet ready for the next turn. Finally, move the course marker up to the stand of the model, with its arrow pointing in the direction of the ship's new course – ie parallel to the tape measure. The ship's vector at the start of the next turn will now be in the direction of the course marker arrow, at the new velocity written down.

Collisions

If there are any objects on the board that are deemed big enough to pose a collision risk, such as asteroids or very large space installations, such a risk will only occur if the line between the ship's starting and final positions intersects with the object. In effect, it is this line (as shown by the tape or rule when measuring the final velocity of the ship) that most nearly approximates the true path followed by the ship during the turn. The position of the ship model at any other time during the movement sequence is merely for calculation purposes, and does not indicate that the ship actually occupies that point at any time. Of course, even doing it this way is an oversimplification of the true mechanics – but we feel it is close enough for game purposes!

11 Advanced Rules

11.1 Sensors and ECM

The use of this **optional** rule allows a basic form of 'limited intelligence' to be brought into the game, to make the initial fleet dispositions for a battle much more interesting and tactically challenging.

When the opposing forces enter the playing area, the actual ship models are not placed on the table. Instead, each ship is represented by a *Bogey* marker (either a simple counter or something like a 'black globe' made from a ping-pong ball). These bogeys represent long range sensor contacts indicating the presence of a ship, but not revealing its exact type. All that can be deduced about the ship is its general classification (escort, cruiser, capital, or merchant) from its detectable drive emissions.

Each bogey marker should be identified with a code letter or number, which the owning player must secretly note as representing one actual ship. The bogeys should also be marked in some way to show the classification of ship they are representing. The easiest way to do this is with small adhesive coloured stickers on the globe bases, using different colours for escorts, cruisers, etc.

During the opening moves of the game, players write orders and move their bogey markers just as if they were moving the actual ships. (They must of course remain within the manoeuvring ability of the ship that each bogey represents.)

Bogeys may be 'revealed' (positively identified and replaced by the actual ship model) in one of two ways: either by *passive* or *active* sensor scans.

Passive sensors are carried by all vessels, civil and military. When any ship comes within 36 MU of an opposing bogey, its passive sensor array can identify the contact firmly: replace the bogey with the actual ship. (If both ships are represented by bogey markers, then they are both revealed simultaneously.)

All military vessels also carry *basic* active sensor arrays. These are longer-ranged detection systems than the passive sensors, but have the side effect that when they are operated, the emissions from them will reveal the identity of the ship making the sensor scan, as well as the ship being scanned. They are acquired free as part of the hull and basic systems and do not need an icon on the ship SSD.

The maximum range for active sensor scans is 54 MU. If a player wishes to use active sensors on a ship, note this in the orders for that turn. If the ship is still represented by a bogey at that time, reveal it and announce that it is making an active scan. Escort ships may scan one opposing bogey per turn, cruisers two, and capital ships up to three. The player chooses which of the enemy bogeys to scan (of those within 54 MU range) and these must then be revealed.

11.2 Advanced sensors

These optional rules for more advanced sensors can be used for disclosing information about ship capabilities and status to opponents.

Advanced sensor suites are classified as *enhanced* or *superior* grade. Enhanced sensors require 2 mass, superior 4. The points cost is mass \times 4, so 8 for enhanced and 16 for superior.

Basic sensors immediately 'illuminate' the ship using them and the scanned ship, so models for both are placed on the table.

If enhanced or superior active sensors are used, the scanning player also rolls 1 D6. If the ship is using enhanced active sensors use the die score as rolled; for superior sensors add 2 to the score. The final adjusted score gives a result from the table below:

- 1-2: No information disclosed
- 3: Mass only of ship disclosed, and whether military or merchant
- 4: Data on mass, drive, and screen systems (original values)
- 5: Data on all onboard systems (original values)
- 6+: As for 5, plus current damage status and systems functional, ie all data about vessel

The owner of the scanned vessel must disclose the required information verbally to the scanning player. The information should only be stated once per successful scanning attempt – it is up to the player to remember and/or note down information about the opposing ship.

Obviously a degree of trust is necessary here that true information is being given – if advanced sensors are being used in a competitive game we suggest the umpire should check and relay the information rather than the player.

11.3 Dummy bogeys and weasel boats

These are optional rules for adding extra confusion and uncertainty to play. With the agreement of both players, each side may deploy a number of 'dummy' bogey markers alongside the real ones, representing drones equipped to output the signature of an actual ship and thereby confuse the enemy as to the actual strength and disposition of the fleet.

Each dummy bogey costs 20 points from the owner's fleet budget, and emits the drive signature of an escort class ship. It can be moved on the table with the manoeuvring ability of any main drive strength the owner chooses. The dummy is simply removed from play as soon as it is scanned, either with active or passive sensors.

The maximum number of dummies that may be employed in any battle is equal to the number of real ships in the player's forces.

'Weasel' boats are an alternative to the drone decoys. These are small manned ships (usually couriers or scouts, but larger classes may be used if desired) that are equipped with systems designed to emit the signature of a much larger vessel.

A weasel decoy system requires 4 mass to emit the signature of a cruiser class, 8 mass to emit the signature of a capital ship. The points cost is $\text{mass} \times 4$.

While the weasel boat is represented by a bogey marker, that bogey is labelled as if it were the classification that the decoy system is emitting. Once it is scanned, the true nature of the ship is revealed. (The system can only confuse the initial long-range information, not the close in sensors.)

The weasel boat can of course manoeuvre as a normal courier, scout, or whatever class it really is, but remember to restrict its moves to those possible for what it is acting as – your opponent may become just a little suspicious if a 'battleship' suddenly makes a four point turn!

11.4 Electronic counter measures

These additional optional rules allow players are also able to use ECM (Electronic Counter Measures) to jam enemy sensors.

Ships may be fitted with individual ECM packages (to protect that ship only) at a mass requirement of 4 and a points cost of 16. Alternatively, a ship may be fitted with an area-effect ECM package that can also protect other nearby ships against sensor scans, at a mass of 6 and points cost of 24. It should be noted that, in general, area effect ECM is only fitted to dedicated electronic warfare ships that would then accompany a flotilla of non-ECM equipped vessels.

Individual ECM systems can only jam sensors aimed at the actual ship carrying the system, while area effect ECM systems can jam sensor scans against any friendly vessel that is within 12 MU of the ECM ship. While an individual or area effect ECM system is in active use, the carrying ship (or any ship covered by the area of jamming effect) also suffers the jamming effects if it tries to use its own active sensors to scan an enemy. (The jamming produces a blanket effect that inhibits all active sensor use, friendly and enemy.) For this reason, it is necessary to note in a ship's orders for a given turn that the ECM is active for that turn – otherwise it is assumed to be switched off.

When an active ECM system, individual or area, is protecting a ship, the player owning that ship may make a D6 roll whenever an enemy tries to scan the ship with active sensors. This die roll is then subtracted from the roll the scanning player makes for sensor results, and the final figure applied to the sensor table above. Thus jamming is not always effective – if a player is using superior

sensors (+2) and rolls a 6 giving a total of 8, while the opposing player only rolls a 1 for ECM, the final result will be 7; still enough to reveal everything about the scanned ship.

If a player is trying to make a sensor scan while being effectively jammed by a friendly ECM, simply roll twice, subtracting the second roll from the (modified) first roll.

11.5 Boarding actions

A boarding party is normally composed of part of the Marine contingent from the attacking ship, specially equipped with combat vacuum suits or powered armour.

To launch a boarding action the attacking ship must first be brought close to the target vessel, so that it is within 6 MU of it at the end of movement. The attacking ship must also be travelling at a velocity that is not more than 1 factor different from the velocity of the target ship, and on a course that is again not more than 1 point different from the target's course.

For example, if the target ship ends its movement at velocity 6, on course 4, a boarding attempt could only be made if the attacking ship can get within 6 MU with a final velocity of not less than 5 or greater than 7, and on a course between 3 and 5 (using the same 12 as the target ship).

This rule is to allow players a little leeway when it comes to trying to 'match trajectory' but not too much; it will still be quite difficult to do so unless the ship you are attacking has very little thrust available to evade with – such as if you have already crippled its drive.

Once you have got your ship into the correct position to be able to launch a boarding assault, the Marines may cross between the ships. They are assumed to do this either in small assault pods specially made for such actions, or in their own powered armour suits if they are equipped with them.

For the size of Marine forces available for boarding actions, consider the marine detachment to have 1 *boarding factor* per crew factor, each boarding factor representing a small team. (The number of boarding factors is therefore equal to the number of damage control parties that the ship has.)

If the ship has taken damage, it is safe to assume marine casualties are in proportion to other crew – thus the available boarding factors are always equal to the current number of crew factors that the ship has left.

The strength of the defenders is determined in the same way. We assume for simplicity that the same percentage of the marines is available to defend as for the attackers, as the rest have probably been seconded to damage control teams and the like. Anyway, these are only supposed to be abstract rules!

If the target is a civilian craft, it will be able to muster only defensive factors equal to *half* the remaining damage control parties, rounded down – this is because a

merchant crew will be much more poorly armed and equipped for combat. (And remember that civilian ships already have fewer crew factors than military.)

To resolve the combat between the attacking and defending parties, roll 1 D6 per factor for each side and total their results. Thus if 4 boarding factors were up against 2 defending factors, the attacker would roll 4 dice and total the scores while the defender would roll 2 and total them.

If either side's total score is more than twice the other player's roll, the higher scoring player has won the action. If this is not the case, then the action continues with the lower scoring force losing 1 factor and both sides then rolling again. (Obviously if this causes one side to lose its only factor, they have lost.)

Thus in the example above, if the attackers rolled 2,5,1, and 3 for a total of 11; and the defenders were lucky enough to roll 6 and 6 for a total of 12, the attacking (boarding) side would lose 1 factor, dropping them to 3. The combat would then be rolled for again, but with the 3 attacking factors to the 2 defending.

The combat continues to be fought in repeated 'rounds' like this until there is a clear-cut winner who takes (or retains) control of the ship. If the attacking party loses and is repulsed, they may return half (rounded up) of their surviving factors (teams) of marines to their own ship. The remainder are assumed captured or killed in the attempted withdrawal.

Should the boarding party win the combat, the surviving defenders are assumed to be 'locked below decks' and a prize crew will be sent over from the attacking ship to bring the captured vessel fully under control.

(It must be noted that all of the boarding action is fought to a conclusion in the space of the one game turn – the action does not carry over several turns.)

Of course, if you want to work out more detailed rules for boarding that fit more accurately with the troop contingents aboard the ships, feel free to do so. Boarding actions should be sufficiently uncommon, however, that the rather abstract system here will suffice in most cases.

11.6 Fleet morale

The question of morale in naval games, whether SF or historical, is always a bit of a problem. Will a fleet fight to the last ship, or will it turn tail and run (or even surrender) after relatively few losses?

The answer to this really depends on the kind of scenario being played, as the reactions of the fleet and its overall commander will be heavily influenced by what is at stake. If a force is defending a colony world against an invading fleet, it may well fight 'to the death' in a desperate attempt to protect the colony. On the other hand, if it is a meeting engagement in a relatively unimportant star system, then it would be quite likely that the admirals on

either side would consider the preservation of their own ships and crew to be quite a high priority.

If playing a simple engagement (or a competitive game) then we suggest that the loss of 50% of a player's overall force (calculated in mass of ships destroyed) would be enough to cause the commander to withdraw from battle.

For other games we recommend that the level of losses to force a withdrawal should be written into the scenario when it is designed, bearing in mind the story-line being used.

11.7 Striking the colours

The surrender of an individual ship is a slightly different matter to the withdrawal of the complete fleet. There are many possible circumstances where the captain of a ship may decide that, orders notwithstanding, the survival of the crew is more important than continuing to fight in a hopeless situation.

One possibility is to make an extra roll at the same time as any threshold check, using the normal scores for losing systems at threshold points, ie 6 the first time, 5 or 6 the second, etc. If the ship fails this roll then its captain decides to 'strike the colours' and surrender to the nearest enemy vessel. Whether this surrender is accepted is, of course, up to the opposing player.

Using this rule can result in the surrender of a vessel that has taken relatively little damage – however naval history is rife with precedents for this where colours were prematurely struck due to damage suffered being grossly overestimated.

One point must be made here – the use of this rule is strongly dependant on exactly who the two fleets are; for example, if using the FULL THRUST background then it is very unlikely that any human ship would even attempt to surrender to a Kra'Vak or vice-versa, simply because they would not expect to survive capture.

12 Advanced Systems

12.1 Mines

The 'mines' used in FULL THRUST are actually more like dormant missiles, small drones equipped with detonation beam warheads. When a hostile ship (ie one not answering the correct IFF codes) comes within a certain distance of the mine the warhead charge will detonate, directing a focused pulse of energy into the target ship in the microseconds before the mine itself is consumed by the blast. If the resulting beam hits that target, it does similar damage to a close range hit from a beam-2 weapon.

The detection range of a mine is 3 MU. Any enemy vessel that enters this radius from the mine marker, at any point during its movement, not just at the end of its move, will be detected and fired on by the mine. Roll 2D6 and apply damage as for normal beam fire, reducing accordingly if the target is screened. After a mine has detonated, remove its marker from the table.

Minelaying

Ships equipped with minelaying systems may deposit mine markers on the table during their movement phase. The player must note in the order for that ship that it will deploy mines in that turn by writing *Mine* in the order box.

Each minelayer system fitted may deploy one mine per turn, so a ship with two mine systems may drop two markers during its movement, either both at the same spot or at different points. The mines may be placed anywhere along the ship's course during that movement. Ships dropping mines are moved first after writing orders, so there can be no question of a player positioning mines in response to the enemy's movement in that turn.

Each minelayer system carries a number of mines – as each one is deployed, cross out one spot on the minelayer symbol.

A mine marker does not become active until the game turn after the one in which it is deployed. Once placed, the marker will remain on the table (completely stationary) until it detonates, or is cleared by a minesweeping system.

Minesweeping

Just as certain ships may be equipped to lay mines, so others may be provided with systems to clear enemy mines safely.

To attempt to dispose of a mine marker, the minesweeping ship must have its sweeper system activated by noting this in its orders for that turn. It must then pass within 3 MU of the mine during the course of its movement, and at that point 1D6 is rolled. On a score of 1, the mine immediately attacks the minesweeper, detonating and causing damage as normal. On a roll of 2, the mine

does not attack, but is also not disabled; it remain in position and can attack other ships as normal. On rolls of 3 to 6, the minesweeper system succeeds in disabling the mine safely: the mine marker is removed from play.

When a ship is using a minesweeping system in active mode, it may not use any offensive weapon systems in that same turn; it may use defensive weaponry and any screens as normal.

12.2 Ortilery

This is a planetary bombardment system used for ground support fire from orbiting starships or monitors. It has no function in space combat, and cannot be used as an anti-ship weapon. The use of this system is described in the DIRTSIDE II interface rules. If you are using FULL THRUST with a different ground combat rules system then the rules given should allow you to relate this weapon to your chosen game with a little thought.

12.3 Wonder weapons

The intention behind these is to simulate certain special weapons seen in certain TV series or films, to enable battles from those settings to be fought under the FULL THRUST rules. As they were never meant to fit in with the basic game system, they can do very weird things to the game balance. We would strongly recommend that these systems are used with discretion, and then only with the express agreement of all players. They are not recommended for games where there is any kind of competitive element in play or in fleet design.

Please note that we're *not* telling you not to use any or all of these systems if you wish. Just be aware that their indiscriminate use may throw up anomalies in the game, and you should be prepared to deal with these as you see fit.

Spinal mount nova cannon

This is probably the single most deadly system available; however it does have its disadvantages as well – by all means experiment with fitting one to your largest ships, but don't say we didn't warn you!

The nova cannon is a massive weapon that can only be mounted in the spinal core of a capital ship, and fires only directly forward – not just through the fore arc, but actually on the centreline of the ship only. In other words, the weapon fires in whatever direction the ship's bow is pointing.

Firing a nova cannon draws a massive amount of power from the ship's power plant. On the turn it is to be fired, the player must note this in orders for that ship, and the ship may not expend any other power at all for that turn: it may not apply any thrust, to accelerate or manoeuvre, may not fire any other weapons, and even its screens do not function for that turn! If the nova cannon is then not fired that turn, for any reason, then its 'arming' is lost and

it must be re-armed the next turn the player wishes to use it.

When the cannon actually fires, a massive railgun system projects a huge round that consists of an uncontrolled plasma generator and a powerful gravitic field system. The projectile is hurled out to 6 MU in front of the ship (its minimum arming distance) and the core is detonated, with the field holding the plasma long enough for it to form a self-sustaining reaction, like a miniature sun.

Place a 2 MU diameter template at the arming point (6 MU from the ship's bow) and then move the template 18 MU outward along the line of flight. Any and all ships or other objects that are contacted by the template during its flight immediately suffer 6D6 of damage! At the end of its total 24 MU move, the template is left in place on the table. On the next turn, at the start of the firing phase, the 2 MU template is replaced by a 4 MU one, which is then moved 24 MU along its original course. Anything hit by this new template is subject to 4D6 of damage. Finally, on the third turn, the 4 MU template is replaced by a 6 MU one which is then moved another 24 MU, damage from this template being 2D6. At the end of the third turn of movement the nova reaction exhausts its fuel and burns out – the template is removed from play.

Neither screens nor armour affect a nova cannon.

Wave gun

The wave gun is a smaller and slightly less over-the-top variant on the nova cannon. The system fires a plasma charge that expands as it travels along its line of flight, causing damage to any vessels in its path.

As with the nova cannon, the wave gun may fire only along the main axis of the carrying ship, ie in a straight line bearing directly forward along the ship's current course. The ship may not fire any other weaponry in the turn that it fires the wave gun, and also counts as un-screened through its entire frontal arc while the weapon is being fired.

The wave gun needs to be charged prior to firing. Each turn that the player orders the weapon to charge, roll one D6 and write the result down; when the accumulated rolls reach six or more the weapon is fully charged and may then be fired at any turn. Firing the wave gun totally discharges the capacitors, which must then recharge from zero again.

Unlike the nova cannon, the wave gun burst has a life of only one turn. Its full range is 36 MU. Over the first 12 MU, move a 2 MU diameter template along the line of fire, at 12-24 MU the template expands to 3 MU diameter, and then from 24-36 MU it expands again to 4 MU diameter. This all happens in the one turn, after which the template is removed. Any ship touched by the template during its flight suffers damage: 4D6 at 0-12 MU range, 3D6 at 12-24 MU and 2D6 at 24-36 MU. There are no defences against wave gun fire: neither screens nor armour reduce the damage inflicted.

If the wave gun is knocked out by a threshold roll or a needle beam hit while it is charging or charged, the carrying ship suffers damage equal to the current charge in the weapon's capacitors. Note that a ship fitted with a wave gun may apply thrust or change course in the same turn that it fires the weapon, unlike the nova cannon.

Reflex field

The reflex field is a variation on conventional screen technology in that it protects its carrying ship (partially) against attack from energy weapons such as standard beam batteries. The interesting aspect of the reflex field is that it has the capability to actually 'return' some or all of the attacking beam energy back to its source, causing damage to the firing vessel!

This nasty little device may be activated in any desired turn, but it must be written in the carrying ship's orders that the field device is to be activated. On any turn that the player does not order the field to be in use, assume it is turned off. The opposing player is not told of the field's status until the ship is fired upon, by which time it may be too late.

If the reflex field is activated, the carrying ship may not use any weaponry of its own that turn, though it may move and manoeuvre normally. Other specialised actions, eg launching or recovering fighters, are also prohibited while the field is active.

When a ship with an operating reflex field is fired on by beam weapons, roll for hits and damage in the normal way. Now the player owning the target ship tells the attacker that the ship has an active field, and rolls 1 D6.

- On a roll of 1 the field has no effect: full damage is applied to the target ship as normal.
- On a 2 the field stops some damage: the target receives only half the normal damage, rounded up.
- On rolls of 3 or 4, the field absorbs all the damage and none is applied to the target.
- On a 5, no damage is applied to the target, but half (rounded up) is reflected back to the firing ship.
- On a 6, the field reflects the full damage back to the firer!

Cloaking field

Cloaking fields are systems that render ships totally invisible and undetectable on all forms of sensors and visual scanning. They are thus very useful under certain circumstances, but they have one big disadvantage as well: though the cloaked ship cannot be seen, it also cannot see out. While the cloak is active it is in its own little world, with no interface to outside reality. (Bit like some gamers...)

The cloaked ship is thus reduced to navigating inertially, based on the data it had when entering cloaking mode –

it has no idea what is going on around it until it decloaks again. The suggested way of simulating this is that when a ship wishes to 'cloak' the player must note this in orders for that turn, and the number of turns the ship is to remain cloaked, eg 3 turns. At the start of its movement for that turn, the ship model is removed from the table and a marker of some kind is placed to mark its location on entering cloaked mode. This marker then remains stationary until the ship decloaks, when it can be removed. For each turn the ship is in cloaked mode, the player writes movement orders for it exactly as normal, although of course nothing is placed on the table to indicate its movement. After the required number of turns in cloak have elapsed, the player returns to the cloaking marker and proceeds to plot out all the moves written for the ship while cloaked, finally placing the ship wherever it actually ends up. Properly planned it will still be on the table, if not it may well be halfway into the next room!

Of course, the player has an advantage over the imagined captain of the cloaked ship, in being able to see the flow of the battle and writes orders accordingly – however this is balanced somewhat by having to specify in advance the number of turns in cloak, to prevent ships choosing to decloak just because a juicy target has wandered into range.

This is just a rough idea for the system, and it may be tinkered with as much as you like – in multiplayer games where each participant has only one ship, it may be interesting to try sending the player out of the room for the turns the ship is cloaked so he or she really has no idea what is going on!

12.4 Mass and points cost

	Mass	Points
Advanced systems		
Minelayer	2	6
	+ 1 per mine	× 2
Minesweeper	5	15
Ortillery system	3	9
Enhanced sensors	2	8
Superior sensors	4	16
Weasel cruiser emitter	4	16
Weasel capital emitter	8	32
ECM system	4	16
Area effect ECM	6	24
Wonder weapons		
Nova cannon	20	60
Wave gun	12	36
Reflex field	10% total mass minimum 10	× 6
Cloaking field	10% total mass minimum 2	× 10

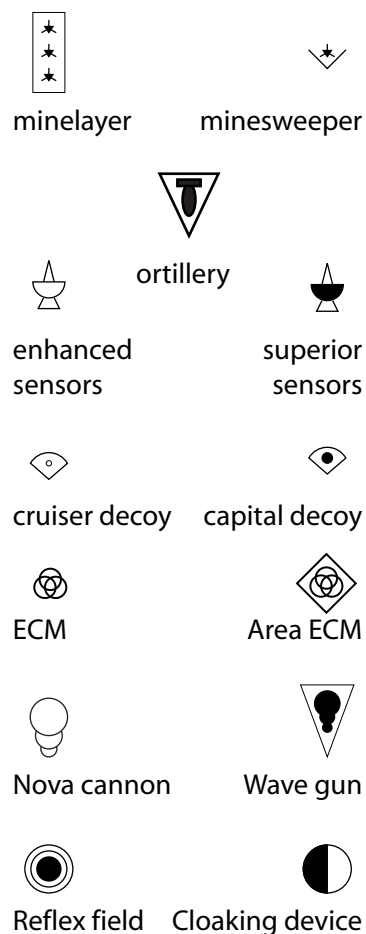


Figure 14: SSD symbols

13 Terrain

It may sound a bit odd to talk of 'terrain' in a space battle, but if you think about it there are a number of possible ideas you can use to render certain parts of the table more difficult, dangerous, or just plain different. The following are suggestions for a few features that you can have on the table to make things a bit more lively than just the usual open space.

13.1 Asteroids

Ships cannot block line of sight or line of fire, in other words you cannot hide one ship behind another, regardless of their classes. However, there are some bodies (such as asteroids or small planetoids) that do have a significant size in relation to the playing area and therefore are able to block lines of fire, movement, and sensor detection.

If asteroids are to feature in a particular game, we must first define exactly how they interrupt sighting and firing. If you are using round or spherical objects to represent the asteroids then it is simple: any line between two ships that crosses any part of the asteroid is blocked.

If, however, you are using irregularly shaped asteroid models, such as foam chunks, then it is necessary to mount them on bases (perhaps 1 or 2 MU across, depending on the asteroid size). A line between two ships is then blocked if it crosses any part of the asteroid's base, which saves any disputes that could be caused by the irregular shape of the asteroid model itself.

If the line of sight between opposing ships (between base centres of models, remember) is blocked by an asteroid, those ships may not fire at each other with any beam or torpedo weapons, or place salvo missiles along that line. Fighters and similar may still fly around the asteroid to attack as normal.

Sensor scans are also blocked by asteroids. At the start of the game, some ships may be hidden behind bodies in an asteroid field; they are represented by bogey markers in the usual way for unconfirmed contacts, but do not have to be revealed until an enemy ship comes within scan range and can get a clear line of sight onto the bogey. (Note this blocking applies equally to active scan attempts as to passive.)

Asteroids can also be a serious hazard to navigation, especially if the field is moving relative to the play area and ships are attempting to travel too fast. If any part of the ship's movement causes it to intersect with an asteroid, there is the possibility of the ship crashing into it. To find if the ship manages to avoid a fatal collision, subtract the ship's total available thrust rating from its current velocity; the number that results must be equalled or exceeded by the roll of 1D6 in order for the ship to avoid hitting the asteroid.

Example: If a cruiser with a thrust rating of 4 is travelling at velocity 9 and its movement intersects with an asteroid

body, subtract the thrust (4) from the velocity (9) to give 5. Thus a 5 or 6 must be rolled for the cruiser to evade the asteroid – on a roll of 4 or less, exit one cruiser!

Note that if the needed number for avoidance is 1 or less, then the ship is automatically able to avoid a collision; if the number is greater than 6, then a crash is inevitable!

When any ship, regardless of its class, hits an asteroid, the ship is completely destroyed. Ramming a billion tons of rock at any speed is not recommended, even in a superdreadnought! The implication of this rule is simple – don't try to manoeuvre big ships near asteroid fields, you'll regret it.

13.2 Movement of asteroids

If a field of asteroids or other planetoids is present on the table, it may either be stationary (ie all bodies remain in fixed positions on the table throughout the game) or else the field may be moving in relation to the playing area (which is much more fun).

If you wish to use a moving asteroid field, all bodies in the field will move at the same speed, and in the same direction, each turn of the game.

Roll at the start of the game to determine the direction and speed of the field's drift: the direction (course) should be rolled on a D12 with a D6 used to give the speed of drift in MU. Rolls of 9 and 4 would mean all asteroids will drift 4 MU each turn along a course facing of 9.

The movement of the asteroids is carried out each turn, after all players have written their movement orders but before any ship models are actually moved.

Please note that if an asteroid moves into or through a ship, this counts as just the same as if the ship was moved to intersect with the asteroid, and is resolved in the same way. Note that fighter groups, if used, can always avoid collisions with asteroid bodies, but may also use them to hide behind just as ships can.

Damage to asteroids

The normal rules assume that asteroids cannot be destroyed by weapons fire. (Or even by ships impacting with them.) However, you may give each asteroid a large damage point value (perhaps 50 for a very small chunk, 100 for a larger one, etc) and then allow players to fire on them. When an asteroid is reduced to zero damage, it disintegrates into 1D6 smaller chunks, which all move at random courses and speeds out from the point of destruction. Try to avoid that lot...

13.3 Dust or nebulae clouds

These have the following effects:

1. Travel through a cloud is restricted to a maximum safe velocity of 12; any ship attempting to exceed this in a cloud will suffer potential damage – roll 1 D6 and

apply damage as for beam weapons fire. Screens offer no protection, but hull armour does.

2. Clouds inhibit beam weapons and fire control lock-on: when attempting to fire at a ship in a dust cloud, or if the firing ship is itself in a cloud, roll a D6 after nominating the target. On a roll of 1-3 the dust has prevented a successful target lock-on and the ship may not be fired at. On a 4-6 the shot may be fired as normal, but if using beams treat the target as having one screen level higher than normal due to beam attenuation caused by the dust. (Screen levels above 2 remain at 2.)

Note that this rule may, if desired, also be used to simulate the effects of ships operating in the fringes of planetary atmospheres, such as when skimming gas giants.

13.4 Solar flares

Flares may occur at random, perhaps diced for each turn, if the battle is happening fairly close to a very active star. They may be assumed to affect the entire table, or just a specific area as the players desire. Any ship that is caught in a flare rolls 1 D6 for each of its FireCons and sensor systems (if the advanced sensor rules are being used), adding 1 to the score per active screen level. On a score of 4+ the system is undamaged, otherwise it is knocked out due to damage to sensory antennae, etc.

13.5 Meteor swarms and debris

These may cover areas of between 6 MU and 12 MU diameter (or other shapes/sizes at players' discretion) and may be stationary on the table or moving in a similar way to the moving asteroid rules.

Any ship that enters or is hit by such a meteor swarm or debris field has 1 D6 rolled for every full 6 MU of velocity, with the actual score rolled equalling the (penetrating) damage sustained. Up to velocity 5 = no damage, 6-11 = 1 D6, 12-17 = 2 D6, etc.

This rule may also cover the effects of the debris in the rings of a ringed planet, in which case a large arc of it could be depicted on the table to cause all sorts of problems!

13.6 Battle debris

When a ship is destroyed by enemy fire, ie reduced to zero damage points or less, it may simply become a drifting hulk, or may actually explode into a cloud of debris.

To determine if this happens, note the amount of excess damage inflicted (over that required to reduce the ship to zero points) and roll a D6. If the score is less than or equal to the excess damage then the remains of the ship explode. For example, if a ship has 2 hull boxes left and suffers a further 5 points of damage, a die roll of $5 - 2 = 3$ or less will cause it to explode.

An exploding ship creates a cloud of debris 2 MU in diameter for an escort, 4 MU for a cruiser, or 6 MU for a capital ship. The debris cloud exists for only 1 turn after the explosion, during which it moves on the same course and velocity as the ship was travelling at the point of destruction. In this turn any ship encountering the cloud treats it exactly as for the meteor and debris rules given in the section above. After the one turn the debris is assumed to have spread out sufficiently to present little risk to other ships, and is removed from play.

These are just a few ideas for the effects of spatial phenomena. Mostly they are pure space opera (ie very high PSB factor) and anyone who has seen a few episodes of the typical science fiction television show will doubtless be able to think of lots more!

Depicting spatial phenomena

The various effects suggested above may be represented on the table by means of pieces of card, cloth, acetate, etc; cut to the relevant sizes for the affected areas. Meteors and debris clouds can be depicted by small cork-bark chips or even gravel spread over the required area. Explosion templates may be made if desired for destroyed ships, which if suitably graphic (lots of red and orange explosion effects!) can be very effective.

13.7 Starbases

Some games and scenarios may call for the use of starbases, orbital defence installations and similar non-powered space constructs. As the possible sizes and designs of such installations are so varied, the rules that follow are simply guidelines to allow you to design and use such equipment. If you really want to build something like the Death Star you'll have to work out the stats yourself!

Movement

Generally, starbases and installations can be treated like asteroids for purposes of movement, ie they can be either fixed (stationary relative to the play area) or can be moving on a pre-determined course and speed each turn.

The mass of such installations can be virtually anything – large starbases will have mass ratings of several hundred with damage points to match. Most installations can be considered as unpowered ships and outfitted with weapons and systems accordingly, using the warship rules for military stations and the merchant rules for civilian/scientific bases and habitats. All systems fitted must be paid for in the normal way, including the overall hull cost, but of course you do not have to pay for any FTL or normal space drives. Installations may mount screen systems just like ships, and may carry any weapon in the rules including fighter groups.

An installation can have an SSD, but requires no movement orders.

Ships may, if desired, dock with installations, although this is unlikely to be done during combat. To accomplish a docking, the ship's movement orders must be planned so that it ends up within 2 MU of the installation at the end of the turn. If the installation is stationary, the ship must also come to a dead stop within 2 MU in order to dock. In the case of a moving installation, the ship must exactly match both course and velocity with the station at the end of the turn. On the following turn, the ship may be taken as docked with the installation. One full turn is also required to 'cast off' and undock again, after which the ship may manoeuvre away from the installation as normal.

While a ship is docked to an installation the ship may be fired on as normal unless it is actually docked internally. (Some very large stations will have bays large enough to take smaller vessels.) An externally docked ship is, however, protected by any screen systems that the installation has while docked. A ship docked to an installation, internally or externally, cannot fire any of its own weaponry or operate its own screens.

Typical installation types

1. Military system defence installation: mass 200, 50% hull. Normally equipped with screens and at least four fighter groups, plus a powerful mix of weaponry.
2. Orbital research station: mass 160, 25% hull, 10% for weapon systems. Usually a screen and some defensive weaponry.
3. Starbase (small orbital facility for minor colonies): mass 400, 25% hull, 10% weapon systems. Well equipped with screens and defensive weaponry, often able to dock two or three ships of up to mass 20 in internal bays. May carry one or two fighter groups for local defence.

13.8 Really big bases

For very big installations and bases, a good way of dealing with them in game terms is to consider them as several separate sections joined together, with each section having its own independent damage points, firecons, and everything else.

Figure 15 shows an SSD for a station divided into seven sections – six sections of its outer disc and a central 'core' section. When fired on, we suggest that fire from ranges of 18 MU and greater hits a section of the station determined at random, while fire from closer than 18 MU may be specifically targeted at a chosen section.

In the example given in the diagram, it seems logical to give each of the outer sections a limited fire arc for its weapons while the central core has all-round fire capability.

Very large sections may use five or more rows of damage boxes, adding one extra row per 100 mass above 400. When rolling for threshold point damage at the end of a

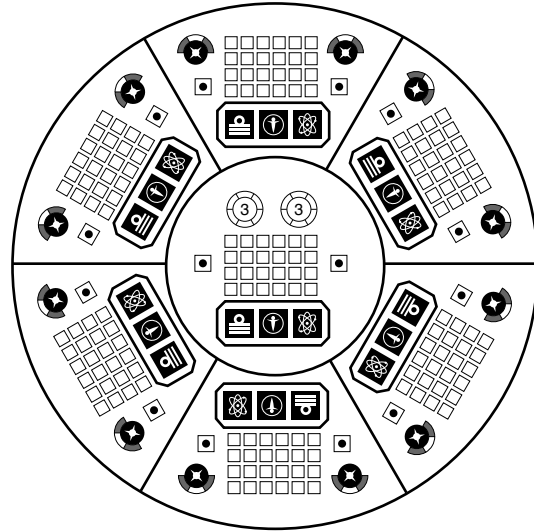


Figure 15: A large starbase

row, the score required starts at 1 on the first as usual, increases to 1-3 by the third row, then remains at 1-3 for all following threshold rolls.

As a final suggestion, if one section of a multi-unit station is totally destroyed (reduced to zero damage points) then all adjacent sections take immediate damage. Roll a number of dice equal to the number of hull box rows the destroyed section had. In the example, if the Fore section were to be destroyed then the sections on either side and the core would each suffer 4D6 points of damage.

14 Planets

While asteroids and small planetoid bodies were covered earlier, no mention was made of actual planets and moons. If you wish to play a scenario where the action is in close proximity to a planet, we suggest the following rules.

Planets and other large bodies may be represented on the table with any suitably sized round or spherical object, with the ideal size being that of a dinner plate or a large football. (Soccer ball to our American readers, as an American football would give a very odd shaped planet – severe gravitational stresses, maybe?). A plate or card disk may be placed flat on the table, though a well painted sphere or half sphere looks very impressive. The actual size can vary according to how big the planet/planetoid is supposed to be – we are not going to define any scales, as they are quite obviously ludicrous compared to the ship models. Just treat everything as abstract and symbolic!

Once you have your planet, you can define the optimum *orbit distance* from its surface. Simply measure the radius of the planet model or marker, and the orbit is a circle of twice this radius.

Example: In figure 16 the planet is represented by a 12MU diameter (6 MU radius) disc, so the orbit would be 24 MU diameter (12 MU radius). Ships would thus orbit in a circle around the planet, 6 MU above the planetary surface.

When in orbit, a ship must be travelling at a velocity equal to the orbital distance above the surface. In this example, ships would orbit at a velocity of 6 MU per turn. To move a ship around the orbit, simply measure around the arc with a flexible tape and move the model the required distance.

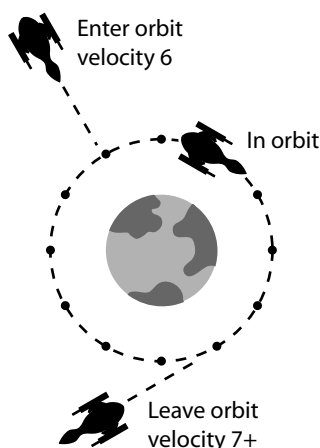


Figure 16: Orbiting a planet

If the ship decelerates to less than the orbital velocity, its orbit will decay and it will start to enter the atmosphere – for the effects of this see the rules on atmospheric operations (section 14.3. If it accelerates to above the orbital

velocity it will leave orbit and move normally, in a straight line at the clock face heading that is the closest tangent to its orbital path.

(Note here to the armchair physics brigade: yes, this is dreadfully abstract, oversimplified, and in some places just plain wrong; but it is easy to use and gets the right feel in game terms. If you really want to do all the math and work it out properly, go ahead...)

While in orbit, the ship does not have to have any course change orders written for it, the player simply notes that it is *in orbit*. Any velocity change will cause the ship to leave orbit, either down or up.

For simplicity, gravitational effects on ships that are not actually in orbit are generally ignored, but if you want to plot the gravity well around the planet and apply varying results according to proximity to it, by all means do so!

14.1 Entering and leaving orbit

As noted above, to leave planetary orbit a ship has simply to accelerate to above the orbital velocity; it will then move away from orbit on a tangential course, as illustrated in the diagram.

To enter orbit, a ship must approach the planet at the correct orbital velocity. When it reaches the orbital distance from the surface, it may (without expending thrust on turning) enter an orbital path, which may be clockwise or anticlockwise around the planet. This is another great simplification, but trying to position your ship at the correct tangential course to the planet seems too difficult a way of doing it, and frankly not worth the hassle.

If the ship hits the orbital distance at less than the orbital velocity, it will enter an automatically decaying orbit and start to enter the atmosphere. If it arrives with greater than the correct velocity it will ram straight into the atmosphere in an uncontrolled entry – you have been warned!

Using table edges

If you do not actually want to represent planets on the table, a valid alternative is the system designed by Jim Webster. One edge of the table is defined as 'deep space', and the opposite edge is the 'planetary orbit'. To safely enter orbit, a ship must exit the planetary edge through a small 'window' marked on the table edge – say 6 MU wide – at a given velocity or less. This velocity must be specified to suit the scenario, but we would suggest it should be no greater than 6. If a ship exits the planetary edge at greater than this velocity, or misses the window, it will suffer an uncontrolled atmospheric entry.

Using this system, the deep space edge of the table can, if desired, also be considered to represent the 'safe jump limit' from the planetary gravity well.

14.2 Atmospheric streamlining

The great majority of starships are not built to ever enter a planetary atmosphere or attempt to land; most are assembled in space and spend all of their operational lives there, using shuttles and other interface craft to carry personnel and cargo to and from planetary surfaces. Such ships are characterised by their totally unstreamlined structure and often square, blocky, or fragile looking designs.

Some ships, on the other hand, are built to operate in atmosphere as well as in deep space, to varying degrees of efficiency. A vessel that is fully streamlined is completely atmosphere-capable, and can 'fly' like an aerospace craft. Other ships may be classified as partially streamlined, which gives them some capability of atmospheric operations and landing, usually by sheer brute thrust from their drive rather than any kind of aerodynamic lift.

For an average world with roughly earth-like gravity, a fully streamlined ship requires a thrust rating of at least 4 to allow it to operate in an atmospheric or interface mode; on the same world, a partially streamlined ship would need at least thrust 6 to enable it to safely land and take off. These figures can be adjusted for other planetary sizes and gravities as players wish.

The provision of a streamlined hull to permit atmospheric operations consumes some of a ship's available mass. This represents the necessary aerofoils, control surfaces, and heatshields as well as the reduction in usable internal capacity caused by the streamlined hull shape.

14.3 Atmospheric entry

A ship may enter planetary atmosphere for a number of reasons: if the ship is fully or partially streamlined, it may enter atmosphere deliberately in order to land on the world's surface. Alternatively, a ship of any configuration may be forced to enter atmosphere due to either a decaying orbit, caused by attempting to enter orbit at too low a velocity; or approaching a planet at too high a velocity and/or missing an orbital insert window.

To make a deliberate safe atmospheric entry, a ship must first enter orbit as described above and then decelerate to less than orbital velocity. It will then make a controlled descent and enter the atmosphere. Provided its drive can provide sufficient thrust for its configuration, it may be assumed to enter successfully and be able to make a safe landing. A ship entering atmosphere with a suitable velocity and configuration, but insufficient thrust available, will make a safe entry but will then crash-land. The effects of this are up to the individual scenario being played.

If a ship makes an uncontrolled entry into atmosphere, roll a D6 and apply the following modifiers:

- If the ship is non-streamlined, add 4.

- If partially streamlined, no modifier.
- If fully streamlined, subtract 2.
- Add 1 for every 1 point of velocity in excess of safe orbital velocity.
- Add 1 for every full 6 MU distance by which orbital insertion window was missed.
- Add 1 if ship's drive is damaged (half normal thrust), or add 3 if drive knocked-out.

On a final result of 2 or less, the ship manages to miraculously survive a ballistic entry, and crash-lands on the planetary surface. The chances of survival for crew/passengers and subsequent events are up to the individual scenario.

On a final score of 3 to 5, the ship burns up in the upper atmosphere, but there is enough time for any interface craft (shuttles, dropships, etc) or fighters on board to attempt to launch. Roll for each small craft on the table below.

On a final score of 6 or above, the ship burns up and all crew, passengers, and equipment on board are lost.

Emergency interface launch

Roll 1 D6 per interface craft or group of fighters:

- On a 1 or 2, does not manage to launch or else launches but is unable to control its entry and burns up. Either way, it is destroyed.
- On a 3 or 4, successful launch and a semi-controlled entry, ending up force-landing at a random destination.
- On a 5 or 6, a controlled entry and ends up in the correct place for the intended landing.

15 Settings for Full Thrust games

15.1 Tournaments

Full Thrust was never intended to be a 'competition' style game when it was written; it was designed to be a simple system for enjoyable, friendly games or even to resolve large space battles easily for use with other game systems or roleplaying. However the system's inherent simplicity and flexibility, coupled with the very easy to use design mechanisms, have proved it a suitable basis for tournament and competition play.

The most important point to remember when trying to use a rules system such as FULL THRUST to run competition games is that, as a deliberately open and generic system designed for players to modify as they wish, some aspects of the rules are far too flexible to let the dreaded 'greater spotted rules lawyers' loose on without specifically closing up some loopholes first.

The notes that follow are intended as a guide to anyone wishing to organise FULL THRUST competition games, and as such may themselves be modified or totally ignored as you prefer!

Ship design and fleet composition

There are several ways of dealing with ship design for competitive games.

One is to run a limited game in which players are allowed to use only the specific ship designs given in the FULL THRUST fleet books, with no modifications, changes in weapons, etc. The players have the freedom to select any ships from the classes provided, up to a maximum points limit set for their fleet; and possibly with limits on classes as well, for instance no more than half points spent on capitals, or a requirement to have 2 cruisers and 2 escorts for each capital. This should give a game where the tactics of play decide the victor, rather than who can stretch the design rules to the furthest limit!

An even more limiting but quite useful idea is to actually give each player a fixed, identical force – that way you are really finding out who is the better tactician (or just luckiest with the dice). This method can be effectively used for 'enter on the day' competitions where players do not have to bring their own fleets along, but use one provided by the organisers.

Another is to have an open contest, where players are allowed to modify their ships to suit their own preferences and ideas of what is most effective.

For open games, all weapons and systems described in the rulebook may be permitted. Whether the organisers wish to allow the use of any of the additional ideas from supplements or fleet books is up to them, but we strongly suggest they try them out for themselves a few times before permitting them to be used in competition – we make no guarantees about what they will do to the balance of play!

We recommend that players providing their own fleets of models should be required to have an identification somewhere on the base of each model that not only contains its actual ID number or letter but also describes the specific ship class: frigates labelled FF, light cruisers CL, and so on. This permits the opposing player to have some idea of the supposed mass of a ship, regardless of what kind of model is being used to represent it.

Size of fleets

We suggest that for most competition play the fleets should be kept fairly small to allow a game to be played to completion in a reasonable time. The ideal size is probably around 1500 points in total, though fleets as small as 1000 points can still be effective. Forces of over 2000 points will probably be a bit large unless plenty of time and table space is available.

Type of game and scenario

Most 'historical' competition gaming is of the 'both armies line up facing each other and advance to beat the **** out of the opposition' type of scenario. Although rather uninspiring, this kind of game is certainly the easiest to use as it avoids the problems of balancing a specific scenario to give an equal chance to both contestants. Simply play the game as a 'meeting engagement' with each fleet entering from a different table edge at a pre-agreed velocity. Note that it is not necessary to have the players approaching from opposite table edges; it is probably more valid to have them enter from the two corners of the same edge, on slightly converging vectors, as though the two fleets were trying to intercept each other by matching trajectories.

A bit of extra fun can be introduced by a few randomly placed asteroids on the table – moving ones if the organisers are really feeling nasty.

Of course, it is possible to use a more involved scenario for competitive games if you are prepared to design it very carefully, but be aware of the potential difficulties.

Suggested special rules and limitations

1. No FTL drive entry or exit may be attempted at any time during the game – assume the battle takes place too deep in a gravity well. All ships, however, must be FTL capable: system defence ships are not permitted.
2. No stationary installations are permitted, unless part of a specific scenario.
3. Sensor rules may be used at the organiser's discretion, either simple or more detailed. In general, we recommend that no sensors or bogies are used, all ships being in plain view at all times.
4. If an umpire (or ideally two) is available, we suggest that after the players have written their movement orders their sheets are handed to the umpire(s) who

then actually move the ships according to their interpretation of the written orders. The decisions of the umpire(s) are final regarding any dispute over ship positioning. This prevents any deliberately vague order writing and 'creative flexible movement' by some players (not that you would even think of such a thing, would you?)

5. Ships leaving the table, either deliberately or by accident, may not return at any time during the game.

Please note: competition organisers are hereby granted permission to reproduce limited portions of the Full Thrust books as necessary for defining special rules to be used in competition, including the copying of ship SSDs and quick reference sheets. Permission is specifically not granted, however, for the reproduction of full or partial versions of the actual rules of play for the purpose of supplying these to entrants or for any other purpose.

15.2 Other backgrounds

Although it is perfectly acceptable to play a one-off battle without any thought being given to the background setting of the action, having some idea of the origins and intentions of the fleets involved does give an extra dimension to the game. The 'official' FULL THRUST background is just one possibility among countless ones drawn from films, television, novels, and (not least) from the players' own ideas and imaginations. Several of the more famous movies and series will naturally spring to mind, but we hope this section will also guide you towards some less obvious settings.

We cannot actually print rules for using FULL THRUST to simulate the battles in some of the better known settings, as they are already licensed to other game companies. Many players have created rule ideas and conversions that feature ships with pointy-eared first officers and very Scottish chief engineers, and most of these ideas play very well; with a little thought most of you should be able to come up with something very similar.

So, what about the sort of alternative backgrounds that we *are* allowed to print?

Well, a particularly unusual but thought-provoking one is the **Victorian Science Fiction** theme – taking as its basis the idea that, in an alternative history, space travel becomes possible in the era of Jules Verne and H.G. Wells. By the close of the 19th century mankind has got a fair way towards exploring our own solar system, using spaceships made of boiler plating and lots of rivets! This sort of background can be played very simply using just the basic FULL THRUST rules – the smaller ship classes become the little gunboats and torpedo boats, the capital ships huge lumbering space ironclads. For added flavour, rename the weapons with something more 'period' – the pulse torpedo becomes the Truscott-Ridley Mark III Ether Torpedo Discharger. You can tinker with the rest of the rules as much or as little as you like, but remember to really ham it up while playing: English gentlemen ("It was hell Carruthers, fourteen weeks in space

without even a trouser press"), monocled Prussians, unwashed anarchists, and all the other stereotypes you can think of!

Another enormous area of possible background material is to be found in **Animé** (Japanese animation) and its printed relative, **Manga**. There is a huge wealth of science fiction settings here just begging to be used, especially as several of the films and series feature lots of spacecraft and some titanic battle sequences. Some particular examples are SUPERDIMENSIONAL FORTRESS MACROSS, SPACE CRUISER YAMATO, GALL FORCE, GUNBUSTER, and the lesser-known LEGEND OF THE GALACTIC HEROES (which features some of the most amazing massed capital ship engagements you could wish for). Many, of course, feature that perennial Japanese favourite: the Very Big Robot or "Mecha". These can range from the reasonably sensible smallish types used in MACROSS and MOBILE SUIT GUNDAM up to the really silly huge ones in GUNBUSTER – great fun if you suspend your disbelief and take it all at face value.

If you want to use the very large Mecha types we suggest that these are treated as ships in their own right, and use the normal design rules with perhaps a few special tweaks for their unusual nature. Smaller Mecha may be treated much like fighters, operating in groups of up to 6. Given many Mecha designers' love of using lots of missiles, it would be reasonable to use submunition packs and salvo missiles as the major weapon type on Mecha of all sizes. (And perhaps work out a smaller, shorter ranged submunition system for the little Mecha fighters.)

One very 'Animé' weapon has been included in these rules: the Wave Gun (page 39) was strongly influenced by the very big weapon systems used in several shows and films, including YAMATO.

(For a very good reference on Animé starships, look for a copy of Mecha Press magazine, issue no. 9, produced by Ianus Publications, 2360 de LaSalle Ave, No.211, Montreal, Canada. This particular issue contains an in-depth look at many Animé spacecraft, including statistics from which FULL THRUST designs can be easily extrapolated. The issue also gave us a nice plug for FULL THRUST itself – thanks, guys!)

15.3 Humour

Some players take their gaming far too seriously. FULL THRUST is an ideal antidote to an overdose of 'serious gaming', and it is very unusual not to have participants rolling around in laughter after someone cracks a particularly awful SF cliché.

There is quite a lot of good SF humour around in books, television, and films from which to gain inspiration for running some really silly games. Just remember when running this sort of game that humour is generally more effective in small quantities – a little satire can often hit the mark much better than a pie in the face joke. If you go too far over the top the game will degenerate into chaos,

whereas a few well-timed bits of silliness will liven up the evening no end.

If you *do* want the game to degenerate into chaos, it is traditional in any humorous GZG game for sheep to be present, if not actually the greatest threat to humanity. No walking balls of wool, these sheep range from the merely savage and carnivorous to the twisted unnatural flocks that worship Primordial Horrors From Beyond Space and Time. If you find yourself in a scenario with the mission objective being to defend Baabylon 5 against the forces of Baath Vader, expect the worst!

15.4 Background and timeline

FULL THRUST was written from the start as a generic system, that is, it was not set in any specific 'Future History' but instead provided a rules framework for players to fit into whatever background they preferred – whether from a book, film, another game, or just their own ideas.

For completeness, we do include an **optional** background setting. This optional nature cannot be over emphasised: there is a full setting and history provided here if you wish to use it. If you prefer to ignore it completely and use your own ideas, then all the better! For too long, gamers have been spoon-fed by certain companies into believing that they should only set their games in the “official” universe for that system.

Please treat the background just like any of the advanced rules; if you like it, by all means use it – if you don't, then write your own and ignore anyone who tries to say you're doing it wrong!

(Like all science fiction 'future histories', the real world has diverged since this was first published.)

The Road to the Stars

Following the break-up of the former Soviet Union in the early 1990s, the first part of the 21st century was a time of unprecedented peace for the major countries of Earth. Peace did not necessarily mean prosperity, however, as worsening economic and ecological problems continued to beset many nations; minor confrontations and brush-fire wars persisted between the smaller powers despite valiant efforts by the United Nations to maintain stability and mediate in disputes.

By the 2020s, the economies of the USA, the former Soviet states, and many of the poorer nations of Europe were looking decidedly shaky. Increasing industrialisation in South America, Asia, and parts of Africa began to show dividends for those countries in the world markets, while Japanese technological innovation continued to expand at a virtually exponential rate.

Ironically, one of the most horrific events ever to be perpetrated on humanity was itself to prove the stepping stone to its greatest advance. On April 23rd, 2027, the state of Israel was effectively wiped from the face of the world by a series of terrorist-planted nuclear and

biochem weapons detonated in or near all of its major cities and military installations. Those areas not reduced to radioactive slag were rendered uninhabitable by fallout and chemical agents, and casualty figures were estimated at 73% within the first twelve hours after the attacks.

The events of 23rd April shook the world, in a literal as well as political sense. No less than fifteen separate Islamic fringe groups claimed responsibility in what they called the 'final victory'; the sheer horror of their act seemed to so overwhelm public opinion the world over that the UN was thrown into confusion, unsure of how to react, or who against. Initial cries for massive nuclear retribution gradually died away as it was realised that retaliatory genocide was as pointless as it was globally dangerous. In the end it was the remnants of the Israeli military and intelligence services that exacted some small shreds of revenge, when the leaders of nine of the terrorist groups responsible were systematically exterminated over the first week of May, regardless of the nations in which they had taken refuge.

As the Jewish peoples of the world began to pull themselves back together, many groups swore oaths of undying vengeance against the forces of Islam; others, however, began to look for ways to rebuild. Their 'homeland' might be gone, but their nation lived on in communities scattered throughout the world, as it had lived in their hearts and minds for centuries before. In 2029 the Gilderstein Foundation in New York began a recruitment programme for the greatest mathematicians, engineers, and theoretical physicists in the world, offering huge salaries and incentives for the best people. Purchasing a small island off the Philippines in 2032, the Foundation (with massive technical support and funding from several Japanese megacorporations) initiated its visionary programme: to break free from the confines of the solar system, and find a world on which to found the New Israel, the second Promised Land.

There followed many years of false starts and dead-ends for the Foundation's work, while the economic situation the world over fluctuated wildly. Early in 2045 the Eastern states of the Russian Commonwealth were subject to border incursions from the increasingly hostile Beijing government, and in 2046 South Korea fell to a lightning strike by North Korean and Chinese forces. Again the UN dithered, its major supporters too busy with worsening internal affairs to actively intervene. The Asian unrest culminated in January 2047 with the Third Russian Revolution, in which a Chinese-sponsored coup returned Communism to several of the states of the Commonwealth and declared the formation of the Eurasian Union. By mid-2047 the only Commonwealth states clinging to freedom were the Ukraine, Byelorussia, and the Baltic States, the remainder of the former USSR being firmly in the grip of Beijing.

On the other side of the world, the USA was also faring very badly. The staggering economy finally collapsed in 2049, followed immediately by the downfall of the Federal government, precipitated by the assassination of

President Amy Koslowski in the bombings of the White House by an unknown group. As the US began a rapid descent into anarchy and state feudalism a group of senior officers under Air Force General Parham declared the formation of a military government from NORAD headquarters. This apparent 'coup' was violently opposed in many states, and the situation began to deteriorate further towards a second civil war.

In 2050, General Parham requested UN military involvement to quell the uprisings in over twenty-six states, but the UN was still preoccupied with the problems in Eurasia and refused direct intervention. Finally the military government turned to Canada and Britain, the latter having been steadily reforging its traditional links with the USA over several years due to growing disillusionment with the French-dominated European Community. At first the British and Canadian governments were reluctant to become too involved, until September 2050, when separatist elements in Florida carried out a limited nuclear attack on North Dakota. A week later, a large task force of British and Canadian troops arrived in the US and supported the national military in seizing control of most of the nuclear installations throughout the nation. The pacification of the United States was to take another six years, and led to the formation in 2057 of the Anglian Confederation, uniting the former US and Canada under the British Crown, the office of Lord Governor being established to oversee the rebuilding of the North American economy and industrial base. Despite Parham being the obvious candidate for the post, public opinion and media pressure resulted in Admiral Dewsbury (USN) being appointed as the first Lord Governor in July 2057.

Meanwhile, the Gilderstein Foundation had been continuing its work on its isolated and fortified atoll, seemingly oblivious to the world-shattering events taking place elsewhere. Having moved all its funds to Japanese banks some years earlier, the Foundation was unaffected by the US collapse; in 2058 a report was leaked to several scientific journals that indicated a breakthrough was imminent. Shortly afterwards the Foundation used EuroSpace launch facilities to put an extensive lab module at the L5 Lagrange Point. In 2059, the L5 lab simply disappeared from all Earth and orbital sensors; a significant energy discharge was registered at the moment of disappearance, but no remnants or debris were ever located.

It was 2026 before the Foundation revealed to the world press that two of its top researchers, Dr. Theodore Krensberg and Dr. Mai Tsukuda, had been lost in the L5 disappearance while working on the final development of their Spatial Displacement System, the prototype for what is today known simply as the 'FTL drive' (although technical personnel continue to refer to it as the Tsukuda-Krensberg drive, or TK drive, in honour of its inventors.)

In May 2063 it was announced that the Foundation's first functional trans-solar probe was ready for a test flight. Twenty days later the probe returned from Barnard's Star with enough photographs and sensor data to convince even the most sceptical scientists that Einstein's theories

had been, if not broken, then at least cleverly circumvented.

The loss of three out of five of the following probe missions due to unexplained causes delayed sending of a manned mission until 2067. In that year, on the 8th of July – almost 98 years since man's first footsteps on the moon – Captain Yoshida Mifune and Dr. Gloria Vandenberg, on board the FTL Probe ship *Shalom*, became the first human beings in recorded history to leave mankind's nursery and reach out for the stars.

Condensed from 'Breakaway – Man's Road to the Stars' by Thomas Yokuna-Falken, published by New Anglian EPress, Down, Albion, 22/10/2152.

15.5 Human history 1992 to 2183

By the dawn of the 22nd century the human colonisation of nearby star systems is well established following the development of the jump drive in the 2060s, but mankind has still not learned to put aside conflict. Instead, the expansion to the stars has simply given humanity a much bigger area over which to fight. The discovery of the first few habitable worlds around other stars caused a frenzied landgrab by almost all nations of Earth, each trying to secure their own piece of the new real estate – thus most of the nearer worlds (the "Inner Colonies") each have numerous small settlements from different nations and alliances. This, of course, means that all the rivalries and hatreds of the various political and ethnic groups have been exported to the new worlds along with the emigrants – it does not take many of these groups long to decide that they need to fight their neighbours as well as their new environments...

The two largest power blocs on Earth and in colonised space are the New Anglian Confederation (NAC), a primarily British-controlled alliance encompassing Canada and the former USA which grew out of the rubble of the Second American Civil War, and the Eurasian Solar Union (ESU) which is the Chinese dominated Sino-Russian bloc. The United Nations, by now very much an independent body with its own resources and military forces, continues to try to keep some kind of lid on the simmering pot of international (and now interstellar) relations.

2014 Britain withdraws from the United Federal Europe following the Spanish invasion of Gibraltar.

2018 Nicholas III crowned Czar in St. Petersburg as the Romanovs return to Russia.

2023 Creation of the UFE sponsored Economic Union of African Republics (EUAR) in central and southern Africa. Arab African countries remain outside of the Union.

2027 Destruction of Israel by Islamic terrorist action.

2032 The Gilderstein Foundation purchases an island off the Philippines, and with technical and financial support from Japan embarks on its research programme into FTL travel.

<p>2042 The EUAR follows the example of the UFE and becomes a federal super-state – the Pan-African Union (PAU).</p>	<p>2096 Founding of ‘New Israel’ on Garden world in the Epsilon Indi system.</p>
<p>2043 The House of Saud completes its suppression of its fellow Arab states and creates the Islamic Federation.</p>	<p>2099 First settlement of Albion by Anglian Confederation colonists.</p>
<p>2045 Heavy fighting on the Sino-Siberian border as the Beijing government presses long redundant border claims against a financially and politically bankrupt Russia.</p>	<p>2101 The struggling and unstable United Federal Europe finally disintegrates as Germany, Austria, and several East European states agree to form the Neu Swabian League (NSL) in protest at continued French domination of the UFE. In response, France and the remaining members of the UFE (notably Italy and Spain) dissolve that organisation and reform as the Federal Stats Europa (FSE). War breaks out between the NSL and the FSE over border area claims and counter-claims.</p>
<p>2047 A Beijing sponsored coup in Moscow results in the return of Communist government to Russia and several of the Commonwealth republics. The Czar and a sizeable military force flee to the Ukraine, which along with Byelorussia and the Baltic States remains free. The communist states then create the Eurasian Union; the remaining Commonwealth states create the Romanov Hegemony.</p>	<p>2102 The Netherlands, which had been at best an unwilling ‘associate member’ of the FSE since the UFE collapse, breaks all ties with the FSE. Refusing an offer of alliance from the NSL, the Dutch reassert their independence.</p>
<p>2049 The US economy collapses, followed by the federal government as the president is assassinated in the bombing of the White House. General Parham declares the creation of a military government.</p>	<p>2104 The Treaty of Saarbrucken brings a conclusion to the FSE/NSL war, confirming territorial boundaries on Earth and the Inner Colonies and establishing spheres of influence in the Outworlds. The peace accord is sponsored by the UN and NAC, and although neither of the protagonists is really happy with the outcome they are both too economically weakened by the war to protest effectively.</p>
<p>2050 Parham requests UN military involvement to restore order in the US. The request is denied. The military government turns towards Britain and Canada for help. The ‘pacification’ of the former USA begins.</p> <p>In South America, the US inspired Organisation of American States collapses and is replaced by the Brazilian/Argentinian dominated League of Latin American Republics.</p> <p>Philippines conquered by Indonesia and assimilated into the new Indonesian Commonwealth. In response to the growing Indonesian threat, Australia, New Zealand, Papua New Guinea, and a number of South Sea Island states create the Oceanic Union.</p>	<p>2110 War breaks out between the Indonesian Commonwealth and the Oceanic Union in Papua New Guinea. Generally a low intensity war, it is notable for the widespread use of grav vehicles as major combat weapons for the first time on Earth.</p>
<p>2051 The Eurasian Union crosses the Himalayas and invades the Indian sub-continent.</p>	<p>2112 The Sydney Accord ends the Papua New Guinea war.</p>
<p>2054 The remainder of Indo-China falls to the forces of the Indonesian Commonwealth.</p>	<p>2123 Islamic Federation and ESU forces clash on Earth as the ESU massacres many Muslims in an anti-Islamic pogrom in the Indian sub-continent. Diplomatic efforts result in an escalation of full scale war being averted.</p>
<p>2057 Britain, Canada, and the United States unite under the Crown and create the Anglian Confederation. Admiral Dewsbury appointed Lord Governor of the territory previously known as the United States of America.</p>	<p>2124 Expanding interests on the colony worlds and the difficulty of maintaining strong centralised control forces some liberalisation within the ESU. Poland and Czechoslovakia petition to join the ESU as ‘economic partners’, considering themselves to have been poorly treated by the NSL.</p>
<p>2059 The Gilderstein Foundation’s L5 Lab disappears from orbit.</p>	<p>2127 The balance of power within the ESU shifts away from Chinese domination as the Union Government is moved from Earth to the mainly Russian-settled Nova Moskva.</p>
<p>2062 The Foundation reveals the true nature of the disappearance of the L5 Lab.</p>	<p>2128 LLAR mercenary forces hired by the Indonesian Commonwealth clash with Anglian forces on Earth against their employers will. The Indonesians execute the entire force in a move designed to conciliate the AC. The LLAR protests at the outrage and attacks the Indonesian Commonwealth. The Mercenary War, as it becomes known, lasts four years with both sides employing large contingents of mercenary and volunteer forces to complement their existing arsenal.</p>
<p>2063 The first trans-solar probe is launched to (and returns from) Barnard’s Star.</p>	<p>The Islamic Federation and PAU clash over spheres of influence in space. The FSE enforces a peaceful solution.</p>
<p>2067 The Gilderstein Foundation sends the first manned FTL mission out of the solar system.</p>	<p>2130 Shi’ite fundamentalists declare independence from the Islamic Federation on their Outworld settlements of Abu Mana and Sad Al Bari. The two colonies declare the formation of the Saeed Khalifate, and in efforts to raise much needed hard currency soon begin to utilise their armed forces as mercenary units for hire.</p>
<p>2069 Both the Anglian Confederation and the UFE launch FTL craft and begin the colonisation of space.</p>	
<p>2070 With help from the UFE, the Islamic Federation, the PAU, and the Romanov Hegemony all launch FTL craft.</p>	
<p>2072 The Eurasian Union launches its first FTL ship and re-names itself the Eurasian Solar Union.</p>	
<p>2075 The LLAR launch their first FTL craft, as does the Indonesian Commonwealth.</p>	

2132 ESU and Anglian forces skirmish on Chi Draconis VII as both powers continue to expand their colonial settlement programmes. Over the next five years such 'border skirmishes' become more frequent, especially in the minor colonies and Outworlds.

2133 Radical French separatists in the colony settlements of Bretonneux, Doullens, and Compville declare unilateral independence from the FSE. Elements of the Colonial Legion are sent to quell the insurrection.

2135 The Anglian Confederation moves its Parliament to Albion, which now has a population almost as large as England thanks to massive immigration and engineered population growth. The reigning monarch, King Charles V, divides his time between palaces in England, Vermont, Ottawa, and Albion.

2136 The Anglian Confederation renames itself the New Anglian Confederation and revises its constitution to include all related colonies as independent members.

2137 The Eurasian Solar Union declares war against the New Anglian Confederation due to 'the hostile actions and intents of the imperialists'. Five years of intense warfare known as the First Solar War follows throughout the inner colonies and the Outworlds.

2142 The Accord of Freisland brings the First Solar War to an end, with the Anglians hailing it as a major victory while the ESU licks its wounds and considers its next move. Human Space enjoys an all-too-brief period of relative peace.

2143 The United Nations Space Command (UNSC) is formed to forbid space conflict in the core systems, and provide a peacekeeping force where required in the inner colonies. Pressure by several major powers results in the UNSC having no mandate to operate in the Outworlds, except in a scientific research capacity.

2145 A surprise strike against the Romanov Hegemony by ESU units heralds the outbreak of the Second Solar War. This time more major powers are quickly dragged into the conflict, with the NAC and NSL supporting the RH against the "Communist Aggression" while the FSE and the PAU enter the war on the Eurasian side. UNSC presence prevents the war intruding on the core systems, although combat occurs on several inner colonies.

2154 The FSE concludes a peace treaty with the NAC, NSL, and RH alliance and withdraws from the Second Solar War. The PAU makes a last abortive attempt to retake Grand Lahou before joining the peace negotiations.

2157 Following long negotiations, the Treaty of Khorramshahr brings the Second Solar War to an end.

2159 California and Texas declare themselves independent from the NAC, and claim all rights to the colonies on Austin and Fenris (which they rename New Pasadena). After much diplomatic protest and sabre-rattling, plus a few token military strikes, the NAC accepts the declaration and the Free Cal-Tex (FCT) is formed.

2163 Islamic fundamentalists seize power in New Riyadh, murdering the remaining members of the Saudi royal family. Loyalist elements attempt to regain power in a two year civil war but fail. The Islamic Federation becomes increasingly hostile towards both the NAC and the ESU.

2165 The Third Solar War breaks out as NAC forces launch a 'blitzkrieg' attack to regain worlds lost to the ESU following the Treaty of Khorramshahr. Initial successes falter as the FSE joins the ESU, providing men and materials as well as

money to hire mercenary contingents from the Indonesian Commonwealth and the LLAR.

2166 The Third Solar War escalates further as the NSL attacks the bordering FSE frontier. Mercenary forces from New Israel are hired by the NAC. The Romanov Hegemony attacks the ESU and refuses safe passage for Indonesian or LLAR mercenary units through its space.

2169 Sponsored by NAC agents, the French separatists in Bretonneux and Doullens overthrow the Federal forces and proclaim the New French Republic.

2170 Compville joins the New French Republic, which is still denied any kind of diplomatic recognition by the UN due to FSE pressure.

2171 The war enters a relatively quiet phase, with most protagonists involved in little but minor skirmishing and diplomatic posturing. The major powers use the next few years to consolidate and rebuild their depleted forces, and an uneasy state of "peace within war" ensues.

2173 The Sumani IV incident: ESU and NAC peace negotiators assassinated by an Islamic Federation terrorist attack. Years of distrust between the two powers lead to them blaming each other and failing to identify the real culprit.

2176 Archaeologists discover the remains of a non-human civilisation on a rim world planet in Indonesian space.

2177 A sudden ESU fleet attack on the Anglian Nagisa system signals the start of the next 'hot phase' of the Third Solar War.

2183 The UNSC survey cruisers McCaffrey and Niven are lost while on a mission in the outworld rim; the UNSC despatches the PeaceForce cruiser Heitman to investigate, and identifiable debris from the Niven is located showing signs of combat. There is no trace of the McCaffrey or any hostile forces; all spacegoing nations deny any involvement in the incident, and public speculation grows that the UN is suppressing information about the unknown aggressors
...

Situation update: 2183

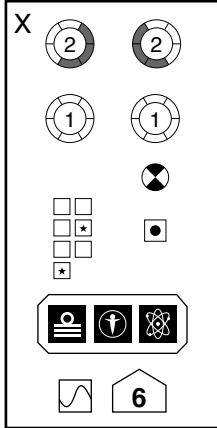
The political situation in human space as of 2183 is a highly unstable one. The major power blocs of the ESU and NAC are locked in a decades-long war of attrition punctuated by sudden bursts of renewed fighting, while many of the smaller spatial and Earthbound powers are involved in minor wars, skirmishes, and disputes of their own.

The UNSC has so far managed to carry out its primary function, that of preventing space warfare (and thus the risk of planetary bombardment) in the core systems of Sol, Centaurus, and Barnard's Star. It has, however, been largely ineffective in its secondary role as a peacekeeper in the multi-national inner colonies. The Outworlds – minor colonies and outposts, mainly claimed by single nations – are suffering badly from the effects of the Third Solar War and the consequent disruption of the trade and commerce which is their lifeline.

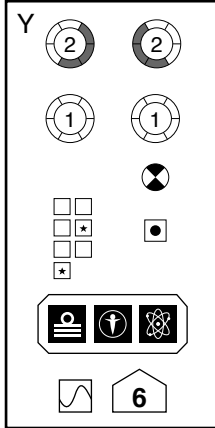
The recent disappearance of the two UNSC survey ships has caused a storm of panic speculation among the media, with the sensationalist press screaming headlines of 'Aliens from Beyond the Rim'...

Scenario SSDs and counters

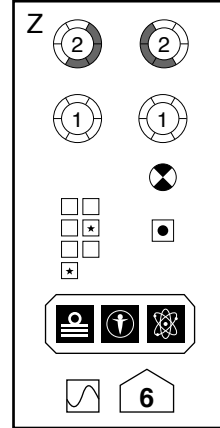
Frigate



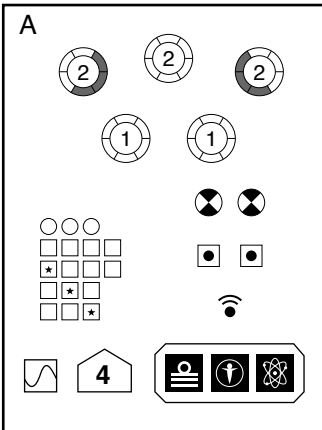
Frigate



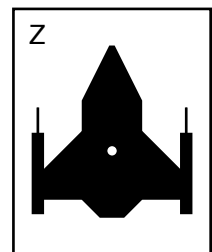
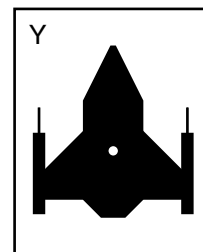
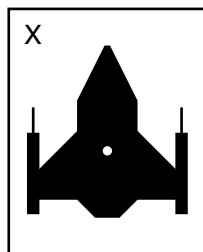
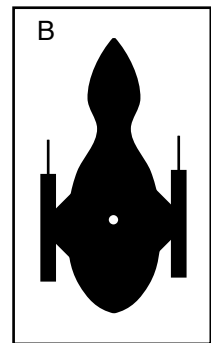
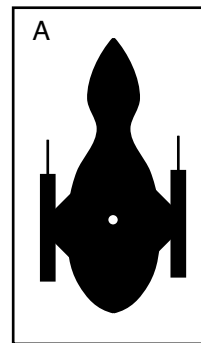
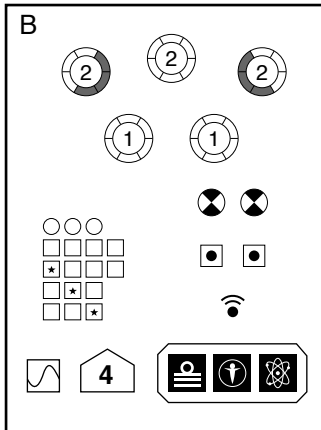
Frigate



Cruiser

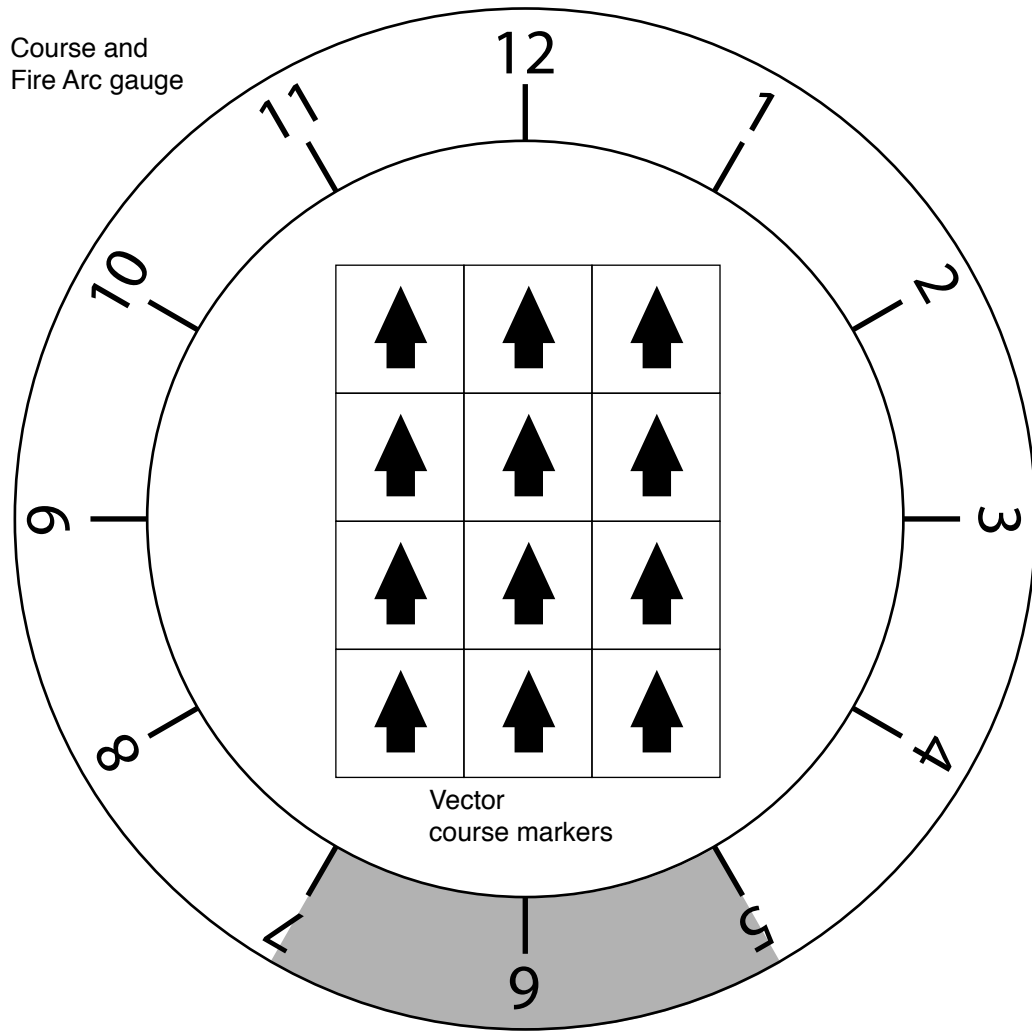


Cruiser



	Turn	1	2	3	4	5	6	7	8
Cruiser A	V:	6							
Cruiser B	V:	6							
Frigate X	V:	6							
Frigate Y	V:	6							
Frigate Z	V:	6							

Course and
Fire Arc gauge



Bogey Capital	Bogey Escort	Bogey Cruiser	Bogey Merchant
Bogey Capital	Bogey Escort	Bogey Cruiser	Bogey Merchant
Bogey Capital	Bogey Escort	Bogey Cruiser	Bogey Merchant
Bogey Capital	Bogey Escort	Bogey Cruiser	Bogey Merchant

 Mine	 Mine	 Mine
 Mine	 Mine	 Mine
 Mine	 Mine	 Mine
 Mine	 Mine	 Mine

GZG Miniatures

The FULL THRUST starship miniatures line now includes over 200 different models. For sales in the UK, Europe, the Americas, but not Australasia, please contact GZG at the address below. Customers in Australasia should contact Eureka Miniatures.

Ground Zero Games

www.gzg.com

Email: jon@gzg.com

Eureka Miniatures

www.eurekamin.com.au

Email: nicr@eurekamin.com.au

The partial list here is as accurate as possible at time of writing (August 2008) but availability of every model cannot be guaranteed.

EURASIAN SOLAR UNION (ESU)

FT-201A Kilo fighters
FT-201B Katya fighters
FT-202A Lenov scoutship
FT-203 Nanuchka class II corvette
FT-204 Novgorod frigate
FT-205 Warsaw destroyer
FT-205A Volga super destroyer
FT-206 Tibet light cruiser
FT-707 Beijing escort cruiser
FT-208 Gorshkov heavy cruiser
FT-208A Voroshilev heavy cruiser
FT-209 Manchuria battlecruiser
FT-210 Petrograd battleship
FT-211 Rostov battledreadnought
FT-212 Komarov superdreadnought
FT-213 Konstantin attack carrier
FT-214 Tsiolkovsky light carrier
FT-221 Kisha heavy fighters

FEDERAL STATS EUROPA (FSE)

FT-601 Mirage IX fighters
FT-602 Mistral scoutship
FT-603 Athena corvette
FT-604 Ibiza frigate
FT-605 San Miguel destroyer
FT-605A Trieste super destroyer
FT-606 Suffren light cruiser
FT-607 Milan escort cruiser
FT-608 Jerez heavy cruiser
FT-609 Ypres battlecruiser
FT-610 Roma battleship
FT-611 Bonaparte battledreadnought
FT-612 Foch superdreadnought
FT-613 Bologna light carrier
FT-614 Jeanne D'Arc fleet carrier
FT-621 Camerone heavy fighters
FT-622 Requin strike boat
FT-625 Hydra destroyer

FREE CAL-TEX

FT-1401 Long Horn fighters
FT-1405 Austin destroyer

IMPERIAL JAPANESE STAR FLEET

FT-1301 Wakizashi light fighters
FT-1302 Ninja scoutship
FT-1303 Bakemono strike corvette
FT-1304 Ashigaru patrol frigate
FT-1305 Soyokaze destroyer
FT-1306 Arashi light cruiser
FT-1307 Ronin patrol cruiser
FT-1308 Samurai heavy cruiser
FT-1309 Kesshi battlecruiser
FT-1310 Yamato battleship
FT-1311 Musashi super battleship
FT-1312 Shogun command dreadnought
FT-1313 Hiryu light carrier
FT-1314 Akagi super carrier
FT-1321 Katana heavy MMCF fighters
FT-1321A Katana fighters - MECHA mode
FT-1322 Naginata strikeboat
FT-1324 Shoya sensor picket

ISLAMIC FEDERATION

FT-1001 Djinn light fighters
FT-1003 Khabar corvette
FT-1004 Al Hawar frigate
FT-1005 Saladin destroyer
FT-1007 Patrol cruiser
FT-1008 Heavy cruiser
FT-1010 Sword of Islam battleship
FT-1012 Dreadnought
FT-1013 Battle carrier
FT-1021 Ghazi heavy fighters
FT-1022 Al Shaulah strikeship

MERCHANT, SURVEY, AND SUPPORT SHIPS

FT-302 Clarke exploration/survey cruiser
FT-305 Hamburg heavy modular star freighter
FT-305A Star freighter extension unit and cargo pods
FT-306 Bustler space tug
FT-307 Antares inner system shuttle
FT-308 Medium freighter
FT-309 Medium freighter alternative
FT-310 System defence cruiser
FT-311 Bremen freighter
FT-314 Schwarzwald heavy freighter
FT-316 Short-haul light freighter
FT-317 Light tanker ship
FT-318A Medium freighter, type A bridge
FT-318B Medium freighter, type B bridge
FT-319 Heavy modular freighter
FT-320 Light personnel shuttles

NEW SWABIAN LEAGUE (NSL)

FT-501 Adler fighters
FT-501A Wulf interceptors
FT-502 Falke scoutship
FT-503 Stoschen corvette
FT-504 Ehrenhold frigate
FT-505 Waldburg destroyer
FT-505A Waldburg/M destroyer
FT-506 Kronprinz Wilhelm light cruiser
FT-507 Radetzky escort cruiser
FT-508 Markgraf heavy cruiser
FT-509 Maximilian battlecruiser
FT-509A Richthofen battlecruiser
FT-510 Maria von Burgund battleship
FT-511 Szent Istvan battledreadnought
FT-512 Von Tegetthoff superdreadnought
FT-513 Der Theuerdank fighter carrier
FT-514 Kaiser Fredrich light carrier

FT-521 Wespe heavy fighters

NSL XENO WAR NEW CONSTRUCTION

FT-522 Strikeship
FT-523 Corvette
FT-524 Frigate
FT-525 Destroyer
FT-526 Light cruiser
FT-527 Escort cruiser
FT-528 Heavy cruiser
FT-529 Battlecruiser
FT-530 Battleship
FT-531 Battledreadnought
FT-532 Superdreadnought
FT-533 Light carrier
FT-534 Super carrier
FT-535 Missile destroyer
FT-536 Orbital assault ship
FT-537 Escort carrier
FT-538 Attack cruiser
FT-539 Strike carrier
FT-540 Heavy battleship
FT-542 Scoutship
FT-545 Heavy destroyer
FT-546 Type II light cruiser
FT-547 Type II escort cruiser
FT-551 Light fighters
FT-552 Heavy fighters
FT-561 Fleet replenishment tender
FT-562 Fleet refuelling tender

NEW ANGLIAN CONFEDERATION (NAC)

FT-101 Firestorm I fighters
FT-101A Firestorm II fighters
FT-102 Harrison scoutship
FT-103 Arapaho corvette/lancer
FT-104 Minerva frigate
FT-105 Ticonderoga destroyer
FT-106 Huron light cruiser
FT-107 Furious escort cruiser
FT-108 Vandenburg heavy cruiser
FT-109 Majestic battlecruiser
FT-110 Victoria battleship
FT-111 Avalon battledreadnought
FT-112 Valley Forge superdreadnought
FT-113 Inflexible light fleet carrier
FT-114 Ark Royal fleet commander super carrier
FT-121 Phantom heavy fighters
FT-121B Heavy fighters
FT-123 Lancer
FT-124 Tacoma heavy frigate

OCEANIC UNION (OUDF)

FT-901 Fighters
FT-905 Destroyers
FT-906 Light cruiser
FT-908 Heavy cruiser
FT-911 Light carrier
FT-921 Heavy fighters

OUTRIM COALITION (ORC)

FT-1201 Fighters
FT-1204 Frigate
FT-1205 Destroyer
FT-1206 Light cruiser
FT-1208A Type A heavy cruiser
FT-1208B Type B heavy cruiser
FT-1208C Type C heavy cruiser

FT-1210 Battleship
FT-1220 Defence outpost

RAVAGERS - RIM PIRATES

FT-X01 Attackers
FT-X02 Raiders
FT-X03 Cruiser
FT-X04 Raider Type II
FT-X05 Carrier

UNITED NATIONS SPACE COMMAND (UNSC)

FT-1101 Dauntless fighters
FT-1102 Hermes diplomatic courier
FT-1103 Warrior battle corvette
FT-1104 Hunter frigate
FT-1104A Lawkeeper patrol cutter
FT-1105 Lake destroyer
FT-1106 Mountain light cruiser
FT-1107 Bay escort cruiser
FT-1107A Bay Mk II escort cruiser
FT-1108 River heavy cruiser
FT-1109 Point battlecruiser
FT-1110 Luna battleship
FT-1111 Sea battledreadnought
FT-1112 Gaia superdreadnought
FT-1112A Sol extended range superdreadnought
FT-1113 Star light carrier
FT-1114 Constellation heavy carrier
FT-1115 Visionary deep range explorer
FT-1116 Fleet replenishment tender
FT-1117 Comet escort carrier
FT-1118 Storm fast strike cruiser
FT-1121 Defender heavy fighters

Not shown are the alien **Kra'Vak**, **Phalon**, and **Sa'Vasku** ships for FLEET BOOK 2, and the **GF Range** of miscellaneous craft and accessories.

GZG and Eureka Miniatures also offer **Fleet packs** which offer a considerable saving over the cost of buying the ships at individual prices.